



A · M · E · R · I · C · A · N
A N T H R O P O L O G I C A L
A S S O C I A T I O N

WILEY

A System for the Notation of Proxemic Behavior

Author(s): Edward T. Hall

Source: *American Anthropologist*, New Series, Vol. 65, No. 5, Selected Papers in Method and Technique (Oct., 1963), pp. 1003-1026

Published by: Wiley on behalf of the American Anthropological Association

Stable URL: <https://www.jstor.org/stable/668580>

Accessed: 01-06-2020 09:10 UTC

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



JSTOR

American Anthropological Association, Wiley are collaborating with JSTOR to digitize, preserve and extend access to *American Anthropologist*

*A System for the Notation of Proxemic Behavior*¹

EDWARD T. HALL

Illinois Institute of Technology

INTRODUCTION

THIS is one of a series of papers on Proxemics,² the study of how man unconsciously structures microspace—the distance between men in the conduct of daily transactions, the organization of space in his houses and buildings, and ultimately the layout of his towns.

The aim of this paper is to present a simple system of observation and notation with a view to standardizing the reporting of a narrow range of micro-cultural events. The system is far from perfect; but if it directs attention to certain behavior, it will have achieved its purpose. However, before proceeding to the descriptive portion of this paper, certain theoretical matters have to be dealt with.

The writer began systematic observations in a proxemic frame of reference when it became apparent that people from different cultures interacting with each other could not be counted on to attach identical meanings to the same or similar measured distances between them (Hall 1955, 1959, 1963, 1964). What was close to an American might be distant to an Arab.

Without a systematic observational and recording technique for such encounters, pinpointing interferences³ is a slow, somewhat uncertain procedure requiring highly developed observational skills. Not all observers are equally skilled.

Levels of Awareness

Any culture characteristically produces a simultaneous array of patterned behavior on several different levels of awareness. It is therefore important to specify which levels of awareness one is describing.

Unlike much of the traditional subject matter of anthropological observation, proxemic patterns, once learned, are maintained largely out of conscious awareness and thus have to be investigated without resort to probing the conscious minds of one's subjects. Direct questioning will yield few if any of the significant variables, as it will with kinship and house type, for example. In proxemics one is dealing with phenomena akin to tone of voice, or even stress and pitch in the English language. Being built into the language, these are hard for the speaker to consciously manipulate.

Values of Proxemic Study

Indeed, the very absence of conscious distortion is one of the principal reasons for investigating behavior on this level,⁴ for any step taken to eliminate a subject's conscious manipulation of the facade⁵ presented to the world is desirable.⁶ Boas (1911) stressed this same point as the principal reason for inte-

grating linguistics and ethnological research. There are, however, other reasons for studying proxemic behavior. Why is it, for example, that an American⁷ who is approached too closely by a foreigner will feel annoyed? Why is it that the discomfort often fails to pass when he gets to know the culture better, in spite of conscious striving to suppress these feelings? Why do these interferences commonly last a lifetime, and why do people take this sort of interference so personally? Why is there so little they apparently can do to relieve their feelings? One subject (an anthropological colleague), after 12 years of working with the French, still couldn't stand being approached as closely as Frenchmen normally do in conversation and used to barricade himself behind his desk, because he felt the French were still getting too familiar.

Considering the architect's persisting preoccupation with space, why is it that 2400 years since the building of the Parthenon Western man still lacks a method for noting and describing the experience of space?⁸ Some of the answers to these paradoxes can be derived from the art and literature of our own culture.⁹

Acute observers from other fields—often neglected or ignored—also provide the anthropologist with helpful cues.

Significant Work in Related Fields

Hediger (1955), the Swiss ethologist, pioneered in the systematic observation of distance in vertebrates. He distinguishes between contact and non-contact species and was the first to describe personal and social distance in animals. His work continues to be of interest to anthropologists (Hediger 1961).

Dorner (1958) gives structure to the artist's continuous quest—from the neolithic to the present—to discover new and more satisfying means for portraying spatial relationships. From him we get a new slant on how man has organized and re-organized his actual perceptions.

Lynch (1960), after interviewing inhabitants of three major U. S. cities (Boston, Jersey City and Los Angeles), identified five elements intrinsic to the image of the city: paths, districts, edges, landmarks and nodes. These represented the subjects' own categories.

Grosser (1951), addressing himself solely to intimate, personal, and social distance, describes how and why portraits in the Western world are painted at certain specific distances. The distance employed by an artist when he paints a human subject is designed to communicate specific features of the personality and at the same time screen out all other features. Grosser pins his observations down to feet and inches.

Among the psychologists, the transactional group (Kilpatrick 1961) has made particular progress in isolating the principal means by which people judge the relationship and distances of objects, and in so doing has provided insight into how man unconsciously participates in the molding of his own perceptions. Gibson (1950) goes a long way in explaining how the total visual process stabilizes and synthesizes the ever-changing mosaic of images cast on the retina, converting them into a solid visual world.¹⁰

Barker and Wright (1954) have contributed significantly to the study of human ecology through their identifications of what they term standing behavior settings and objects (frames) for analyzing and describing the behavior of a community. These frames can be further analyzed in terms of constituent parts and categories that are subsumed under each heading. Barker and Barker (1961) discovered that attempts to impose categories of "behavior settings" on their English subjects were much less productive than deriving the categories from the subject's own preferences, and also that once established, these behavior setting categories tended to be self-perpetuating.

The combined insights of these writers—plus many more who could be cited—still leave several questions unanswered. By what means other than visual do people make spatial distinctions? How do they maintain such uniform distances from each other? And how do they teach these distances to the young?

METHODOLOGICAL CONSIDERATIONS

Foreign students studying in the United States comprised one group of our proxemic research subjects.

An unanticipated consequence of these interviews was added insight into what Goffman (1957) terms "the stuff of encounters" which was highlighted whenever there was interference between two patterns, or a perceived absence of patterning, during an encounter. These subjects reported suffering repeated alienations in encounters with Americans. There are many forms of alienation, but a frequent variety found was that which has been termed *lack of involvement*. Misinterpretation of American responses was traced to differences in the definition of what constituted proper listening behavior, some of which centered on use of the eyes. Further investigation revealed that there was also a virtual absence of skill in reading the minor cues as to what was going on behind the American facade (Goffman 1957).

In a broader context involving older subjects, Arabs complained of experiencing alienation particularly when interacting with that segment of the U. S. population which can be classed as non-contact (predominantly of North European origin, where touching strangers and casual acquaintances is circumscribed with numerous proscriptions). When approached too closely, Americans removed themselves to a position which turned out to be outside the olfactory zone (to be inside was much too intimate for the Americans). Arabs also experienced alienation traceable to a "suspiciously" low level of the voice, the directing of the breath away from the face, and a much reduced visual contact. Two common forms of alienation reported by American subjects were *self-consciousness at the cost of involvement* and *other-consciousness*. Americans were not only aware of uncomfortable feelings, but the intensity and the intimacy of the encounter with Arabs was likely to be anxiety provoking. The Arab look, touch, voice level, the warm moisture of his breath, the penetrating stare of his eyes, all proved to be disturbing. The reason for these feelings lay in part in the fact that the relationship *was not defined as intimate*, and the behavior was such that

in the American culture is only permissible on a non-public basis with a person of the opposite sex.

In a different cultural setting, a Chinese experienced alienation during an interview when he was faced directly and seated on the opposite side of a desk, for this was defined as *being on trial*.

Research in proxemics has been restricted to culturally-specific behavior and it does not encompass other environmental or personality variables, such as noise level, temperature, and personality variables, all of which are important.¹¹ There are, nevertheless, a number of conceptual tools the anthropologist has at his disposal.

For example, the anthropologist knows that in spite of their *apparent* complexity, cultural systems are so organized that their content can be learned and controlled by all *normal* members of the group. Anything that can be learned has structure and can ultimately be analyzed and described. The anthropologist also knows that what he is looking for are patterned distinctions that transcend individual differences and are closely integrated into the social matrix in which they occur.

Proper observation can tease from the data the patterning that man gives to a behavioral system in order that he may use it and transmit it to others. The notation system which is given in this paper will help the field worker to focus his observations in such a way as to clarify the various structure points of a given proxemic system.

Only the notation system itself is given here. The history of how it was developed will be treated at length in later publications, along with the rather complex matter of arriving at definitions of such systems. The process of making explicit the rules that combine isolates into sets and patterns (Hall 1959) will be treated elsewhere.

In making observations of the sort required, and devising the notation system described below, this investigator owes a debt to several disciplines. Included in these are descriptive linguistics¹² and kinesics (Birdwhistell 1952), ethology, and the various psychoanalytic schools starting with Freud and ending with Fromm and Harry Stack Sullivan.¹³ Even the writer's experience as a weather observer in World War II taught him the extremely useful nature of numerical codes in which information is associated not only with a numerical value but also with a position in the code. Weather codes were learned by thousands of men in a matter of weeks.

PROXEMIC NOTATION SYSTEM

Proxemic behavior can be seen as a function of eight different "dimensions" with their appropriate scales. Complex as proxemic behavior is in the aggregate, by proceeding one at a time, these dimensions can be recorded quickly and simply in the following order:

- 1) postural—sex identifiers
- 2) sociofugal—sociopetal orientation (SFP axis)
- 3) kinesthetic factors

- 4) touch code
- 5) retinal combinations
- 6) thermal code
- 7) olfaction code
- 8) voice loudness scale

Given the present meager state of our knowledge, a total of eight classes of events is sufficient to describe the distances (and the means of determining distances) employed by man. The systems are bio-basic, rooted in the physiology of the organism (Hall 1959; Hall and Trager 1953). With slight modifications, this system could also be used to describe distance behavior of other mammals. It conforms to Wallace's number eight given for basic building blocks of cultural systems (Wallace 1961). It is consistent with the criteria set by Goodenough in which observed units are ordered and interrelated according to contrasts inherent in the data (Goodenough 1956, 1957; Frake 1962).¹⁴

Each factor complex comprises a closed behavioral system which can be observed, recorded, and analyzed in its own right. On the proxemic level, however, each system is treated as a complex of isolates that will result in proxemes which combine into sets and patterns in larger systems.¹⁵ For example, there are almost endless variations on posture. One observer (Hewes 1955) records empirically some ninety positions. However, it is not necessary to note all variations. For example, in proxemic notation it is important to record only the sex of the subjects and whether they are standing, sitting or squatting, or lying down (prone).

Not all of the eight factors are of equal complexity, nor do all of them function at all times. The thermal and olfaction inputs are present only at close distances. Vision is more complex than either of these, and it is normally screened out only at very close distances.¹⁶

In the interest of speeding recording and with a view to future application of factorial analysis and computers to field records, every attempt has been made to be parsimonious. At each of the eight steps it is necessary for the observer to make only a few discriminations, in no case more than seven at one time. The present version of the system enables recording in 30–60 seconds; with practice, familiarity, and improvements, it should be possible to reduce the recording time to as little as 10–15 seconds.¹⁷







The notation system which follows is designed to systematize observation in the simplest possible way and at the same time to provide a record so that similar events can be compared across time and space.

Postural-sex Identifiers

One of the most essential operations in proxemic notation is to determine the sex and basic posture of the two individuals (whether they are standing, sitting or squatting, or prone). These distinctions are kept to a minimum in order to maintain congruity throughout the proxemic analytic level. On other analytic levels much greater detail has been observed and noted. For example,

R. L. Birdwhistell, who named and developed the field of kinesics and worked in close cooperation with descriptive linguists, including McQuown and Hockett, notes an extraordinary number of events (Birdwhistell 1952; McQuown 1957; Hockett 1958). The most recent number given¹⁸ was over 30 different lines of recordings, each representing a possible analytic level.

Sex and basic posture can be noted by any one of three systems depending on the needs of the investigator: a pictographic mnemonic (iconic) symbol, a syllabic mnemonic, or simple number code. These are:

man prone		m/pr	1
man sitting or squatting		m/si	3
man standing		m/stg	5
female prone		f/pr	2
female sitting or squatting		f/si	4
female standing		f/stdg	6

Once memorized, the number code is the easiest and quickest to use. Throughout the system, the active subject is indicated first. A man talking to a woman while both are standing is recorded as 56, while 65 means the woman is talking to the man. When it is not possible to tell which subject is more active, parentheses are used. Whenever there are extremes in age, size, or status, these should be noted.

The Sociofugal-Sociopetal Axis (SFP axis)

Osmond (1957) uses the terms *sociofugal* and *sociopetal* to describe spatial arrangements or orientations that push people apart and pull them in—orientations that separate and combine people, that increase interaction or decrease it.

As can be seen, the SFP axis is a function of the relations of the bodies to each other. In theory, there are endless variations in the orientation of two bodies in relation to each other. However, in proxemic transcription the observer is interested in recording only those distinctions which are operationally relevant to the participant. After experimenting unsuccessfully with a number of overly sensitive systems, an 8-point compass face was finally selected as the most appropriate model (see figure 1).

Zero and 8 are placed at North, 2 at East, 4 at South, 6 at West. Zero represents two subjects face to face (maximum sociopetality), 8 two subjects back to back (sociofugal), 2 two subjects slightly facing but at right angles so they can either see each other peripherally if they look straight ahead or look in each others' eyes. Position 4, in which the subjects stand side by side with the north-south axis running through a parallel to their shoulders, is also very common in the United States. Orientation 6 is definitely sociofugal because the subjects' shoulders are at right angles but with the faces pointing out and away; in order to see each other, they must crane their necks.

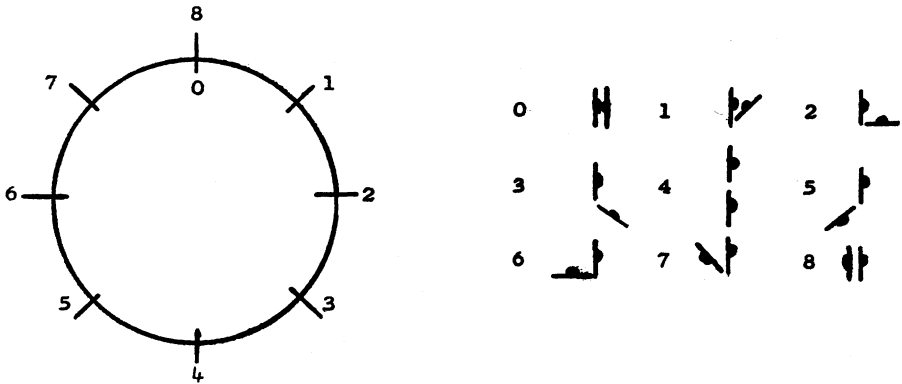


FIG. 1. SFP axis notation code.

Which components of the SFP axis are favored and for what transactions, is largely culturally determined. These components are also linked with the social setting and the age, status, and sex of the two parties. On the basis of continuous observation over the past three years, it is possible to offer some generalizations concerning the principal structure points of the American system. In interpreting these generalizations the reader should keep in mind that, like other communications, proxemic communications are always read in context and have no meaning independent of context.

0, 1, 2, 4 and 8 are most frequently observed. 0 is for direct communications where the intent of one or both of the participants is to reach the other with maximum intensity.

2 is more casual and less involved. A subject of common interest is often discussed using this axis. The subjects may shift to 0 or 4, depending on how involved or uninvolved they become.

4—the shoulder-to-shoulder axis—is one in which two people are normally watching and/or discussing something outside themselves, such as an athletic event or the girls going by on a Saturday afternoon, without necessarily being involved with each other. This is the axis for very informal, transitory communications.

Position 6 is used as a means of disengaging oneself. It is not quite, but almost as, sociofugal as 8.

The Kinesthetic Factors

One of the most basic forms of relating in space, one which is deeply imbedded in man's philogenetic past, is the potential to strike, hold, caress, or groom. In threatening situations among animals, enemies and potential enemies are not permitted within striking distance (Hediger 1955).

This applies in intra-species as well as interpersonal relations. A cowboy walking around a horse illustrates this principle; he uses three different distances. With a strange horse he follows an arc just outside the radius of the horse's hoofs when kicking. With familiar horses—those not known to be dan-

gerous—he walks inside this circle but not too close. With his own horse he uses a much closer (more intimate) distance and may even brush the horse's tail as he passes.

The kinesthetic code and notation system is based on what people can do with their arms, legs, and bodies, and the memory of past experiences with one's own as well as other bodies. Another person is perceived as close (as we shall see later) not only because one may be able in some instances to even feel the heat radiating from him, but also because there is the potential for holding, caressing, or of being struck.

Basically there are four ways of relating with the body.¹⁹ These are a function of four basic inventories of potential actions: 1) touching with the head or trunk; 2) touching with forearms, elbows, or knees; 3) touching with arm fully extended; and 4) with the arm and the leg extended and body leaning, *i.e.*, stretching (far apart but still able to touch). These are noted and/or symbolized as follows:



Each increment symbolizes a progressively greater distance. The *measured* distance depends largely on the size and shape of the individuals involved and the SFP axis, so that the figures given below are approximations, empirically derived from a small sample of medium-sized persons. The important feature is that, to the persons involved, the distance is perceived in terms of the capabilities of the two bodies. The observer therefore will have to revise the figures upward or downward depending on his own body build, particularly in relation to the larger distances.

#1 0"-3" #2 15" ± 2" #3 22" ± 3" #4 40" ± 4"

It is possible to code kinesthetic relationships in two ways: A) As one of the four distances, or B) as one of the four distances plus some space. This provides an inventory of eight distances which can be recorded in the following manner using a number code:

- # 1 within body contact distance
- #10 just outside body contact distance
- # 2 within easy touching distance with only forearm extended
- #20 just outside forearm distance ("elbow room")
- # 3 within touching or grasping distance with the arms fully extended
- #30 just outside this distance
- # 4 within reaching distance
- #40 just outside reaching distance

Since two parties are involved and each has his own repertoire of the 8 kinesthetic distances listed, it is possible to construct a matrix with 8 dimensions on a side (one for each kinesthetic distance) which contains 64 different

slots (8×8). Because such a matrix is nothing more than a mechanical way of insuring that all possible combinations have been accounted for, there is considerable duplication (13 and 31 for example). From these 64 combinations 11 basic distinctions have proved sufficient to account for all the space transactions observed to date. These are given below in figure 2.

<i>Symbols</i>	<i>code #</i>
	11
	101
⌵	12
⌵	102
⌵	22
□	13
□	103
□	33
□	303
∨	44
∨	404
...	55

... outside the system when extensions are introduced, such as swords, bolos, blow guns, and modern arms.

FIG. 2. Kinesthetic code and notation system.*

Touching

Cultures vary greatly in the amount of touching which occurs between people. Even in the United States, there are groups which participate in considerable touching and others whose members assiduously avoid touching anyone but those with whom they are intimate.

A seven-point scale seems sufficient for the moment to code the majority of contact-non-contact situations. Since it is possible for each person to touch the other, all combinations can be recorded on a 7×7 grid.

This proceeds from 00 mutual caressing to 66 in which there is no contact by either party (see figure 3).

* To speed recording it is recommended that the number code be committed to memory, which should require only a matter of minutes.

Vision

The role of vision in judging distance and in communication is incredibly complex. The non-specialist looking at the field as an outsider finds conflicting statements concerning not only the eye itself but the entire process of vision. There is agreement, however, that the visual sense is the most complex and highly evolved of the senses. Depending on the source one chooses, and using the size of the channel of the brain as a rough index of capacity, the eye feeds from 6 to 20 times as much information to the brain as the ear (Gibson 1950; LeGrand 1957). How the eye is used as a function of one's culture is regulated formally, informally, and technically (Hall 1959). That is, the culture specifies at what, at whom, and how one looks, as well as the amount of communication that takes place via the eye.

For example, a Navaho is taught to avoid gazing directly at others during conversations. He also avoids looking at his mother-in-law, but distinguishes between these two events. The Greeks, on the other hand, emphasize the use of the eyes and look for answers in each other's eyes (their intent gaze can be disturbing to the American). Americans often convey the impression to the Arabs that they are ashamed. The way Americans look at the other person during conversations is the principal reason given by Arabs for this impression.

Given the above distinctions and the fact that culture is learned, the anthropologist must pose the following question: Is it possible, by some simple means, to distinguish operationally between these different events? Part of the answer lies in the structure of the retina. The fact that the retina provides for three distinct and easily identifiable types of vision makes it possible to make distinctions of the type indicated, and at the same time provides us with the basis for a notation system.

The Three Areas of the Retina

In the middle of the visual field there is a small pit in the retina called the fovea. It subtends a visual angle of only 1°. Some idea of the fineness of visual detail made possible by this structure can be gained by considering the fact

	0	1	2	3	4	5	6
0	00	01	02	03	04	05	06
1	10	11	12	13	14	15	16
2	20	21	22	23	24	25	26
3	30	31	32	33	34	35	36
4	40	41	42	43	44	45	46
5	50	51	52	53	54	55	56
6	60	61	62	63	64	65	66

0 = caressing and holding

1 = feeling or caressing

2 = extended or prolonged holding

3 = holding

4 = spot touching (hand peck)

5 = accidental touching (brushing)

6 = no contact whatever

FIG. 3. Touch code.

	f	m	p	O		1	2	3	8
f	ff	fm	fp	fO	1	11	12	13	18
m	ms	mm	mp	mO	2	21	22	23	28
p	pf	pm	pp	pO	3	31	32	33	38
O	Of	Om	Op	OO	8	81	82	83	88

FIG. 4. Visual code.

that there are 25,000 closely packed cones, each of which is connected to a single bipolar nerve cell. (There are no rods in the fovea.)

Surrounding the fovea is an oval area called the macula, with a vertical visual angle of approximately 3° and a horizontal visual angle of approximately 12°. This is the area of clear vision. From the macula on out, vision becomes less and less distinct. According to Dr. Milton Whitcomb, secretary to the National Research Council's Committee on Vision, approximately half of 130,000,000 rods and all the 7,000,000 cones are concentrated in a central portion of the retina covering a visual angle of 20°. Peripherally it is possible for most people to perceive motion laterally on the temporal side of each eye at 180° or better.

The eye therefore provides three different ways of viewing, depending on where the image falls on the retina: the fovea, the macula, or the periphery. A fourth alternative is to screen out vision.

Therefore it is possible to code these as:

f=foveal (sharp)	1
m=macular (clear)	2
p=peripheral	3
O=no visual contact	8

A 4×4 grid illustrates the 16 combinations of the ways that people look at each other (see figure 4).

In constructing the visual scale and notation system it was deemed advisable to depart from previous practice and allow space for later additional notations. Therefore the numbers 0, 4, 5, 6 and 7 were reserved for this purpose.

To return to our earlier examples, two Navahos talking would be recorded as 33 (pp). A Navaho and his mother-in-law as 88 or 38 (38 because, while neither is supposed to look at the other, the mother-in-law is apparently dominant, since others will tell the son-in-law when she is around so he can leave or turn his back).²⁰

Both Arabs and Greeks tend to read the other person's eye (11) much more than Americans.

In making a record of the way that people look at each other, it will be necessary for the field worker to develop recording techniques consistent with visual interaction patterns of the culture under observation. The capacity of virtually any subject to determine where another person is looking is extra-

ordinarily well developed. According to Gibson the "gaze line" can be calculated with accuracy approaching sensory acuity.²¹

The field worker can therefore rely on his own ability to determine where subjects are looking. The point is, however, that the topic of looks and of looking must be completely explored with one's subjects and backed up by observations. Practice will improve one's capacity to record visual interactions. The technique used by this field worker is to try to catch the most characteristic sequence of looks for a given type of transaction recording three or four, one above the other pp

mm	22
pp	33.
mm	22

Virtually nothing is known of vision as a factor in human transactions. The most critical need is for data.

The Thermal Factors

Although not much is known about the thermal zone or zones, heat gain and loss apparently influence the structuring of close distances.²² As indicated elsewhere, responses to heat flow in the subtle sense are not usually considered in a distance-regulating context. Operating as it does, almost totally out-of-awareness, heat flow is traditionally thought of as strictly a matter of comfort. Nevertheless it has been observed and commented on by some subjects that the sensing of heat from another body can result in a movement either towards or away from the source.

The degree to which this type of response occurs out-of-awareness is illustrated in the recording of a trivial event that might well have otherwise gone unnoticed. The ambient situation was a dinner party. There was the usual semi-crowding with the attention on conversation. This observer, hand resting on table, was suddenly aware of a rapid reflex-withdrawal of his hand. There was no immediate sensation such as pain or touch. Visual examination and quick review of the preceding few seconds revealed two things: 1) the hand of another guest approximately $2\frac{1}{2}$ inches (6.5 cm) from where his own hand had been a moment before, and 2) a memory trace of having detected heat in the hand. A replacing of the observer's hand in the same area revealed that heat flowing from the other person's still stationary hand was definitely detectable.

It is possible to code heat flow (digitally) as either being detected or not, depending on whether the two parties are within each other's thermal sphere or not. Heat flow is detected in two ways, by radiation and by conduction.

The thermal code and notation system is as follows:

conducted heat detected	thc	1
radiant heat detected	thr	2
heat probably detected	th	3
heat not detected	∅	8

Because so little is known about thermal responsiveness to others, numbers

0, 4, 5, 6, and 7 are reserved for future use. The field worker will have to experiment until he has subjects who can tell him when they have detected heat. As with the level of loudness of the voice, there is considerable range in heat output. Clothing of course reduces sensitivity somewhat. One is dealing, however, with a primitive communication system that has been overlooked by social scientists but may have common currency. A limited number of subjects, for example, stated they were fully aware of the significance of changes in body temperature in others which could be interpreted as readily as though words had been used. One example will illustrate this point. The subject, a rather voluptuous young female, noted that when she danced with certain young males she could detect a rise in temperature in the abdominal region which foreshadowed genital tumescence and which could be differentiated from a temperature rise due to exertion. What is more, this rise in temperature could be detected several inches from the dance partner.

It should be noted that the body does not heat uniformly, but in specific areas depending on the situation. The whole subject of mapping the geography of heat output of the body under different emotional states remains to be explored.

Olfaction

In the United States advertisements extolling the virtues of not offending by the odor of one's body or breath are a prominent feature of American mass media. That is, the olfactory sense is culturally suppressed to a greater degree than any of the other senses.

Pleasant odors, such as perfume on women or bay rum on men, are desirable but should not be detectable at more than intimate distance for the middle class. In fact, when olfaction is present it usually signals intimacy.

Sexual odors, bad-smelling feet, and flatus are definitely taboo in all but a very limited number of situations and relationships. The degree to which American culture has dulled, repressed, or dissociated the olfactory capacities is not known; much more comparative data is needed.

Also, as with vision and hearing, there is a great range of olfactory acuity. It is highly probable that sensitivity to different odors may be selective in a culturally patterned way, so that what is quite obvious or even overwhelming to a foreigner may not be *significant* to a local subject. Because of our own taboos, American research workers will have to be particularly careful to check their own observations with local colleagues.

In light of all this, and given the meager state of our present knowledge of olfaction as a proxemic indicator, it was decided to simplify the recording procedure as much as possible.

At any given distance, only four observations and accompanying notations are made:

OLFACTORY CODE

differentiated body odor detectable	dbo or 1
undifferentiated body odor detectable	ubo or 2

breath detectable	br	or 3
olfaction probably present	oo	or 4
olfaction not present	Ø	or 8

In essence, the investigator looks for boundaries and whether they have been crossed or not. Everyone is surrounded by a small cloud or haze of smell, varying in size according to physical setting, emotional state, and culturally prescribed norms. The investigator must determine at what point the smell is unmistakable and where this fits into the total proxemic picture. Usually there is little ambiguity. Most transactions occur either inside or outside these boundaries.

In recording breath, it must be determined at what point people feel free about directing their breath and whether the warmth and moisture of the breath is sought after or not.

Use code designation 4 (oo) when it is pretty certain that olfaction is present but otherwise unspecified. The numbers 0, 5, 6, and 7 are reserved for future refinements.

Questioning subjects on olfaction has not proved a problem to date. All Arabs interviewed spoke freely about bad breath and feet odors and how these must be avoided. Friends and relatives tell them when they should not stand too close to people. Normally they do not feel close to people until they can detect the heat, moisture and smell of breath. There seems to be little doubt that the Arab employs olfactory cues to set distance. The principal difference between the Arab and the American patterns is that for Americans to be within smelling distance is to introduce intimacy, whereas with the Arab it apparently only makes them feel "at home." Without smell, Arabs apparently feel somewhat "left out." It should be noted, however, that the Arab data is based on such a small segment of the over-all culture that any interpretations made at this point must be tentative.

Voice Loudness

The loudness of the voice is modified to conform to culturally prescribed norms for a) distance, b) relationship between the parties involved, and c) the situation or subject being discussed. Cultural norms can vary for any one of the three as well as for all three. The same applies to sub-cultures within a larger cultural frame. Voice level, therefore, is relevant as a significant variable in judging distance.

Holding the other two dependent variables—relationship and situation—neutral and constant, an American will normally code a whisper as close and a shout as distant. Similarly, Brodey's blind subjects judge the distance of a speaker by the loudness of his voice.²³ This is, of course, not the only means by which the blind judge distance; it is, however, an important one.

The culture of one's upbringing has a good deal to do with how loudness is perceived. For example, as a general rule Arabs sound loud to Americans. Arabs, on the other hand, will comment among themselves that the American's voice is too low and sounds insincere. Subjects' unguarded comments on

ethnically associated loudness of voice are not the only source of data on this subject. Children have to be systematically taught not only what is correct and incorrect usage but how to modulate properly the loudness of the voice.

The investigator can provide a good deal of clinical data from his own past. No standards have been established for judging voice loudness *except* those people learn and against which they judge the behavior of others. There is no alternative except to code the loudness of voice employing the investigator's own culturally calibrated measuring device.

Using the investigator as a measuring device may not satisfy the rigid requirements of all scientists. It should be kept in mind, however, that this is what all people do whenever they respond to loudness or softness of the voice. The principle of measurement is the same as two people standing back to back to see who is the taller. The field investigator should test his own evaluations against those of others. This can be accomplished easily by having two or more observers record the same transaction separately and comparing notes.

Seven degrees of loudness have proved sufficient to code all vocal transactions to date. (A zero for silence increases the number from six to seven.)

VOICE LOUDNESS SCALE

<i>descriptive level</i>	<i>mnemonic code</i>	<i>number code</i>
silent	0	0
very soft	vs	1
soft	s	2
normal	n	3
normal+	n+	4
loud	l	5
very loud	vl	6

Cautions and Reminders

It is important not to overcomplicate the recording of voice loudness. As with other features of vocalization, over-all loudness varies with the individual.

Most people are aware, however, when the speakers of another language in any given setting sound louder or softer than the speech they are used to hearing at home or when a person of their own culture speaks overly slowly or softly, as this may signify anger. One of the best ways of bringing home the point that voice level conforms to cultural norms is to be around small boys at the dinner table before they have learned to modulate their voices. While this task seems endless to parents, the seal of culture is well impressed by age 11 to 14 for most normal situations.

In the field one should ask one's subjects for an appraisal of voice loudness. "Are those people—or is he—or she talking in a normal tone of voice?" This will usually elicit a comment if there is anything unusual about the level of voice and provides added information. It is possible, for example, that variation of voice loudness is not as important as it is in the United States, or is, perhaps, more important. One English subject interviewed over a long period

of time turned out to have a remarkable capacity to modulate and direct his voice in such a way that it was difficult to tell how far away he was.

Language Style

Traditionally any layman will affirm that what one talks about and the manner of talking are linked with distance and situation, but he will be unable to describe what the differences are.

The linguist Joos (1962) has provided Americans with an analysis of their own linguistic behavior as viewed through a situational screen. The degree to which other cultures recognize and talk about situational styles or dialects is not known.

Joos lists five styles, each used for a different situation. They are: intimate, casual, consultative, formal, and frozen, and while the matching with distance zones seems close but not perfect, more needs to be known about the proxemic aspects of style.

If different styles of speech are recognized and used in specific situations (classical and colloquial Arabic, for example), these should be noted also by the observer of proxemic behavior.

PROXEMIC SYSTEMS AS COMMUNICATION

Hockett (1958) defines communication as any event that triggers another organism. While many other life forms communicate (as for example when a bee informs another where honey is, by means of an orientating series of dance steps), language is characteristically human. Hockett lists seven principal features of language: duality, productivity, arbitrariness, interchangeability, specialization, and displacement, and cultural (not genetic) transmission.

Proxemic behavior is obviously *not* language and will not do what language will do. Nevertheless a careful analysis demonstrates that proxemic communication as a culturally elaborated system incorporates more features named by Hockett than one might suppose. For example, language is both "plerematic" and "cenematic"—i.e. has both sets and isolates (Hall 1959) or units that build up, or combine, to form a different kind of unit.

Proxemics lacks none of the seven features of language listed by Hockett. Its arbitrariness is not obvious at first, because proxemic behavior tends to be experienced as iconic—e.g., a feeling of "closeness" is often accompanied by physical closeness—yet it is the very arbitrariness of man's behavior in space that throws him off when he tries to interpret the behavior of others across cultural lines. For example, the fact that Europeans name streets (the lines that connect points) and the Japanese name the points and ignore the lines, is arbitrary. The fact that in the European cultures people arrange objects whereas in Japan they arrange spaces, is arbitrary. American suppression and repression of olfaction in proxemic behavior is also arbitrary. The arbitrariness operates on a Whorfian level rather than a more conscious level. Hence it is even more difficult to come to grips with than lexical items.

Proxemics demonstrates duality of a primitive but nevertheless readily

identifiable sort. The units (cenemes) build up. For example, the elimination or introduction of visual contact can completely redefine physical closeness. The operating principle behind the confessional booth is that it makes it possible to bring a man and woman together in an intimate setting but without the ability to touch or see each other. Removing the partitions in the confessional would completely redefine the situation, particularly if it were an enclosed confessional.

Interchangeability means that subject "A" can play "B's" part and vice versa. In other words, the subject and the communication are not irrevocably tied together, as is the case with the male peacock and his display. A feature of proxemic communication is its interchangeability.

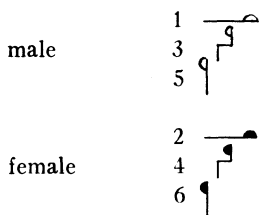
Displacement refers to the capacity of language to deal with displacements in time or space. In the animal world territorial markers (particularly the olfactory ones) characteristically feature displacement. In man fixed and semi-fixed features also feature displacement (see Hall 1963). Boundary markers, fences, closed doors, chairs placed in a conversational group, the arrangement of furniture in an auditorium, the psychiatrist's couch, and the layout of offices all enable someone *who knows the system* to interpret what has taken place or the message that is intended. As Hazard notes: "Walk into an empty courtroom and look around. The furniture arrangement will tell you at a glance who has what authority" (Hazard 1962). Only dynamic space (the actual distances between people when they are interacting such as *tone of voice*) lacks the displacement features.

Specialization refers to the fact that language tends to refer to specific items or events, *i.e.*, to become "specialized." Proxemic behavior is *not* as highly specialized as language. Nevertheless it contains great capacities for specialization. The American pattern for comforting and lovemaking are seldom confused, even though both involve great closeness. The fact that "duality" is present, that there are differences in the interplay of receptors in these two instances (avoidance of olfaction in comforting for one thing) makes incipient specialization possible. Nothing could be more specialized than the sacredness or taboos associated by all people with certain specified places like Mecca, the Navaho mountain, or the Chindi hogan. What is more specialized than a boundary, or father's chair, the "head" of the table, the tokonoma in the Japanese house, the proper distance to be maintained when attracting attention of someone without intruding, or the distinction between the relative and non-relative side of the office in the Middle-East (Hall 1959: ch. X)?

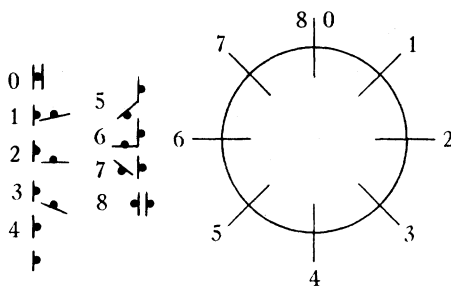
In other words, proxemic behavior parallels language, feature for feature. It is, however, much *less* specialized and more iconic. It tends to be treated as though certain features associated with language were lacking. The iconic features of proxemics are exaggerated in the minds of those who have not had extensive and deep cross-cultural experience. In fact, when a subject stops treating proxemic behavior as iconic and sees its arbitrariness, he is beginning to experience the over-all arbitrariness of culture.

Sebeok (1962) presents the hypothesis that animal communication is most

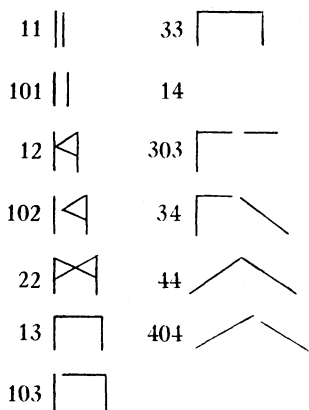
1) Postural—sex identifier



2) Orientation of bodies (SFP axis)



3) Kinesthetic factors



4) Touch code

caressing & holding	0
feeling or caressing	1
prolonged holding	2
holding or pressing against	3
spot touching	4
accidental brushing	5
no contact	6

5) Retinal combinations (Visual code)

foveal	f	1
macular (clear)	m	2
peripheral	p	3
no contact	nc	8

6) Thermal code

contact heat	thc	1
radiant heat	thr	2
probable heat	th	3
no heat	∅h	8

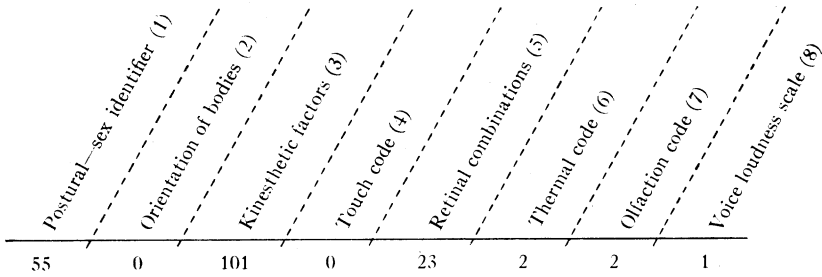
7) Olfaction code

differentiated body odors detectable	do	1
undifferentiated body odors detectable	ubo	2
breath detectable	br	3
olfaction probably present	oo	4
olfaction not present	∅	8

8) Voice loudness scale

silence	si	0
very soft	vs	1
soft	s	2
normal	n	3
normal	n/	4
loud	l	5
very loud	vl	6

FIG. 5. Key to combined proxemic notation system.



- 1) Two men standing;
- 2) facing each other directly;
- 3) close enough so that hands can reach almost any part of the trunk;
- 4) touch does not play any part;
- 5) man speaking looking at, but not in the eye, partner only viewing speaker peripherally;
- 6) close enough so that radiant heat would have been detected;
- 7) body odor but not breath detectable;
- 8) voice very soft.

FIG. 6. Recorded transaction and key.

often “coded analogly,” whereas speech is coded both digitally and analogly. Proxemic behavior is also coded both digitally and analogly.

The knowledge of the relationship of language to other cultural systems—not to mention the communications systems of lower life forms—is in a state of flux. Better understanding of how these other systems function and how best to study and describe them, in part awaits the development of improved procedures for discourse analysis.

Language is most commonly treated as an instrument for communicating *from* one person *to* another, rather than as a transaction; Hockett (1958), Hymes (1962) and Sebeok (1962) are exceptions though for different reasons. Joos (1962) comes closest to a transactional view with his five linguistic styles of English. Proxemic behavior, on the other hand, by its very nature inevitably is reduced to a transaction—a transaction between two or more parties, or one or more parties, and the environment. It is this very feature that makes it difficult to relate proxemics at all significant levels to current linguistic models.

Concerning the relationship of the *etic* level of analysis to the *emic* level and how one proceeds from the former to the latter (Hymes 1962), it will be apparent to the reader that this presentation is concerned more with the proxetics than proxemics, and is therefore only the first of a series of steps in a long complex process.

In the course of this investigation attempts to classify behavior on the emic level were not successful until a system of observations and notations had been developed that enabled the observer to account for two types of differences: A, between events in contrasting systems, and B, between one proxeme and another within a given system. Thus one of the points of contrast observed by

Americans overseas when interacting with a variety of peoples in the Mediterranean culture areas, is in the direction of the breath during personal (but not intimate) conversations. Americans are taught not to breathe on people, particularly strangers or people of higher status, and are made aware of this when others breathe on them. (Attention to the structure points of the system is also drawn during acculturation of the young, so that the anthropologist can learn a good deal about the American system while correcting his children.)

Within the bounds of the American system there is considerable variation in the use of the eyes and the degree of touching that is permissible by strangers. Touching or looking of a type that falls outside one's familiar pattern may be coded as unusual in the same manner that we treat unfamiliar allophones of a given phoneme and still be recognized as a permissible variant of a familiar form. In one encounter, for example, items 5 (accidental brushing) and 6 (no contact) of the touch code (scale #4), were allophones of the same proxeme for the writer, but were coded as different proxemes by an upper middle class Dutch subject.

SUMMARY

The notation system presented here is designed to provide a way of being rather specific when talking about observations of a very limited nature. No claim is made for the superiority of this system. It has proved to be reasonably workable and simple. If it persists at all as a tool in the hands of the ethnographer, it will undoubtedly go through transformations as use reveals its defects. Currently the visual dimension stands out, out of all those described, as the one most requiring additional treatment.

The following visual aids have been prepared to summarize the data of this article:

Figure 5 shows the entire code with all its component parts in the order in which they should be recorded.

Figure 6 shows a sample of a record of a transaction.

NOTES

¹ Research supported by grants from the National Institute of Mental Health and the Wenner-Gren Foundation for Anthropological Research.

² When this research was conceived, no suitable designation had been found for the study of microspace as a system of bio-communication. *Human topology*, *chaology* (the study of boundaries), *choriology* (the study of organized space), and others were considered. *Proxemics* was chosen because it suggests the subject to the reader.

³ In an inter-cultural encounter the structural details of the two culture systems combine in one of three ways: A) They can mesh or complement, so that the transaction (Kilpatrick 1961) continues or is reinforced. B) They can clash or interfere which has an inhibiting effect on the transaction. C) They can be unrelated so they neither reinforce nor inhibit the transaction.

Even within the broader context of American culture, it is possible to observe these three types of interaction; for example, the Utah Mormon's version of time—in which there is virtually no leeway for being late—meshes nicely with the U. S. military system.

Interference can be observed whenever there is an attempt to integrate two groups of individuals, one having internalized the diffuse point pattern while the other uses the displaced point pattern (Hall 1959).

As a general rule, the time systems of middle class men and women from the same subculture tend to operate in such a way that there is a minimum of interference, even though the two systems differ. During the day, and for business, male time takes precedence. In the late afternoon and evening—particularly for meals and social occasions—women's time is the dominant pattern. Cultural interference is analogous to linguistic interference as described by Weinreich (1953).

⁴ Reducing distortion and minimizing contamination of data has long been considered a basic feature of the methodology of the physical sciences. Possibly because of the great complexity of our data, most anthropologists until recently have avoided the issue of distortion. Distortion, incidentally, should not be confused with accuracy of reporting, or lack of accuracy. Reporting is something the anthropologist does. Distortions are in the hands of the informant.

One might argue that the distortions on the overt level are distortions of content only and do not hide the patterns, that anything an informant tells the anthropologist is grist for the anthropologist's mill, or that the distortions themselves provide insights into the culture—all of which is often true.

Nevertheless, if one is seeking to construct a theory of the culture one is studying (Goodenough 1956), this process proceeds more rapidly if the building blocks used to construct that theory are reasonably stable. It should be noted that the stories made up by an informant are of necessity rooted in his experience and as such are representations of his culture. However, the *design* he creates is of short duration, i.e. tomorrow he will tell a slightly different story. The basic distinction between out-of-awareness patterns that cannot be cut to conform to situational demands and the conscious screening of the truth from an outsider is in the time that two types of events remain stable. In addition to the desirability of increasing stability of the components that go to make up one's theory of a given culture, there is the practical matter of building confidence in one's subjects. In most instances ability to control the communications systems marks one as an insider; absence of this control marks one as an outsider. Any field anthropologist who has experienced the pride his subjects show in his own increased knowledge of, and skill in, controlling their culture, knows the importance of being able to use a given system correctly. Reduction of distortions and levels of awareness constitute the topic of another publication. The subject is mentioned here only to indicate that the writer is not unaware of the complexities and as a reminder that the most mundane and taken-for-granted assumptions often turn out to be most difficult to come to grips with.

⁵ Goffman (1959) describes still another level of awareness that deals with the mask one wears in order to play the proper parts in daily transactions.

⁶ Hymes, in commenting on this paper (also see Hymes 1962), suggests how some "functionally relevant dimensions" can be identified from the discomfiture of the subject when patterns have been broken.

⁷ Individual and regional diversity in proxemic patterns is comparable to that encountered in the use of time, materials, and language. Distinctions on these levels are not relevant to this presentation. Instead, a more basic pattern should be mentioned: Americans of European ancestry fall generally into two groups—contact and non-contact. Non-contact Americans minimize physical contact—touch or holding during encounters when the transaction is social or consultative in nature. Contact Americans, on the other hand, employ touching and holding which is sufficiently different from the former pattern as to cause comments. Hereafter, whenever the term "American" is used, it refers only to the dominant non-contact group.

⁸ Thiel (1961) has recently developed and published a system for describing the kind of space architects and landscape architects deal with. See also Goldfinger 1941 and 1942.

⁹ Benedict (1946) describes how the anthropologist not only uses informants but draws upon every other available expression of the culture, including art forms, movies, and literature. It is in the tradition of anthropology, therefore, that the anthropologists look to other fields, particularly art and literature, as a means of checking their own observations.

¹⁰ See Gibson 1950. This process, however, seems to be different from the constant process of adjustment to another person who does not stand still but moves. Little is known about the former, even less of the latter.

¹¹ Concerning the relationship between the encounter and the setting, or between fixed feature

space and dynamic space (Hall 1963), there seems little doubt that such a relationship exists. The evidence of the animal psychologist and the ethologist is firmer than for man. However, on the human level, data from widely scattered sources points in the same direction (Hall Mss). Until now, man's behavior in space has been treated from a strictly physical-anatomical point of view, and with the implicit assumption that cultural differences did not exist, and that if they did they were unimportant.

¹² Specifically, the work of linguists in the tradition of Edward Sapir, Leonard Bloomfield, and Benjamin Lee Whorf.

¹³ My contact with the various psychoanalytic movements has been eclectic. The out-of-awareness features of communication and the use of one's self as a control are so important that it is difficult to credit them sufficiently. Both are pivotal in any research this investigator undertakes (See Fromm 1941 and Sullivan 1940).

¹⁴ Frake, reviewing Goodenough's thesis (1962), sets forth many of the conditions which must be met in the writing of "productive ethnographies" and the absolute necessity of tapping the *cognitive world of one's informants*, and avoidance of "a priori notions of pertinent descriptive categories." (italics mine)

¹⁵ The proxeme equates with the phoneme of language, but on a much lower and simpler organizational level (cf. Hall 1959, ch. 6-8).

¹⁶ Linguistic style (Joos 1962) associated with each distance represents the most recent and least known and also apparently the most complex of the subsystems linked to proxemic patterns. At present, Joos' type of analysis is only available for English. It is mentioned here as a reminder to the field worker, since other languages may have been subjected to similar analysis.

¹⁷ The information is considerably less than that transmitted for one weather station code used to plot the basic data for weather maps. These codes can be transcribed on a weather map as fast as a man can enscribe the simple weather symbols.

¹⁸ Figure given in response to question at Interdisciplinary Work Conference on Paralanguage and Kinesics, University of Indiana 1962.

¹⁹ Given the great flexibility of the body it may seem strange that the number of relational possibilities is so small. The situation is comparable to that noted earlier under sex and posture. Four is sufficient to record all distinctive features in the kinesthetic inventory. Any more would be too complex, as each of the four is coded digitally (touching or not touching) which yields 64 possible combinations, only 11 of which are really essential.

²⁰ The ethnographic data was obtained during field work with the Navaho some 30 years ago in the Pinyon Black Mesa region of the reservation. It is possible that the details of the mother-in-law taboo have changed since that time.

²¹ Gibson, J. J., letter to the investigator dated September 5, 1962.

²² Recent studies in thermography (the study of infra-red radiation) demonstrate that human skin is an ideal emitter and receiver of infra-red energy (Barnes 1963). How effective it is can be seen by looking at a scale of emissivities of various substance in which emissivity values have been given:

mirrors and polished metals	.02-.03
polished lead and cast iron	.21-.28
black loam and fire brick	.66-.69
wool and lumber	.78
lamp black and soot	.95
human skin	0.99

²³ The perceptual world of five blind subjects has been investigated systematically for the past 2½ years by Dr. Warren Brodey of the Washington School of Psychiatry. This investigator has participated in the research.

REFERENCES CITED

BARKER, R. G. AND BARKER, L. S.

1961 Behavior units for the comparative study of cultures. *In* Studying personality cross-culturally, ed. by B. Kaplan. New York, Row Peterson.

- BARKER, R. G. AND WRIGHT, H. F.
1954 Midwest and its children; the psychological ecology of an American town. Evanston, Row Peterson.
- BARNES, R. B.
1963. Thermography of the human body. *Science* 140:3569:870-877, May 24.
- BENEDICT, R.
1946 The chrysanthemum and the sword. Boston, Houghton Mifflin.
- BIRDWHISTELL, R.
1952 Introduction to kinesics. Louisville, University of Louisville Press.
- BOAS, F.
1911 Introduction, Handbook of American Indian languages. B.A.E. Bull. 40. Washington, D. C., Smithsonian Institution.
- DORNER, A.
1958 The way beyond art. New York, New York University Press.
- FRAKE, C.
1960 Family and kinship among the eastern Subanon. *In* Social structure in Southeast Asia, G. P. Murdock, ed. New York, Viking Fund Publications in Anthropology No. 29.
1962 Cultural ecology and ethnography. *American Anthropologist* 64:53-59.
- FROMM, E.
1941 Escape from freedom. New York, Rinehart.
- GIBSON, J. J.
1950 The perception of the visual world. Cambridge, Harvard University Press.
- GOFFMAN, E.
1957 Alienation from interaction. *Human Relations* 10:1:47-60.
1959 The presentation of self in everyday life. New York, Doubleday.
- GOLDFINGER, E.
1941 The sensation of space. *Urbanism and spatial order*. *Architectural Review*, November:129-131.
1942 The elements of enclosed space. *Architectural Review*, January:5-9.
- GOODENOUGH, W. H.
1956 Residence rules. *Southwestern Journal of Anthropology* 12:22-37.
1957 Seventh annual round table meeting on linguistics and language study, Garvin, ed. Washington, Institute of Languages and Linguistics, Georgetown University. Monograph series on languages and linguistics no. 9:167-177.
- GROSSER, M.
1951 The painter's eye. New York, Rinehart.
- HALL, E. T.
1955 The anthropology of manners. *Scientific American* 192:85-89.
1959 The silent language. New York, Doubleday.
1963 Proxemics—the study of man's spatial relations. *In* Man's image in medicine and anthropology. International Universities Press. New York.
1964 Spatial features of man's biotope. Mss to appear *in* Proceedings of the Association for Research in Nervous and Mental Diseases. New York.
- HALL, E. T. AND TRAGER, G.
1953 The analysis of culture. Washington, American Council of Learned Societies.
- HAZARD, J.
1962 Furniture arrangement and judicial roles. *ETC* 19:181-188.
- HEDIGER, H.
1955 Studies of the psychology and behaviour of captive animals in zoos and circuses. London, Butterworths Scientific Publications.
1961 The evolution of territorial behavior. *In* Social life of early man, ed. by S. L. Washburn. New York, Viking Fund Publications in Anthropology No. 31.
- HEWES, G.
1955 World distribution of certain postural habits. *American Anthropologist* 57:231-234.

- HOCKETT, C.
1958 *A course in modern linguistics*. New York, Macmillan.
- HYMES, D.
1962 *The ethnography of speaking*. In *Anthropology and human behavior*, ed. by Gladwin and Sturtevant. Washington, D. C., The anthropological Society of Washington.
- JOOS, M.
1962 *The five clocks*. *International Journal of American Linguistics* 28:pt. 5.
- KILPATRICK, F., ed.
1961 *Explorations in transactional psychology*. New York, New York University Press.
- LE GRAND, Y.
1957 *Light, color, and vision*. London, Chapman and Hall Ltd.
- LYNCH, K.
1960 *The image of the city*. Cambridge, Technology Press and Harvard University Press.
- MCQUOWN, H.
1957 *Linguistic transcription and specification of psychiatric interview materials*. *Psychiatry* 20:79-86.
- OSMOND, H.
1957 *Function as the basis of psychiatric ward design*. *Mental Hospitals*:23-29.
- SEBEOK, T.
1962 *Evolution of signalling behavior*. *Behavioral Science* 7:430-442.
- SULLIVAN, H. S.
1940 *Conceptions of modern psychiatry*. Washington, William Alanson White Foundation.
1945
- THIEL, P.
1961 *A sequence-experience notation for architectural and urban space*. *Town planning review*, April:33-52.
- WALLACE, A.
1961 *On being just complicated enough*. *Proceedings, National Academy of Sciences* 47:458-464.
- WEINREICH, U.
1953 *Languages in contact*. New York: The Linguistic Circle of New York, Publication #1.