

4 Body, Personal Relations, and Spatial Values

"Space" is an abstract term for a complex set of ideas. People of different cultures differ in how they divide up their world, assign values to its parts, and measure them. Ways of dividing up space vary enormously in intricacy and sophistication, as do techniques of judging size and distance. Nonetheless certain cross-cultural similarities exist, and they rest ultimately on the fact that man is the measure of all things. This is to say, if we look for fundamental principles of spatial organization we find them in two kinds of facts: the posture and structure of the human body, and the relations (whether close or distant) between human beings. Man, out of his intimate experience with his body and with other people, organizes space so that it conforms with and caters to his biological needs and social relations.

The word "body" immediately calls to mind an object rather than an animated and animating being. The body is an "it," and it is in space or takes up space. In contrast, when we use the terms "man" and "world," we do not merely think of man as an object in the world, occupying a small part of its space, but also of man as inhabiting the world, commanding and creating it. In fact the single term "world" contains and conjoins man and his environment, for its etymological root "wer" means

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man. Man and world denote complex ideas. At this point, we also need to look at simpler ideas abstracted from man and world, namely, body and space, remembering however that the one not only occupies the other but commands and orders it through intention. Body is "lived body" and space is humanly construed space.

Among mammals the human body is unique in that it easily maintains an upright position. Upright, man is ready to act. Space opens out before him and is immediately differentiable into front-back and right-left axes in conformity with the structure of his body. Vertical-horizontal, top-bottom, front-back and right-left are positions and coordinates of the body that are extrapolated onto space (Fig. 2). In deep sleep man continues to be influenced by his environment but loses his world; he is a body occupying space. Awake and upright he regains his

UPRIGHT HUMAN BODY, SPACE AND TIME

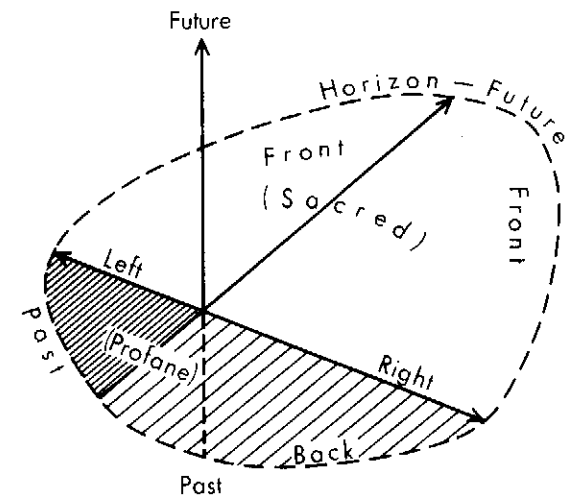


Figure 2. Upright human body, space and time. Space projected from the body is biased toward the front and right. The future is ahead and "up." The past is behind and "below."

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world, and space is articulated in accordance with his corporeal schema. What does it mean to be in command of space, to feel at home in it? It means that the objective reference points in space, such as landmarks and the cardinal positions, conform with the intention and the coordinates of the human body. Kant wrote in 1768:

Even our judgments about the cosmic regions are subordinated to the concept we have of regions in general, insofar as they are determined in relation to the sides of the body. . . . However well I know the order of the cardinal points, I can determine regions according to that order only insofar as I know towards which hand this order proceeds; and the most complete chart of the heavens, however perfectly I might carry the plan in my mind, would not teach me, from a known region, North say, on which side to look for sunrise, unless, in addition to the positions of the stars in relation to one another, this region were also determined through the position of the plan relatively to my hands. Similarly, our geographical knowledge, and even our commonest knowledge of the position of places, would be of no aid to us if we could not, by reference to the sides of our bodies, assign to regions the things so ordered and the whole system of mutually relative positions.¹

What does it mean to be lost? I follow a path into the forest, stray from the path, and all of a sudden feel completely disoriented. Space is still organized in conformity with the sides of my body. There are the regions to my front and back, to my right and left, but they are not geared to external reference points and hence are quite useless. Front and back regions suddenly feel arbitrary, since I have no better reason to go forward than to go back. Let a flickering light appear behind a distant clump of trees. I remain lost in the sense that I still do not know where I am in the forest, but space has dramatically regained its structure. The flickering light has established a goal. As I move toward that goal, front and back, right and left, have resumed their meaning: I stride forward, am glad to have left dark space behind, and make sure that I do not veer to the right or left.

The human being, by his mere presence, imposes a schema on space. Most of the time he is not aware of it. He notes its absence when he is lost. He marks its presence on those ritual

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occasions that lift life above the ordinary and so force him to an awareness of life's values, including those manifest in space. Cultures differ greatly in the elaboration of spatial schemata. In some cultures they are rudimentary; in others they can become a many-splendored frame that integrates nearly all departments of life. Yet, despite the large outward differences, the vocabularies of spatial organization and value have certain common terms. These common terms are ultimately derived from the structure and values of the human body.

Upright and prone: these positions yield two contrary worlds. When a six-month-old infant sits up, Gesell and Amatruda report, "his eyes widen, pulse strengthens, breathing quickens and he smiles." For the infant the move from the supine horizontal to the seated perpendicular is already "more than a postural triumph. It is a widening horizon, a new social orientation."² This postural triumph and the consequent widening of horizon are repeated daily throughout a person's life. Each day we defy gravity and other natural forces to create and sustain an orderly human world; at night we give in to these forces and take leave of the world we have created. The standing posture is assertive, solemn, and aloof. The prone position is submissive, signifying the acceptance of our biological condition. A person assumes his full human stature when he is upright. The word "stand" is the root for a large cluster of related words which include "status," "stature," "statute," "estate," and "institute." They all imply achievement and order.³

"High" and "low," the two poles of the vertical axis, are strongly charged words in most languages. Whatever is superior or excellent is elevated, associated with a sense of physical height. Indeed "superior" is derived from a Latin word meaning "higher." "Excel" (*celsus*) is another Latin word for "high." The Sanskrit *brahman* is derived from a term meaning "height." "Degree," in its literal sense, is a step by which one moves up and down in space. Social status is designated "high" or "low" rather than "great" or "small." God dwells in heaven. In both the Old and the New Testament God was sometimes identified with heaven. Edwyn Bevan wrote: "The

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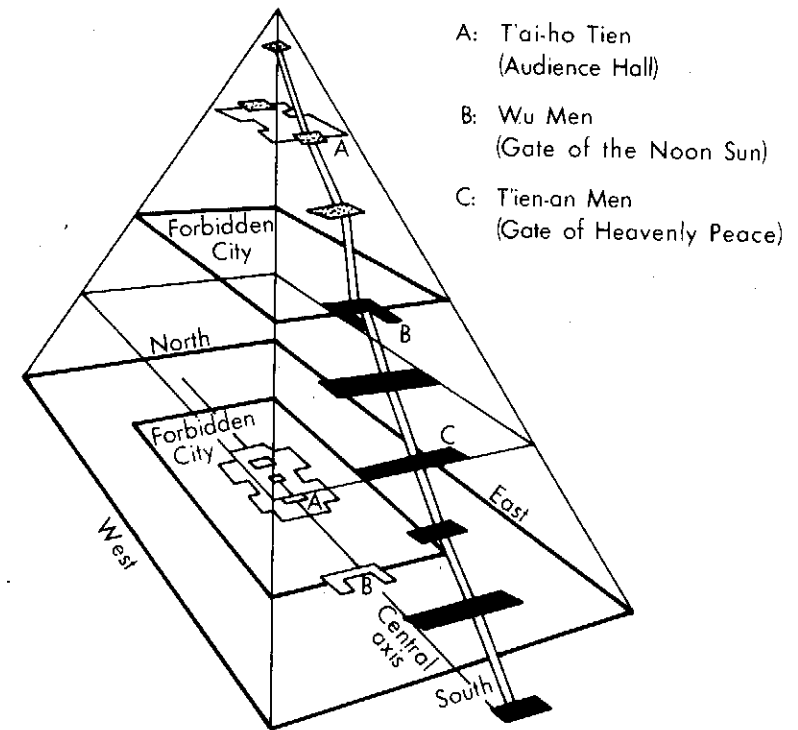
idea which regards the sky as the abode of the Supreme Being, or as identical with him, is as universal among mankind as any religious belief can be."⁴

In architecture, important buildings are put on platforms, and where the necessary technical skill exists they also tend to be the taller buildings. Of monuments this is perhaps invariably true: a tall pyramid or victory column commands greater esteem than a shorter one. Many exceptions to this rule occur in domestic architecture. The reason is clear: the symbolic advantages of the upper stories of a house can easily be outweighed by their practical problems. Before adequate piping systems were fitted into houses, water had to be carried up and wastes brought down by hand. Living in the upper stories required much work. Not only in ancient Rome but also in nineteenth-century Paris, the prestigious floor was the one above the ground-level shops. In tenements bordering the Champs-Élysées, the higher the rooms were, the poorer were the occupants: servants and poor artists occupied the garrets. In modern high-rise building, however, the handicap of vertical distance is overcome by sophisticated machinery, with the result that the prestige of elevation can reassert itself.

Residential locations show a similar hierarchy of values. As in a house the working parts lie concealed in the basement, so in a city the industrial and commercial base hugs the water's edge; and private homes rise in prestige with elevation.⁵ The rich and powerful not only own more real estate than the less privileged, they also command more visual space. Their status is made evident to outsiders by the superior location of their residence; and from their residence the rich are reassured of their position in life each time they look out the window and see the world at their feet. Again, there are exceptions. A well-known one is Rio de Janeiro, where luxury high-rise buildings seek the convenience and attraction of the beach while the huts of the indigent cling to the steep slopes of the hills.

The prestige of the center is well established. People everywhere tend to regard their own homeland as the "middle place," or the center of the world.⁶ Among some people there is also the belief, quite unsupported by geography, that they

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NORTHERN CITY OF PEKING

Figure 3. "Center" implies "elevation," and vice versa: the example of the northern city of Peking. The length of the southern avenue (central axis) should be read as height. "No matter how the natural terrain of China is formed, one always goes up to Peking" (N. Wu.). Reprinted with permission from Nelson I. Wu, *Chinese and Indian Architecture* (New York: George Braziller, 1963), Figure 136 "Plan of Peking interpreted as volume."

live at the top of the world, or that their sacred place is at the earth's summit (Fig. 3). The nomadic tribes of Mongolia, for example, once held the idea that they inhabit the top of a broad mound, the slopes of which are occupied by other races.⁷ A common belief in Rabbinical literature is that the land

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of Israel stands higher above sea level than any other land, and that the Temple hill is the highest point in Israel.⁸ Islamic tradition teaches that the most sacred sanctuary, the Kaaba, is not only the center and the navel of the world but also its highest point. Kaaba's spatial position corresponds to the polar star: "no place on earth is closer to heaven than Mecca."⁹ This is why prayers said in its sanctuary are more clearly heard. When the explicit religious symbolism of center and height is weak, the physical elevation of the land nevertheless retains a certain prestige. Modern nations like to think that a high peak, if not the world's highest, lies within their borders. Lack of accurate measurement allows the imagination, fueled by patriotic fervor, to run wild. Even in the eighteenth century, educated Britons could consider Ben Nevis to be one of the loftiest mountains on earth.¹⁰ India, Nepal, and China would no doubt each like to claim Mount Everest for its own.

In addition to the vertical-horizontal and high-low polarities, the shape and posture of the human body define its ambient space as front-back and right-left. Frontal space is primarily visual. It is vivid and much larger than the rear space that we can experience only through nonvisual cues. Frontal space is "illuminated" because it can be seen; back space is "dark," even when the sun shines, simply because it cannot be seen. The belief that eyes project light rays goes back at least to Plato (*Timaeus*) and persists to the Middle Ages and beyond. Another common feeling is that one's shadow falls behind the body even though in actual fact it often stretches to the front. On a temporal plane, frontal space is perceived as future, rear space as past. The front signifies dignity. The human face commands respect, even awe. Lesser beings approach the great with their eyes lowered, avoiding the awesome visage. The rear is profane (Fig. 2). Lesser beings hover behind (and in the shadow of) their superiors. In traditional China the ruler stands facing south and receives the full rays of the noon sun; he thus assimilates the male and luminous principle of *yang*. It follows from this that the front of the body is also *yang*. Inversely, the back of the ruler and the area behind him are *yin*, feminine, dark, and profane.¹¹

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Every person is at the center of his world, and circumambient space is differentiated in accordance with the schema of his body. As he moves and turns, so do the regions front-back and right-left around him. But objective space also takes on these somatic values. Rooms at one end of the scale and cities at the other often show front and back sides. In large and stratified societies spatial hierarchies can be vividly articulated by architectural means such as plan, design, and type of decoration.

Consider some of the ways that front and back areas are distinguished in the Western world. Rooms are asymmetrically furnished: their geometrical center is not usually the focal point of interior space. For example, the focal point of the parlor may be the hearth, which is located at one end of the room. A typical lecture hall is sharply divided into front and back by the position of the lectern and the placement of chairs. Relation to other rooms rather than how furniture within a room is arranged may impart a bias to interior space: thus a bedroom has a front and back despite the symmetrical disposition of furniture, windows, and doors simply because one door opens out to the sitting room and another closes on the bathroom. Many buildings have clearly demarcated front and back regions. People may work in the same building and yet experience different worlds because their unequal status propels them into different circulatory routes and work areas. Maintenance men and janitors enter through service doors at the back and move along the "guts" of the building, while executives and their secretaries enter by the front door and move through the spacious lobby and well-lit passageways to their brightly furnished offices.¹² A middle-class residence typically presents an attractive front to impress and welcome social adults, and an unprepossessing rear for the use of people of low status such as delivery men and children.

Do cities have front and back regions? In the traditional Chinese city, front and back were clearly distinguished: there can be no mistaking the front and south, with its broad ceremonial avenue, for the back and north, which was reserved (at least in planning theory) for profane commercial use.¹³ In the Near East and Europe, the distinctions were less systematically

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expressed in urban design. However, ancient walled cities boasted processional routes for use in royal and triumphal occasions; these routes probably had imposing front entrances. In the late Middle Ages and during the Renaissance, urban centers of political and ecclesiastical importance constructed magnificent front portals over walls that no longer served any military purpose. The monumentality of the portal symbolized the power of the ruler. It also functioned as an ideogram for the entire city, presenting a front that was meant to impress visitors and foreign potentates.¹⁴

The modern economic city has no planned front and back; it boasts no processional route or ceremonial gate, and its boundary is often arbitrary, marked by an inconspicuous signpost giving, as in the United States, the name and population of the borough. Yet the sense of "front" and "back" is not entirely absent. The width and appearance of the highway (landscaped or lined with giant posters) tell the motorist that he is entering the city by the front door.

If a modern city gives the impression of having a front and a back, that impression is as much the result of the direction and volume of traffic flow as of architectural symbols. On a still broader canvas, note how the historical movement of a people can give a sense of spatial asymmetry to a whole region or nation. St. Louis is the preeminent gateway to the West. The city has erected a soaring arch to dramatize its role as the front entrance to the Great Plains and beyond. Most people in the United States probably regard the northeastern seaboard as the nation's front. The nation's history is perceived to begin there. New York, in particular, has come to mean the front portal. Among the city's numerous nicknames, one is the Front Office of American Business. But more important than size and business power, New York owes its gateway image to the fact that through it so many immigrants entered the land of promise.

People do not mistake prone for upright, nor front for back, but the right and left sides of the body as well as the spaces extrapolated from them are easily confused. In our experience as mobile animals, front and back are primary, right and left are secondary. To move effectively we first rise and then go for-

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ward. The forward motion is periodically interrupted by the need to turn to the right or left. Suppose I am walking down the road and after a while make a turn to the right. An observer may say that I am now going to the right. But I do not feel that my direction is to the right in any absolute sense. I have made a turn to the right, but I continue to go forward to my goal. Right and left are distinctions I have to recognize. They are means, however, to my end which always lies in front.

The right and left sides of the human body are much alike in appearance and function. Some asymmetries exist: for example, the whorl of hair on the head turns to the right; the heart is slightly displaced to the body's left side; the two cerebral hemispheres are not equally well developed and have somewhat different functions; most people are right-handed, and when they move they show a tendency to veer to the right, perhaps as a result of a slight imbalance in vestibular control. Such small biological asymmetries do not seem adequate to explain the sharp distinctions in value attributed to the two sides of the body and to the spaces, social and cosmological, that extend from the body.

In nearly all the cultures for which information is available, the right side is regarded as far superior to the left. Evidence for the bias is particularly rich in Europe, the Middle East and Africa, but the bias is also well documented for India and Southeast Asia.¹⁵ In essence, the right is perceived to signify sacred power, the principle of all effective activity, and the source of everything that is good and legitimate. The left is its antithesis; it signifies the profane, the impure, the ambivalent and the feeble, which is maleficent and to be dreaded. In social space the right side of the host is the place of honor. In cosmological space "the right represents what is high, the upper-world, the sky; while the left is connected with the underworld and the earth."¹⁶ Christ, in pictures of the Last Judgment, has his right hand raised toward the bright region of Heaven, and his left hand pointing downward to dark Hell. A similar idea of the cosmos appears among the simple Toradja people of central Celebes. The right side is that of the living, a world of daylight; the left side is the dark underworld of the dead.¹⁷ On

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a geographical plane, the ancient Arabs equated the left with the north and Syria. The word *šimāl* indicates both north and the left side. The Arabic word for Syria is Sam; its root meanings are "misfortune" or "ill augury" and "left." A related verb, *sa'ma*, means both to bring bad luck and to turn left. In contrast, the south and right side of the Arabic hearth is laden with blessings. The south is the flourishing land of Yemen, and its root *ymn* implies ideas of happiness and "right."¹⁸ In west Africa the Temne regard east as the primary orientation. North is therefore to the left and considered dark; south, to the right, is light. To the Temne, thunder and lightning are prepared in the north, whereas "good breezes" come from the south.¹⁹

The Chinese view has special interest because it appears to be a striking exception to the rule. Like most people the Chinese are right-handed, but the honorable side for them is the left. In the great bipartite classification *yin* and *yang*, the left side is yang and belongs to the male, the right side is yin and belongs to the female. The basic reason is that the Chinese social and cosmological space centers on the ruler who mediates between heaven and earth. The ruler faces south and the sun. His left side is therefore east, the place of rising sun, and male (yang); his right side is west, the place of setting sun, and female (yin).²⁰

Man is the measure. In a literal sense, the human body is the measure of direction, location, and distance. The ancient Egyptian word for "face" is the same as that for "south," and the word for "back of the head" carries the meaning of "north."²¹ Many African and South Sea languages take their spatial prepositions directly from terms for parts of the body, such as "back" for "behind," "eye" for "in front of," "neck" for "above," and "stomach" for "within."²² In the west African language, Ewe, the word for "head" stands for "peak" and the general spatial specifications of "over" and "above."²³ The principle of using nouns as prepositions expressing spatial relations can be extended beyond the body: for example, instead of "back," a word like "track" may be used to indicate "behind;" "under" may be designated by "ground" or "earth," and "over" by "air."²⁴

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Spatial prepositions are necessarily anthropocentric, whether they are nouns derived from parts of the human body or not. As Merleau-Ponty put it: "When I say that an object is *on* a table, I always mentally put myself either in the table or in the object, and I apply to them a category which theoretically fits the relationship of my body to external objects. Stripped of this anthropological association, the word *on* is indistinguishable from the word *under* or the word *beside*."²⁵ Where is the book? It is on the desk. The answer is appropriate because it immediately helps us to locate the book by directing our attention to the large desk. It is hard to imagine a real-life circumstance in which the answer "the desk is *under* the book" is appropriate. We say an object is on, in, above, or under another object in reply to practical and even pressing concerns. Statements of location, therefore, normally give far more than simple locational facts. "I have locked my keys inside the car" tells where the keys are but it is also an anguished cry. "I am in my office" could mean, depending on the context, either "come in and see me," or "do not disturb." Only in the madhouse are statements like these purely locational; in the madhouse "the book is on the desk" and "the desk is under the book" are equivalent and interchangeable parts of speech.²⁶

Folk measures of length are derived from parts of the body. Widely used are the breadth or length of finger or thumb; the span either from thumb to the tip of the little finger or to the tip of the forefinger; from the top of the middle finger to elbow (cubit), or over outstretched arms from finger tip to finger tip (fathom). Man-made objects in common use serve as ready measures of length, for example, the rod used to prod oxen, a spear, and customary segments of cord or chain. Estimates of longer distances draw on the experience and idea of effort. Thus the yard is a stride, the mile is one thousand paces, and the furlong (furrow long) is the stretch that the plow team can conveniently pull. Spear cast or bow shot gives rough units of distance, and even in the modern world we speak of "within a stone's throw," and "within shouting distance." Measures of capacity "include the hollow of the hand, the handful or arm-

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ful, the load of a man, beast, wagon or boat; the content of an egg, gourd, or other natural object; or of some manufactured object in common use, like a basket."²⁷ Measures of area are expressed in such units as an ox-hide, a mat, or cloak; the field that a yoke of oxen can plow in a day; and the land that can be sown with a given amount of seed.²⁸

The human body and its subdivisions do not seem to provide common units for the estimation of area, as they do for the estimation of length and volume or capacity. Area is probably a more abstract concept than length or volume. Even in the simplest societies people must need to judge length and distance. "Capacity" is just as basic. The human body itself is a container. We know how it feels to be "full" or "empty." We experience directly the amount of food or water in our cupped hands or in our mouth. Adjectives for size, such as "big" and "small," apply primarily to volume and secondarily to area. The word "big" is in fact derived from Latin for "puffed cheek." Although in elementary geometry lessons we learn about area before we learn about volume, in common experience area is a sophisticated idea abstracted from the more primitive sense of capacity.

"Distance" connotes degrees of accessibility and also of concern. Human beings are interested in other people and in objects of importance to their livelihood. They want to know whether the significant others are far or near with respect to themselves and to each other. When a significant object is designated by a word or described in a phrase, the word or phrase suggests certain qualities in the object: "a fierce dog," "a broken spear," "a sick man." When we use these expressions, location and distance are implied although not explicitly given. "A fierce dog" is a dog too close to me for comfort, or tied to a post so that I am beyond its reach; "a broken spear" is the spear at hand but broken and hence useless. In Melanesian and in certain American Indian languages location and distance with respect to place or person are a necessary part of the description of objects. Codrington noted among Melanesians and Polynesians alike the habit of continually introducing adverbs of place and of direction such as up and down, hither

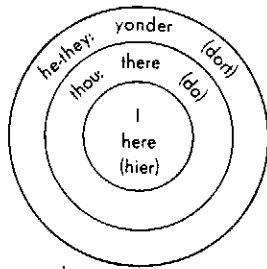
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and hence, seaward and landward. "Everything and everybody spoken of are viewed as coming or going, or in some relation to place, in a way which to the European is by no means accustomed or natural."²⁹ Of Kwakiutl, a Pacific coast Indian language, Boas wrote: "The rigidity with which location in relation to the speaker is expressed, both in nouns and in verbs, is one of the fundamental features of the language."³⁰ Various American Indian languages can express a thought such as "the man is sick" only by stating at the same time whether the subject of the statement is at a greater or lesser distance from the speaker or the listener and whether he is visible or invisible to them.³¹

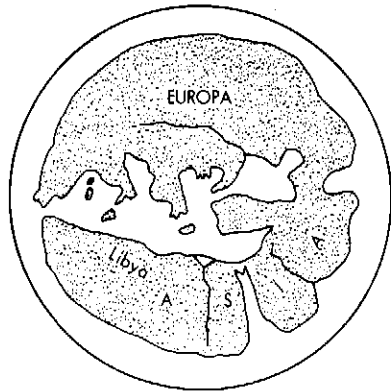
Distance is distance from self (Fig. 4). In many languages, spatial demonstratives and personal pronouns are closely related so that it is difficult to say which class of words is earlier or later, which original or derivative. Words in both classes are half-mimetic, half-linguistic acts of indication. Personal pronouns, demonstrative pronouns, and adverbs of location closely implicate one another.³² *I* am always *here*, and what is here I call *this*. In contrast with the here where I am, *you* are *there* and *he* is *yonder*. What is there or yonder I call *that*. "This" and "that" here perform the function of the German triple distinction "dies," "das," and "jenes." In non-European languages, a finely shaded range of demonstrative pronouns may be used to signify relative distances from self. Thus in Tlingit, an American Indian language, *he* indicates an object that is very near and always present; *ya* indicates an object very near and present, but a little farther off; *yu* indicates something so remote that it can be used as an impersonal article; *we* indicates a thing of far remoteness and is usually invisible.³³ The Chukchi in northeastern Siberia have as many as nine terms to express the position of an object in relation to the speaker.³⁴

In English the demonstratives "this" and "that" are only a pair and so lack locational range; perhaps as a result their meanings become polarized and can carry high emotional charge. "We talked of this and that, but—alas—mostly that." The word "that" clearly suggests conversational topics both remote and trivial.³⁵ In *Richard II*, Shakespeare succeeds in

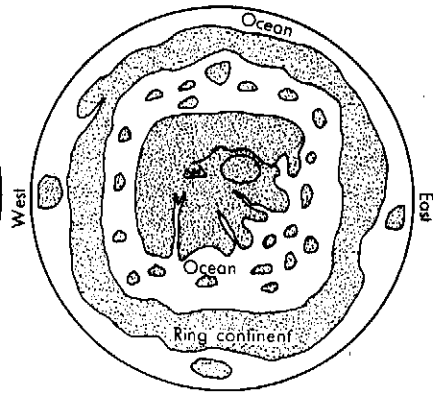
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A. Personal pronouns and spatial demonstratives



B. The world of Hecateus (fl. 520 B.C.)

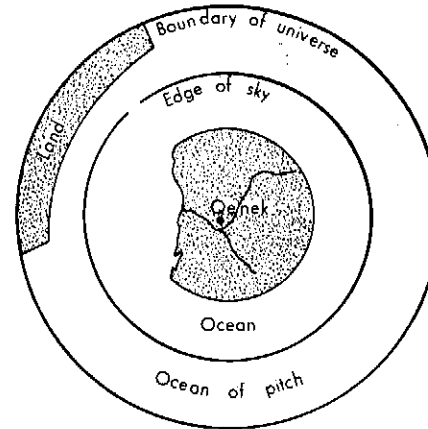


C. Religious cosmography in East Asia

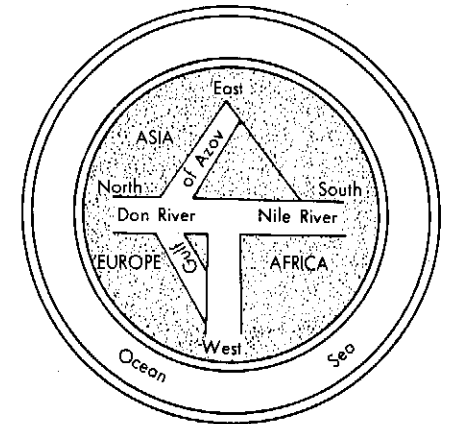
- Huang Ho
- Chung yuan (central plain of China)
- Mt. Kun-lun (equivalent of Mt. Meru)

Figure 4. Egocentric (A) and ethnocentric (B-G) organizations of space from ancient to modern times, in literate and nonliterate societies. Figure 4C is reprinted with permission from Torsten Hägerstrand, "Migration and area: survey of a sample of Swedish migration fields and hypothetical considerations on their genesis," *Lund Studies in Geography, Series B, Human Geography*, vol. 13, 1957, page 54.

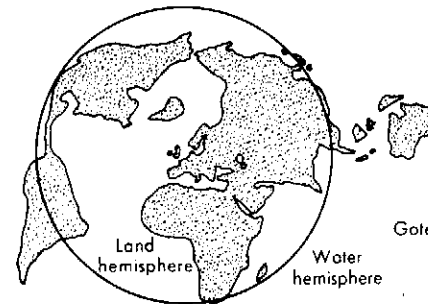
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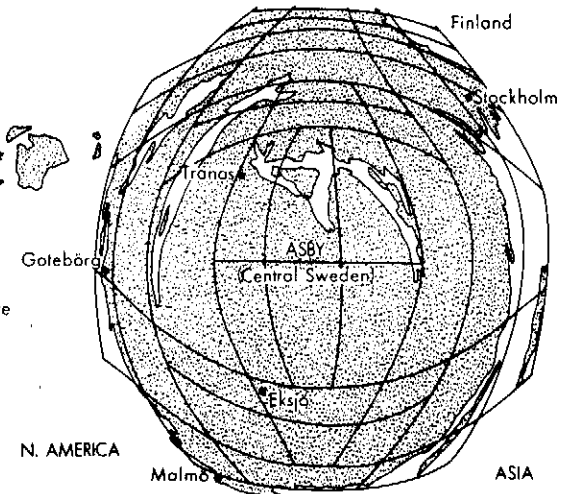
D. Yurok (California Indian) idea of the world



E. T-O map, after Isidore, Bishop of Seville (570-636 A.D.)



F. Land and water hemispheres centered on northern France



G. Map with azimuthal logarithmic distance scale, centered on central Sweden

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evoking a sense of patriotic fervor partly through the insistent use of "this," which is identified with "we the English." "This happy breed of men, this little world, this precious stone. . . ."

A distinction that all people recognize is between "us" and "them." We are *here*; we are *this* happy breed of men. They are *there*; they are not fully human and they live in *that* place. Members within the we-group are close to each other, and they are distant from members of the outside (they) group. Here we see how the meanings of "close" and "distant" are a compound of degrees of interpersonal intimacy and geographical distance. It may not be possible to decide which sense is primary and which derivative.³⁶ "We are close friends" means we are intimate with each other, we see each other often and live in the same neighborhood. Being close combines the two meanings of intimacy and geographical proximity. As the friend moves farther and farther away geographically, emotional warmth also declines: "out of sight, out of mind." Of course, there are numerous exceptions. Social distance may be the inverse of geographical distance. The valet lives close to his master but they are not close friends. Psychologically, absence (spatial distance) can make the heart grow fonder. Such exceptions do not disprove the rule.

We have indicated that certain spatial divisions and values owe their existence and meaning to the human body, and also that distance—a spatial term—is closely tied to terms expressive of interpersonal relationships. This theme is easily expanded. We may ask, for instance, how space and the experience of spaciousness are related to the human sense of competence and of freedom. If space is a symbol for openness and freedom, how will the presence of other people affect it? What concrete experiences enable us to assign distinctive meanings to space and spaciousness, to population density and crowding?

5

Spaciousness and Crowding

Space and spaciousness are closely related terms, as are population density and crowding; but ample space is not always experienced as spaciousness, and high density does not necessarily mean crowding. Spaciousness and crowding are antithetical feelings. The point at which one feeling turns into another depends on conditions that are hard to generalize. To understand how space and human number, spaciousness and crowding are related, we need to explore their meaning under specific conditions.¹

Consider space. As a geometrical unit (area or volume), it is a measurable and unambiguous quantity. More loosely speaking, space means room; the German word for space is *raum*. Is there room for another crate of furniture in the warehouse? Is there room for another house on the estate? Does the college have room for more students? Although these questions have a similar grammatical form and all use the word "room" appropriately, the meaning of "room" differs in each case. The first question asks whether more objects can be put in, and the answer calls for simple and objective measurement. The second and third questions show that room can mean more than physical space; it suggests spaciousness. The question is not whether a house can be fitted physically into an estate, but

- (The Hague: Mouton, 1968); quoted in Howard Gardner, *The Quest for Mind* (New York: Vintage Books, 1974), pp. 198–199.
17. Arnold Gesell, F. L. Ilg, and C. E. Bullie, *Vision: Its Development in Infant and Child* (New York: Paul B. Hoeber, 1950), pp. 102, 113, 116.
 18. L. B. Ames and J. Learned, "The development of verbalized space in the young child," *Journal of Genetic Psychology*, vol. 72, 1948, pp. 63–84.
 19. Piaget and Inhelder, *The Child's Concept of Space*, p. 68, pp. 155–160, p. 20.
 20. D. R. Olson, *Cognitive Development: The Child's Acquisition of Diagonality* (New York: Academic Press, 1970).
 21. Jean Piaget, *The Child and Reality* (New York: Viking Compass Edition, 1974), p. 19, 86. See also Roger A. Hart and Gary T. Moore, "The development of spatial cognition: a review," in Roger M. Downs and David Stea, eds., *Image and Environment* (Chicago: Aldine, 1973), pp. 246–288.
 22. Piaget and Inhelder, *The Child's Concept of Space*, pp. 379, 389.
 23. *Ibid.*, p. 49.
 24. J. M. Blaut and David Stea, "Studies of geographic learning," *Annals, Association of American Geographers*, vol. 61, no. 2, 1971, pp. 387–393, and David Stea and J. M. Blaut, "Some preliminary observations on spatial learning in school children," in Downs and Stea, *Image and Environment*, pp. 226–234.
 25. Susan Isaacs, *Intellectual Growth in Young Children* (New York: Harcourt and Brace, 1930), p. 37.
 26. Ruth M. Beard, *An Outline of Piaget's Developmental Psychology* (New York: Mentor Book, 1972), pp. 109–110.
 27. Gesell et al., *Vision*, p. 126.
 28. John Holt writes: "The courage of little children (and not them alone) rises and falls, like the tide—only the cycles are in minutes, or even seconds. We can see this vividly when we watch infants of two or so, walking with their mothers, or playing in a playground or park. Not long ago I saw this scene in the Public Garden in Boston. The mothers were chatting on a bench while the children roamed around. For a while they would explore boldly and freely, ignoring their mothers. Then, after a while, they would use up their store of courage and confidence, and run back to their mothers' sides, and cling there for a while, as if to recharge their batteries. After a moment or two of this they were ready for more exploring, and so they went, out, then came back, and then ventured out again." In *How Children Learn* (New York: Dell Publishing Co., 1970), p. 101.
 29. Gesell et al., *Vision*, p. 121.
 30. Ames and Learned, "The development of verbalized space," pp. 72, 75.
 31. F. J. Estvan and E. W. Estvan, *The Child's World: His Social Perception* (New York: G. P. Putnam's, 1959), pp. 21–76.
 32. Jean Piaget, *The Child's Conception of the World* (Totowa, New Jersey: Littlefield, Adams, 1969), pp. 352–354.
 33. Susan Isaacs, "Property and possessiveness," in Toby Talbot, ed., *The World of the Child* (Garden City, New York: Anchor Books, 1968), pp. 255–265.
 34. Robert Coles, *Migrants, Sharecroppers, Mountaineers* (Boston: Atlantic-Little, Brown, 1972), p. 67.
 35. S. Honkavaara, *The Psychology of Expression*, British Journal of Psychology Monograph Supplements, no. 32, 1961, pp. 41–42, p. 45; Howard

Gardner and Ellen Winner, "How children learn: three stages of understanding art," *Psychology Today*, vol. 9, no. 10, 1976, pp. 42–45, p. 74.

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Body, Personal Relations, and Spatial Values

1. Immanuel Kant, "On the first ground of the distinction of regions in space," in *Kant's Inaugural Dissertation and Early Writings on Space*, trans. John Handyside (Chicago: Open Court, 1929), pp. 22–23. See also J. A. May, *Kant's Concept of Geography and Its Relation to Recent Geographical Thought*, University of Toronto Department of Geography Research Publication no. 4 (University of Toronto Press, 1970), pp. 70–72.
2. Arnold Gesell and Catharine S. Amatruda, *Developmental Diagnosis* (New York: Harper & Row, 1947), p. 42.
3. E. W. Straus, *Phenomenological Psychology* (New York: Basic Books, 1966), p. 143.
4. E. R. Bevan, *Symbolism and Belief* (London: George Allen and Unwin, 1938), p. 48.
5. Michael Young and Peter Willmott, *The Symmetrical Family* (New York: Pantheon Books, 1973), pp. 44–45.
6. René Guénon, "L'Idée du centre dans la tradition antique," in *Symboles fondamentaux de la science sacrée* (Paris: Gallimard, 1962), pp. 83–93; Paul Wheatley, "The symbolism of the center," in *The Pivot of the Four Quarters* (Chicago: Aldine, 1971), pp. 428–436.
7. Uno Holmberg, "Siberian mythology," in J. A. MacCulloch, ed., *Mythology of All the Races* (Boston: Marshall Jones, 1927), vol. 4, p. 309.
8. Bevan, *Symbolism and Belief*, p. 66.
9. A. J. Wensinck, "Ka'ba" in *The Encyclopaedia of Islam* (Leiden: Brill, 1927), vol. 2, p. 590.
10. John Wesley, *A Survey of the Wisdom of God in the Creation* (London: 1809), vol. 3, p. 11.
11. Marcel Granet, "Right and left in China," in R. Needham, ed., *Right & Left: Essays on Dual Symbolic Classification* (Chicago: University of Chicago Press, 1973), p. 49.
12. Ervin Goffman, *The Presentation of Self in Everyday Life* (Garden City, N.Y.: Doubleday Anchor, 1959), p. 123.
13. A. F. Wright, "Symbolism and function: reflections on Changan and other great cities," *Journal of Asian Studies*, vol. 24, 1965, p. 671.
14. D. C. Munro and G. C. Sellery, *Medieval Civilizations: Selected Studies from European Authors* (New York: The Century Co., 1910), pp. 358–361. With regard to Asian traditions, Paul Wheatley wrote: "The city gates, where power generated at the *axis mundi* flowed out from the confines of the ceremonial complex towards the cardinal points of the compass, possessed a heightened symbolic significance which, in virtually all Asian urban traditions, was expressed in massive constructions whose size far exceeded that necessary for the performance of their mundane functions of granting access and affording defense." "The symbolism of the center," p. 435.
15. Documented in Needham, ed., *Right & Left*.

16. Robert Hertz, *Death and the Right-Hand* (Glencoe, Illinois: Free Press, 1960), pp. 100-101.
17. A. C. Kruyt, "Right and left in central Celebes," in Needham, ed., *Right & Left*, pp. 74-75.
18. J. Chelod, "Pre-eminence of the right, based upon Arabic evidence," in Needham, ed., *Right & Left*, pp. 246-247.
19. James Littlejohn, "Temne right and left: an essay on the choreography of everyday life," in Needham, ed., *Right & Left*, p. 291.
20. Granet, "Right and left in China," pp. 43-58.
21. Henri Frankfort, H. A. Frankfort, John A. Wilson, and Thorkild Jacobsen, *Before Philosophy* (Baltimore: Penguin, 1951), pp. 45-46.
22. Carl H. Hamburg, *Symbol and Reality* (The Hague: Martinus Nijhoff, 1970), p. 98.
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26. Jean-Paul Sartre, "The body," in Stuart F. Spicker, ed., *The Philosophy of the Body* (Chicago: Quadrangle Books, 1970), p. 227.
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30. Franz Boas, "Kwakiutl," in Franz Boas, ed., *Handbook of American Indian Languages* (Smithsonian Institution, Washington, D.C.: Government Printing Office, 1911), Bulletin 40, part 1, p. 445.
31. *Ibid.*, p. 446.
32. Cassirer, *The Philosophy of Symbolic Forms*, p. 213.
33. John R. Swanton, "Tlingit," in Boas, ed., *Handbook of American Indian Languages*, p. 172.
34. Waldemar Bogoras, "Chukchee," in F. Boas, ed., *Handbook of American Indian Languages* (Smithsonian Institution, Washington, D.C.: Government Printing Office, 1922), Bulletin 40, part 2, p. 723.
35. "I asked [Bertrand Russell—95 years old] how one of his grandchildren was getting on. He didn't at first hear; and Edith said 'Oh she's been doing this and that.' Bertie caught this and said ruefully, 'Mostly that!' We speculated as to why, in such verbal pairs, the second is always worse than the first." Rupert Craw-hay-Williams, *Russell Remembered* (London: Oxford University Press, 1970), p. 152.
36. Stephen A. Erickson, "Language and meaning," in James M. Edie, ed., *New Essays in Phenomenology* (Chicago: Quadrangle Books, 1969), pp. 45-46.

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Spaciousness and Crowding

1. Recent literature on social space and the human psychology of crowding has moved away from naïve inferences based on observations of animal behavior under laboratory conditions. See Irwin Altman, *The Environment and Social Behavior* (Monterey, California: Brooks, Cole Co., 1975); the special issue on "Crowding in real environments," Susan Saegert, ed., in *Environment and Behavior*, vol. 7, no. 2, 1975; Aristide H. Esser, "Experiences of crowding," *Representative Research in Social Psychology*, vol. 4, 1973, pp. 207-218; Charles S. Fischer, Mark Baldassare, and Richard J. Ofshe, "Crowding studies and urban life: a critical review," *Journal of American Institute of Planners*, vol. 43, no. 6, 1975, pp. 406-418; Gunter Gad, "'Crowding' and 'pathologies': some critical remarks," *The Canadian Geographer*, vol. 17, no. 4, 1973, pp. 373-390.
2. Studs Terkel, *Working* (New York: Pantheon, 1974), pp. 385-386.
3. Antoine de Saint-Exupéry, *Wind, Sand, and Stars* (Harmondsworth: Penguin Books, 1966), p. 24.
4. For an extensive analysis of landscape and landscape painting into the categories of "prospect" (space) and "refuge" (place) see Jay Appleton, *The Experience of Landscape* (London: John Wiley, 1975); Edoardo Weiss, *Agoraphobia in the Light of Ego Psychology* (New York: Grune & Stratton, 1964), p. 52, 65. Psychiatrists no longer distinguish sharply between the person who fears open spaces and the person who fears tight small spaces. "The agoraphobic is also likely to be claustrophobic, be afraid of fainting, dying or going mad or losing control." Isaac M. Marks, *Fears and Phobias* (New York: Academic Press, 1969), p. 120.
5. Raymond Firth, *We, the Tikopia* (London: George Allen & Unwin, 1957), p. 19.
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8. Martin Heidegger, "Art and space," *Man and World*, vol. 6, no. 1, 1973, pp. 3-8.
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12. Aristide H. Esser, *Behavior and Environment: The Use of Space by Animals and Men* (New York: Plenum Press, 1971), p. 8.
13. Mary McCarthy, *The Writing on the Wall* (New York: Harcourt, Brace & World, 1970), p. 203.
14. Jules Henry, *Jungle People: A Kaingang Tribe of the Highlands of Brazil* (New York: J. J. Augustin, 1941), pp. 18-19.
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