IV

Christopher Alexander
Department of Architecture and
Center for Planning and Development Research
University of California, Berkeley

The City as a Mechanism for Sustaining Human Contact

People come to cities for contact. That's what cities are: meeting places. Yet the people who live in cities are often contactless and alienated. A few of them are physically lonely: almost all of them live in a state of endless inner loneliness. They have thousands of contacts, but the contacts are empty and unsatisfying.

What physical organization must an urban area have, to function as a mechanism for sustaining deeper contacts?

Before we can answer this question, we must first define exactly what we mean by "contact" and we must try to understand just what it is about existing cities that prevents the deepest contacts from maturing. Once we have done that, we can define a set of characteristics which an urban area requires to sustain the contacts. This chapter therefore has four parts:

In the first part I shall define the most basic and most urgently needed kind of contact, *intimate contact.*

In the second part, I shall present a body of evidence which strongly suggests that the social pathologies associated with

urban areas—delinquency and mental disorder—follow inevitably from the lack of intimate contact.

In the third part, I shall describe the interplay of phenomena which causes the lack of intimate contact in urban areas today. These phenomena are facets of a single complex syndrome: *the autonomy-withdrawal syndrome.* I shall try to show that this syndrome is an inevitable by-product of urbanization, and that society can recreate intimate contacts among its members only if they overcome this syndrome.

In the fourth part, I shall show that in order to overcome the autonomy-withdrawal syndrome a city's housing must have twelve specific geometric characteristics, and I shall describe an arrangement of houses which has these characteristics.

1. Intimate Contact

Modern urban society has more contact and communication in it than any other society in human history. People who would never have been in contact in a preindustrial society are in contact today. There are more contacts per person, and there are more kinds of contact. Individuals are in touch with a larger world than they ever were before. As metropolitan areas grow, society will become even more differentiated, and the number and variety of contacts will increase even more. This is something that has never happened before, in the whole of human history, and it is very beautiful: Durkheim said so long ago, in the *Division of Labor in Society.*[1] Melvin Webber and Marshall McLuhan and Richard Meier are saying it eloquently today.[2]

But as the individual's world expands, the number of contacts increases, and the quality of contact goes down. A person only has twenty-four hours in his day. As the total number of his contacts increases, his contacts with any one given person become shorter, and less frequent, and less deep. In the end, from a human point of view, they become altogether trivial. It is not surprising that in just those urban centers where the great-

est expansion of human contacts has taken place men have begun to feel their alienation and aloneness more sharply than in any preindustrial society. People who live in cities may think that they have lots of friends; but the word friend has changed its meaning. Compared with friendships of the past, most of these new friendships are trivial.

Intimate contact in the deepest sense is very rare. *Intimate contact is that close contact between two individuals in which they reveal themselves in all their weakness, without fear.* It is a relationship in which the barriers which normally surround the self are down. It is the relationship which characterizes the best marriages, and all true friendships. We often call it love. It is hard to give an operational definition of this kind of intimate contact: but we can make it reasonably concrete, by naming two essential preconditions without which it can't mature.

These conditions are: (1) The people concerned must see each other very often, almost every day, though not necessarily for very long at a time. (2) They must see each other under informal conditions, without the special overlay of role or situation which they usually wear in public.

In more detail: (1) If people don't meet almost every day—even if they meet once a week, say—they never get around to showing themselves; there are too many other things to talk about: the latest news, the war, the taxes, what mutual acquaintances have been doing lately. These things can easily fill an evening once a week. Unless people meet more often, they never have a chance to peel the outer layers of the self away, and show what lies inside. (2) Many people meet every day at work. But here the specific role relationship provides clear rules about the kinds of things they talk about, and also defines the bounds of the relationship—again there is little chance that the people will penetrate each other, or reveal themselves. The same thing is true if they meet under "social" circumstances, where the rules of what is proper make deep contact impossible.

These two conditions are not sufficient—they do not guarantee intimate contact—but they are necessary. If these conditions are not met, intimate contact can't mature.[3]

It may help to keep in mind an even more concrete criterion of intimacy. If two people are in intimate contact, then we can be sure that they sometimes talk about the ultimate meaning of one another's lives; and if two people do sometimes talk about the ultimate meaning of their lives, then we are fairly safe in calling their contact an intimate contact. If they do not talk about these things, then they are not really reaching each other, and their contact is superficial.

By this definition, it is clear that most so-called "friendly" contacts are not intimate. Indeed, it is obvious that the most common "friendly" occasions provide no opportunity for this kind of contact to mature. Friends who come around to dinner once a month ("Honey, why don't we have them round to dinner sometime?"), or the acquaintances who meet for an occasional drink together, clearly do not satisfy the two conditions which I have defined. At these occasions people neither reach each other, nor do they reveal themselves. Let us, therefore, begin by asking what social mechanism is required to make contacts intimate.

In preindustrial society, intimate contacts were sustained by primary groups. "A primary group is a small group of people characterised by intimate face to face association and cooperation."[4] The three most universal primary groups are the family, the neighborhood group of elders, and the children's playgroup. These three primary groups have existed in virtually every human society, and they have been primary in forming the social nature and ideals of the individual. It is clear that the contacts which these primary groups created do meet the two conditions I have named. The members of a primary group meet often—almost daily; and they meet under unspecialized conditions, where behavior is not prescribed by role, so that

they meet as individuals, man to man. It is therefore clear that in a society where primary groups exist, the primary groups do serve as mechanisms which sustain intimate contact.

Because intimacy is so important, and because primary groups have, so far, always been the vehicles for intimate contact, many anthropologists and sociologists have taken the view that man cannot live without the primary groups.[5]

Here are two typical statements: First Homans, writing in 1950:

> In the old society, man was linked to man; in the new agglomeration—it cannot be called a society—he is alone. . . . All the evidence of psychiatry shows that membership in a group sustains a man, enables him to maintain his equilibrium under the ordinary shocks of life, and helps him to bring up children who will in turn be happy and resilient. If his group is shattered around him, if he leaves a group in which he was a valued member, and if, above all, he finds no new group to which he can relate himself, he will, under stress, develop disorders of thought, feeling, and behavior. His thinking will be obsessive, elaborated without sufficient reference to reality; he will be anxious or angry, destructive to himself or to others; his behavior will be compulsive, not controlled; and, if the process of education that makes a man easily able to relate himself to others is itself social, he will, as a lonely man, bring up children who have a lowered social capacity. The cycle is vicious; loss of group membership in one generation may make men less capable of group membership in the next. The civilization that, by its very process of growth, shatters small group life will leave men and women lonely and unhappy.[6]

Second—Linton:

> Although the disintegration of local groups in our society may progress even further than it has, the author is inclined to regard it as a transitory phenomenon. The sudden rise of the machine and of applied science has shattered Western civilization and reduced Western society to something approaching chaos. However, unless all past experience is at fault, the society will once more reduce itself to order. What the new order will be no one can forecast, but the potentialities of the local group, both for the control of individuals and for the satisfaction of their psychological needs are so great that it seems unlikely that this unit will be dispensed with.[7]

Linton wrote those words in 1936. In the years since then, many architects and planners have tried to recreate the local primary group artificially, by means of the neighborhood idea. They have hoped that if people would only live in small physical groups, round modern village greens, the social groups would follow the same pattern; and that these artificial groups would then once more provide the intimate contact which is in such short supply in urban areas today.[8] But this idea of recreating primary groups by artificial means is unrealistic and reactionary: it fails to recognize the truth about the open society. The open society is no longer centered around place-based groups; and the very slight acquaintances that do form round an artificial neighborhood are once again trivial: they are not based on genuine desire.[9] Though these pseudogroups may serve certain ancillary purposes (neighbors may look after one another's houses while they are away), there is no possible hope that they could sustain truly intimate contact, as I have defined it.

The only vestige of the primary groups which still remains is the nuclear family. The family still functions as a mechanism for sustaining intimate contact. But where the extended family of preindustrial society contained many adults, and gave them many opportunities for intimate contact, the modern nuclear family contains only two adults. This means that each of these adults has at most *one* intimate contact within his family. (Although the contact between parent and child is, in a colloquial sense, an intimate one, it is not the kind of contact which I am discussing here; it is essentially one-sided; there can be no

mutual revealing of the self between adults and children.) Furthermore, one-third of all households in urban areas contain only one adult (either unmarried, widowed or divorced[10]). These adults have *no* intimate contacts at all, at home.

As ways of providing intimate contact, it seems that primary groups are doomed. Modern urban social structure is chiefly based on secondary contacts—contacts in which people are related by a single role relationship: buyer and seller, disc-jockey and fan, lawyer and client.[11] Not surprisingly, the people who find themselves in this dismal condition try madly to make friends. Urban Americans are world-famous as an outgoing, friendly people. They are able to make friends very fast; and they join associations more than almost any other people. It is not hard to see that this is an inevitable consequence of urbanization and mobility, and will ultimately happen everywhere, as urban society spreads around the world. In a society where people move about a lot, the individuals who are moving must learn to strike up acquaintances quickly—it is essential for them, since they very often find themselves in situations where they don't know anybody. By the same token, since deep-seated, old, associations are uncommon, people rush to join new associations and affiliations, to fill the gap they feel. Instant friendship is well adapted to the circumstances which the average American urban dweller faces. But the very life stuff of social organization—true participation among people who learn to penetrate each other—is missing. Outward friendliness adds nothing to the need for deeper contact; it trivializes contact.

People may not be ready to admit that most of their contacts are trivial; but they admit it by implication, in their widespread nostalgia for college days, and for army days. What is it that makes the college reunions so powerful? Why do grown men and women at reunions pretend to be boys and girls again? Because at college, they had an experience which many of them never have again: they had many intimate friends; intimate contact was commonplace. The same is true of army days. However

grisly war may be, it is a fact that the vast majority of men never forget their army days. They remember the close comradeship, the feelings of mutual dependence, and they regret that later life never quite recreates this wonderful experience again.

All the recent studies of dissatisfaction when slum dwellers are forced to move say essentially the same.[12] So far these studies have been used to demonstrate the poor quality of new towns and urban renewal; but this is really incidental. No one has been bold enough to face the larger fact. These people are moving from a traditional place-based society into the larger urban society where place-based community means nothing. When they make the move they lose their intimate contacts. This is not because the places they go to are badly designed in some obvious sense which could be easily improved. Nor is it because they are temporarily uprooted, and have only to wait for the roots of community to grow again. The awful fact is that modern urban society, as a whole, has found no way of sustaining intimate contacts.

Some people believe that this view is nothing but nostalgia for an imaginary past, and that what looks like alienation is really just the pain of parting from traditional society, and the birth pang of a new society.[13]

I do not believe it. I believe that intimate contacts are essential for human survival, and, indeed, that each person requires not one, but several intimate contacts at any given time. I believe that the primary groups which sustained intimate contact were an essential functional part of traditional social systems, and that since they are now obsolete, it is essential that we invent new social mechanisms, consistent with the direction that society is taking, and yet able to sustain the intimate contacts which we need.

Expressed in formal terms, this belief becomes a fundamental hypothesis about man and society:

An individual can be healthy and happy only when his life

contains three or four intimate contacts. A society can be a healthy one only if each of its individual members has three or four intimate contacts at every stage of his existence.[14]

Every society known to man, except our own, has provided conditions which allow people to sustain three or four intimate contacts. Western industrial society is the first society in human history where man is being forced to live without them. If the hypothesis is correct, the very roots of our society are threatened. Let us therefore examine the evidence for the hypothesis.

2. Evidence

Unfortunately, the only available evidence is very indirect. Individual health is hard to define; social health is even harder. We have no indices for low-grade misery or sickness: we have no indices for fading social vitality. In the same way, the relative intimacy of different contacts is hard to define and has never explicitly been studied. The evidence we really need, showing a correlation between the intimacy of people's contacts and the general health and happiness of their individual and social lives, does not exist.

In a strictly scientific sense, it is therefore possible only to examine a very extreme version of the hypothesis: namely, that *extreme* lack of contact causes *extreme* and well-defined social pathologies like schizophrenia and delinquency. Several large-scale studies do support this extreme form of the hypothesis.

Faris and Dunham studied the distribution of mental disorders in Chicago in the 1930's. They found that paranoid and hebephrenic schizophrenias have their highest rates of incidence among hotel residents and lodgers, and among the people who live in the rooming house districts of the city. They are highest, in other words, among those people who are most alone.[15]

Faris and Dunham also found that the incidence of schizophrenia among whites was highest among those whites living

in predominantly Negro areas, and that the incidence for Negroes was highest among those Negroes living in predominantly non-Negro areas.[16] Here again, the incidence is highest among those who are isolated.

Alexander Leighton and his collaborators have spent ten years in Stirling County, Nova Scotia, studying the effect of social disintegration on mental disorders.[17] To stress the fact that people in a disintegrated society exist as isolated individuals, without any kind of emotional bonds between them, he calls the disintegrated society a collection. In a collection there are numbers of individuals occupying the same geographical area, having nonpatterned encounters with each other. They have no personal contacts of any sort; they have no voluntary associations with one another—let alone any kind of intimate contact between households.[18] They are suspicious about making friends, and try to keep clear of all involvements with people.[19] These people have substantially higher rates of psychophysiological, psychoneurotic, and sociopathic disorders than people who live in a closely knit traditional community.[20]

Langner and Michael, studying the incidence of mental disorders in Manhattan, find that people who report fewer than four friends have a substantially higher chance of mental disorder than those who report more than four friends.[21] What is more, their findings suggest that this effect may even be partly responsible for the well-known correlation between low socioeconomic status and high rates of mental disorder and delinquency.[22] Langner and Michael find that people in the lowest socioeconomic groups tend to have fewer friends than the people in the highest socioeconomic groups. Thus in the lowest group, 12.7 per cent report no friends; in the highest group, only 1.8 per cent report no friends.[23] This may seem surprising to those readers who have an image of the lower socioeconomic groups as urban villagers, with widespread webs of friendship and kinship. Although the people who live in depressed areas

of cities do occasionally still have such a traditional society, and many friends, most of them live in conditions of extreme social disorganization. They do lack intimate friends; and it is very possible that this lack of intimate friends plays a substantial part in the correlation between poverty and mental disorder. Langner and Michael show, finally, that membership in formal organizations and clubs, and contact with neighbors, have relatively slight effect on mental health—thus supporting the idea the contacts must be intimate before they do much good.[24]

Many minor studies support the same conclusion. Most important among them are the widely known correlations between age and mental health, and between marital status and mental health. Various studies have shown that the highest incidence of mental disorders, for males and females, occurs above age 65, and, indeed, that the highest of all occurs above 75.[25] Other studies have shown that the incidence rates for single, separated, widowed and divorced persons are higher than the rates for married persons. Rates per thousand, for single persons, are about one and a half times as high as the rates for married persons, while rates for divorced and widowed persons are between two and three times as high.[26]

Of course the disorders among old people may be partly organic, but there is no getting away from the fact that old people are almost always more lonely than the young, and that it is usually hard for them to sustain substantial contacts with other people. In the same way, although the disorders among divorced and single people could actually be the sources of their isolation, not the causes of it, the fact that the rate is equally high for widowers and widows makes this very unlikely. In both cases we are dealing with populations of individuals who are exceptionally prone to isolation. The simplest possible explanation, once again, is that the loss of intimate contact causes the disorders.

So far we have discussed only cases of adult isolation. It is very likely that the effects of social isolation on children are even more acute; but here the published evidence is thinner.

The most dramatic available results come from Harlow's work on monkeys. Harlow has shown that monkeys isolated from other infant monkeys during the first six months of life are incapable of normal social, sexual, or play relations with other monkeys in their later lives:

> "They exhibit abnormalities of behavior rarely seen in animals born in the wild. They sit in their cages and stare fixedly into space, circle their cages in a repetitively stereotyped manner, and clasp their heads in their hands or arms and rock for long periods of time . . . . the animal may chew and tear at its body until it bleeds . . . . similar symptoms of emotional pathology are observed in deprived children in orphanages and in withdrawn adolescents and adults in mental hospitals.[27]

It is well known that infant monkeys—like infant human beings—have these defects if brought up without a mother or a mother surrogate. It is not well known that the effects of separation from other infant monkeys are even stronger than the effects of maternal deprivation. Indeed, Harlow showed that although monkeys can be raised successfully without a mother, provided that they have other infant monkeys to play with, they cannot be raised successfully by a mother alone, without other infant monkeys, even if the mother is entirely normal. He concludes: "It seems possible that the infant-mother affectional system is dispensable, whereas the infant-infant system is a sine-qua-non for later adjustment in all spheres of monkey life."[28]

In Harlow's experiments, the first six months of life were critical. The first six months of a rhesus monkey's life correspond to the first three years of a child's life. Although there is no formal evidence to show that lack of contact during these first three years damages human children—and as far as I know, it

has never been studied—there is very strong evidence for the effect of isolation between the ages of four to ten. There is also an informal account by Anna Freud, which shows how powerful the effect of contact among tiny children can be on the emotional development of the children.

Anna Freud describes five young German children who lost their parents during infancy in a concentration camp, and then looked after one another inside the camp until the war ended, at which point they were brought to England.[29] She describes the beautiful social and emotional maturity of these tiny children. Reading the account, one feels that these children, at the age of three, were more aware of each other and more sensitive to each other's needs than many people ever are.

The most telling study is that by Herman Lantz.[30] Lantz questioned a random sample of 1,000 men in the United States Army, who had been referred to a mental hygiene clinic because of emotional difficulties. Army psychiatrists classified each of the men as normal, suffering from mild psychoneurosis, severe psychoneurosis, or psychosis.

Lantz then put each man into one of three categories: those who reported having five friends or more at any typical moment when they were between four and ten years old, those who reported an average of about two friends, and those who reported having no friends at that time. The following table shows the relative percentages in each of the three friendship categories separately. The results are astounding:

	5 or More Friends	*About 2 Friends*	*No Friends*
Normal	39.5	7.2	0.0
Mild psychoneurosis	22.0	16.4	5.0
Severe psychoneurosis	27.0	54.6	47.5
Psychosis	0.8	3.1	37.5
Other	10.7	18.7	10.0
	100.0	100.0	100.0

Among people who have five friends or more as children, 61.5 per cent have mild cases, while 27.8 per cent have severe cases. Among people who had no friends, only 5 per cent have mild cases, and 85 per cent have severe cases.

It is almost certain then, that lack of contact, when it is extreme, has extreme effects on people. There is a considerable body of literature beyond which I have quoted.[31] Even so, the evidence is sparse. We cannot be sure that the effect is causal, and we have found evidence only for those relatively extreme cases which can be counted unambiguously. From a strictly scientific point of view, it is clearly necessary to undertake a special, extensive study to test the hypothesis in the exact form that I have stated it.

However, just because the scientific literature doesn't happen to contain the relevant evidence, that doesn't mean that we don't know whether the hypothesis is true or not. From our own lives we know that intimate contact is essential to life; and that the whole meaning of life shows itself only in the process of our intimate contacts.[32] The loss of intimate contacts touches each one of us—each one of you who reads this book. The evidence I have quoted happens to concern only people who are suffering from some form of extreme social isolation. But the loss of intimate contacts is not restricted to these people. It applies equally to the man who is happily married, a father of four children and a member of numerous local groups. This man may seem to have many contacts—indeed, he does—but the way that our society works today, he is still most likely lacking intimate contact as I have defined it, and therefore, if my hypothesis is right, even this lucky man is still suffering from disorders which are different only in degree from the extreme disorders I have mentioned. The way of life we lead today makes it impossible for us to be as close to our friends as we really want to be. The feeling of alienation, and the modern sense of the "meaninglessness" of life, are direct expressions of the loss of intimate contact.

3. The Autonomy-Withdrawal Syndrome

As far as we can judge, then, people need three or four intimate contacts at every moment of their lives, in order to survive. If they don't have these contacts they undergo progressive deterioration and disintegration. It is therefore clear that every human society must provide social mechanisms which sustain these intimate contacts, in order to survive as a society. Yet as we know, the historic mechanisms which once performed this function for our own society are breaking down.

I shall now try to show that we are faced not merely with the collapse of one or two social mechanisms, but rather with a massive syndrome, a huge net of cause and effect in which the breakdown of primary groups, the breakdown of intimacy itself, the growth of individualism, and the withdrawal from the stress of urbanized society are all interwoven. I shall call this syndrome *the autonomy-withdrawal syndrome.*

To study the syndrome, let us begin with the most obvious mechanical reasons for the breakdown of intimate contacts. I have already named them. In preindustrial societies the two institutions which sustained intimate contacts between adults were the extended family and the local neighborhood community. These two primary groups have almost entirely disappeared. The family has shrunk; friends have scattered.

The modern metropolis is therefore a collection of many scattered households, each one small. In the future, individual households will probably be even smaller, and the average size of urban areas even larger.[33] Under these circumstances the three or four intimate contacts which each individual needs are no longer available in his immediate physical surroundings: not in his shrunken family, nor in his neighborhood. We must therefore ask how, in a society of scattered, mobile individuals, these individuals can maintain intimate contact with one another.

Let us go back to the two conditions which intimate contact requires: (1) the people concerned must see each other very often, almost daily; and (2) they must see each other under informal conditions, not controlled by single role relationships or social rules. How can a society of scattered, mobile individuals meet these two conditions?

The first answer which comes to mind is this: since friendships in modern society are mostly based on some community of interest, we should expect the institutions which create such friendships—workplace, golf club, ski resort, precinct headquarters—to provide the necessary meeting ground. It sounds good; but it doesn't work. Though people do meet each other in such groups, the meetings are too infrequent, and the situation too clearly prescribed. People achieve neither the frequency nor the informality which intimacy requires. Further, *people can reach the true intimacy and mutual trust required for self-revelation only when they are in private.*

Frequent, private, almost daily meeting between individuals, under conditions of extreme informality, unencumbered by role prescriptions or social rules, will take place only if the people visit one another in their own homes. It is true that occasional meetings in public places may also be very intimate: but the regular, constant meetings which are required to build up the possibility of intimacy cannot happen in public places. In a society of scattered mobile individuals people will therefore be able to maintain intimate contacts with one another only if they are in the habit of constant informal visiting or "dropping-in."

In modern American society dropping-in is thought of as a peculiarly European custom. Yet in fact, it is a normal part of life in every preindustrial society. In part it has to be, because there are no telephones. But dropping-in is not merely the preindustrial version of what we do by phone. The very notion of friendship demands that people be almost totally

exposed to one another. To be friends, they must have nothing to hide; and for this reason, informal dropping-in is a natural and essential part of friendship. This is so fundamental that we may even treat it as a definition of true friendship. If two people feel free to drop in on each other knowing that they will be welcome, no matter what is happening, we can be sure that they are intimate friends; if two people feel inhibited about dropping in on each other, we can be sure they are not truly intimate. Why is dropping-in so rare in mobile urban society?

The first reason, of course, is still mechanical. Two people will not sustain a pattern of daily dropping-in unless they live within a few minutes of each other, ten minutes at the most. Although the car has enormously enlarged the number of people within ten minutes' distance of any given household, most of the people in the metropolis are still outside this distance. If we remember that we are concerned with the half dozen individuals who are potentially most intimate with any given individual, we must face the fact that in a metropolis these individuals are very likely to live as much as half an hour or an hour apart. At this distance, intimate contact can't develop. They see each other very rarely—at most once or twice a month for dinner —and when they do meet, it is after careful invitation, worked out in advance. These kinds of evening contact have neither the frequency, nor the informality, which intimacy requires.

However, distance alone, though it is a serious obstacle, does not fully explain the loss of intimacy. There is another reason for it, far more devastating, and far more profound: when people get home, they want to get away from all the stress outside. They feel more private than they used to feel. They treasure their quiet moments. A visitor who drops in unasked, at such a moment, even if he is a friend, is an intruder. People do not want to be perpetually exposed; they often want to be withdrawn. But withdrawal soon becomes a habit. People reach a point where they are permanently withdrawn, they lose

the habit of showing themselves to others as they really are, and become unable and unwilling to let other people into their own world.

At this stage people don't like others dropping in on them, because they don't want to be caught when they aren't ready: the housewife who doesn't like anyone coming around except when she has carefully straightened out her house; the family who don't like to mix their friends, and entertain their friends one couple at a time in case the couples shouldn't get along. Truly intimate contact is not possible to such people. They live behind a social facade. Afraid of showing themselves as they really are, they never reach a truly intimate degree of contact with others.

This fear is partly caused by stress. The man who lives in modern urban society is exposed to innumerable stresses: danger, noise, too many strangers, too much information, and above all, the need to make decisions about the complexities of personal life without the help of traditional mores. These stresses are often too much to bear; so he withdraws from them. He draws a cloak of impenetrability around him, to ward off the too many strangers he meets in the street; he locks his door; he lives buried beneath a system of elaborated social and behavioral defenses against unwelcome and unbidden intrusions from outside. The houses of a century ago were outward-looking; the porch had people on it; the front garden was occupied. Today only the slum-dwellers—who sit on the stoop because it is too grim inside—face toward the city. Everyone else has turned away. Even when they are in public, people behave as though the other people who surround them were not there. A man walks down the street with a glazed look, not looking at people's eyes, but focused determinedly on nothing. A woman cheerfully wears curlers in the street because, although she is curling her hair for people who are real to her, the people who surround her don't exist: she has shut them out.

In its extreme form, this withdrawal turns into schizophrenia: that total withdrawal into the self which takes place when the outside world is so confusing, or so hard to deal with, that the organism finally cannot cope with it and turns away.[34] In the process of withdrawing into the self, the schizophrenic loses sight, entirely, of his dependence on other people. Schizophrenics are completely individualistic: the world they live in is their own world; they do not perceive themselves as dependent on the outside world in any way, nor do they perceive any interaction between themselves and the outside world. Nor indeed, do they enter into any interaction with the world outside.[35]

The stress of urban life has not yet had this extreme and catastrophic effect on many people. Nevertheless, what is nowadays considered "normal" urban behavior is strikingly like schizophrenia: it is also marked by extreme withdrawal from stress, and this withdrawal has also led to unrealistic belief in individualism and the self-sufficiency of individuals.

Any objective observer comparing urban life with rural or preindustrial life must be struck by the extreme individualism of the people who live in cities.[36] This individualism has reached its most extreme form in the urban areas of the United States. Though it has often been criticized by non-Americans as a peculiarity of American culture, I believe this view mistaken. Individualism of an extreme kind is an inevitable by-product of urbanization—it occurs as part of the withdrawal from stress. This individualism is very different from healthy democratic respect for the individual's rights. It is a pathological overbelief in the self-sufficiency and independence of the individual and the individual family, and a refusal to permit dependence of any emotional weight to form. Where contact with others reaches very high proportions—beyond the capacity of the individual organism—the organism is forced to shut these contacts out, and therefore to maintain an unreal belief in its own powers of self-sufficiency.[37]

An obvious expression of individualism is the huge amount of space which people need around them in the United States. Edward Hall has shown that each person carries an inviolable "bubble" of personal space around with him and that the size of the bubble varies according to the intimacy of the situation which the person is involved in.[38] He has also shown that the size of bubble required varies from culture to culture. It is remarkable that people need a larger bubble in the United States, for any given situation, than in any other country; this is clearly associated with the fear of bodily contact, and with the fact that people view themselves as isolated atoms, separate from everybody else.

This isolation of the individual is also expressed clearly by the love of private property in the United States, and the wealth of laws and institutions which keep people's private property inviolate.

Another recent, and extreme, form of this worship of the individual exists in certain communities on the west coast of the United States, like Canyon, east of Oakland. The people in Canyon have a cult of honesty—about their individual wants—which leads to total disregard for others. Each one of them eats when he chooses to—in order to be "honest"—which means that groups no longer eat communally around a table. They are highly unresponsive to one another: when they meet, instead of moving physically toward each other as normal people do, they merely incline their heads, or nod with their eyelids. Each individual comes and goes as he pleases: there is no mutuality, no interplay of reaction and response.

Another form of extreme individualism, which threatens the development of intimate contacts, is the exaggerated accent on the nuclear family. In modern urban society it is assumed that the needs for intimate contact which any one individual has can be completely met in marriage. This concentration of all our emotional eggs in one basket has gone so far that true in-

timacy between any friends except man and wife is regarded with extreme suspicion. As Camus says: in Greece a man and his friend walk down the street holding hands—in Paris people would snigger at the sight.

Perhaps the most vivid of all expressions of individualism is the song *People who need people are the luckiest people in the world*, top of the U.S. hit parade in 1964. A society where this statement needs to be made explicitly has reached a low ebb indeed.

Where has this exaggerated arrogant view of the individual's strength come from? It is true that it is a withdrawal from stress. But it could never have happened if it weren't for the fact that urbanization makes individuals autonomous. The extreme differentiation of society in an urban area means that literally any service can be bought, by anyone. In material terms, any individual is able to survive alone. Women can make a living on their own; teenagers no longer need their families; old people can fend for themselves; men are able to get meals from the local automat, or from the freezer in the supermarket. Insurance is not provided by the extended family, but by the insurance companies. Autonomous trailer houses can exist in the wilderness without community facilities.

Of course these isolated, apparently autonomous individuals are in fact highly dependent on society—but only through the medium of money. A man in a less differentiated rural economy is constantly reminded of his dependence on society, and of the fact that his very being is totally intertwined with the being of the social order, and the being of his fellows. The individual who is technically autonomous, whose dependencies are all expressed in money terms, can easily make the mistake of thinking that he, or he and his family, are self-sufficient.

Now, naturally, people who believe that they are self-sufficient create a world which reinforces individualism and withdrawal. In central cities, this is reflected in the concept of apartments. Though collected together at high densities, these apartments are in fact, like the people themselves, totally turned inward. High density makes it necessary to insulate each apartment from the world outside; the actual dwelling is remote from the street; it is virtually impossible to drop in on someone who lives in an apartment block. Not surprisingly, recent studies report that people who live in apartments feel more isolated than people who live in any other kinds of dwelling.[39]

But autonomy and withdrawal, and the pathological belief in individual families as self-sufficient units, can be seen most vividly in the physical pattern of suburban tract development. This is Durkheim's dust-heap in the flesh. The houses stand alone: a collection of isolated, disconnected islands. There is no communal land, and no sign of any functional connection between different houses.

If it seems far-fetched to call this aspect of the suburb pathological, let us examine the results of a study undertaken in Vienna in 1956. The city planning department gave a questionnaire to a random sample of 4,000 Viennese, to find out what their housing preferences were. Most of them, when asked whether they would rather live in apartments or in single-family houses, said that they preferred apartments, because they wanted to be near the center where everything was happening.[40]

A Viennese psychiatrist then gave the same questionnaire to 100 neurotic patients in his clinic. He found that a much higher majority of these patients wanted to live in one-family houses, that they wanted larger houses relative to the size of their families, that they wanted more space per person, and that more of them wanted their houses to be situated in woods and trees. In other words, they wanted the suburban dream. As he says: "The neurotic patients are marked by a strong desire to shun reality and to isolate themselves."[41]

Most people who move to suburbs are not sick in any literal sense. However, there can be no question that their move is a

withdrawal. The four main reasons which people give for moving to the suburbs are: (1) Open space for children, because children can't play safely in central urban areas.[42] (2) Wanting more space inside the house than they can afford in the central city.[43] (3) Wanting to own a house of their own.[44] Ownership protects the owner from the uncertainties of tenancy, from reliance on others, and from the dangers of the future. It creates the illusion that the owner and his family have a world of their own, where nobody can touch them. (4) Wanting more grass and trees.[45]

Each of these is a withdrawal from stress. The withdrawal is understandable; but the suburb formed by this withdrawal undermines the formation of intimate contacts in a devastating way. It virtually destroys the children's play-group.

As we saw earlier, the intimate contacts in preindustrial society were maintained by three primary groups: the extended family, the neighborhood group, and the children's play-group. The first two, those which maintain intimate contacts between adults, are obsolete, and need to be replaced. But the third primary group—the children's play-group—is not obsolete at all. Little children, unlike adults, do choose their friends from the children next door. It is perfectly possible for children's play-groups to exist in modern society, just as they always have; and indeed, it is essential. The children's play-group sets the whole style of life for later years. Children brought up in extensive play-groups will be emotionally prepared for intimate contacts in later life; children brought up without play-groups will be prone to individualism and withdrawal.

On the face of it, the suburb ought to be a very good place for children's play-groups. People move to a suburb specifically for the sake of their children. It has open space, and safety, and good schools. Yet, paradoxically, this children's paradise is not a paradise at all for little children. Children begin to seek other children at about ten months.[46] Remembering that Harlow's

monkeys required play with other monkeys during the first six months of life in order to be normal, and that these first six months correspond to the first three years in the life of a human child, let us ask: "How well does a suburban subdivision cater for the play-groups of the one and two and three-year-olds?"

If you drive through a subdivision, watching children play, you will see that children who are old enough to have school friends do have local play-groups of a sort. (Even these groups are sparse; in summer many of the children have to be sent off to summer camp.) But what happens to the smallest children? If you look carefully, you see them squatting forlornly outside their houses—occasionally playing with an elder brother or sister, and occasionally in groups of two or three, but most often alone. Compare this with the situation in a primitive village, or with a crowded urban slum: there the little children are out on the street fending for themselves as soon as they can walk; heaps of children are playing and falling and rolling over one another.

The need for preschool play-groups is so desperate and urgent that many mothers try to get their children into nursery school.[47] But even nursery school lasts only 15 hours a week. For a child the week is 100 waking hours long. The 15 hours of nursery school do little to relieve the damage of the other 85 hours.

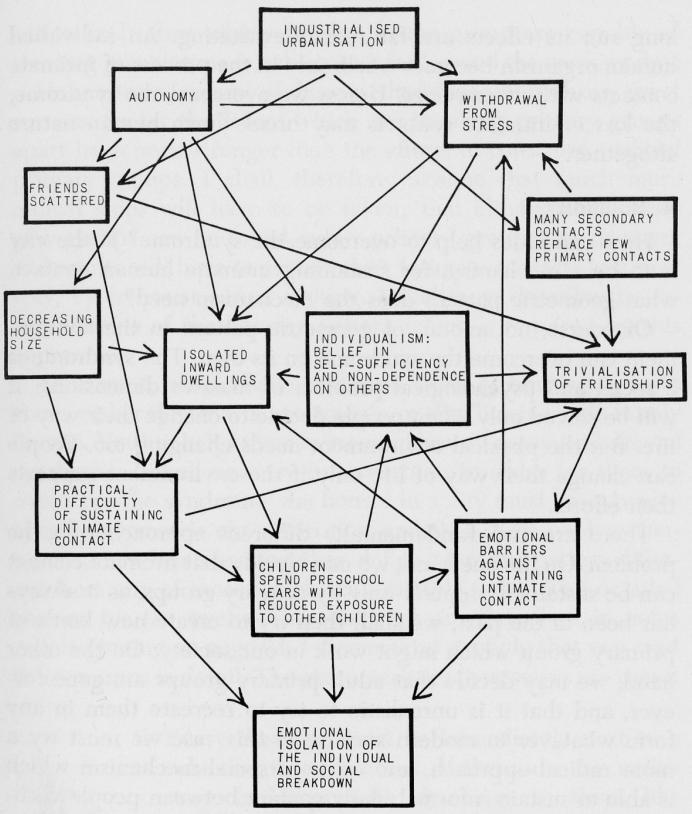
Why are suburban play-groups small? There are several different reasons. First of all, suburban density is low and little children can't walk very far. Even if every house has children in it, the number of two and three-year-olds that a given two-year-old can reach is very small. Secondly, even though the suburb is safer than the central city, the streets still aren't entirely safe. Mothers keep their two and three-year-olds off the street, inside the individual yards, where they can keep an eye on them. This cuts the children's freedom to meet other children. Further, many suburbs have no common land at all in them, not even sidewalks. There isn't any natural place where

children go to find each other: they have to go and look for each other in one another's houses. For a child this is a much more formidable enterprise than simply running out to see who's on the street. It also makes the children hard to find, and keeps the size of play-groups down, especially since many parents won't allow large groups of children in the house. And finally, when children play in one another's yards, parents can control the playmates they consider suitable: "Johnny isn't nice, you mustn't play with him." One young mother told me that her son, four years old, had to be driven to the nearest child he was allowed to play with, and had to come home by taxi.

It is small wonder that children who grow up in these conditions learn to be self-reliant in the pathological sense I have described. As they become adults they are even less able than their parents to live lives with intimate contacts; they seek even more exaggerated forms of individualism and withdrawal. As adults who suffer from withdrawal they create a world which creates children who are even more prone to suffer from withdrawal, and more prone to create such worlds. This closes the cycle of the syndrome, and makes it self-perpetuating.

We may summarize the syndrome briefly. Stress forces people to withdraw into themselves; autonomy allows them to. Pushed by stress, pulled by autonomy, people have withdrawn into a private world where they believe that they are self-sufficient. They create a way of life, and an environment, which reflects this belief; and this way of life, and this environment, then propagate the same illusion. It creates more people who believe in self-sufficiency as an ideal, it makes intimate contact seem less necessary, and it makes it more and more difficult to achieve in practice.

The autonomy-withdrawal syndrome is not a unique American phenomenon. It is true that it is, so far, more acute in the United States than in any other country; but this is merely because urbanization is more advanced in the United States than



The autonomy-withdrawal syndrome

anywhere else. As massive urbanization spreads, the syndrome will spread with it. I believe this syndrome is the greatest threat to social human nature which we face in this century. We have already seen that it can create misery and madness. But in the

long run its effects are far more devastating. An individual human organism becomes a self only in the process of intimate contacts with other selves. Unless we overcome the syndrome, the loss of intimate contacts may break down human nature altogether.

4. Solution

How can cities help to overcome the syndrome? If the city is to be a mechanism for sustaining intimate human contact, what geometric pattern does the mechanism need?

Of course, no amount of geometric pattern in the environment can overcome the syndrome on its own. The syndrome is a social and psychological problem of massive dimensions: it will be solved only when people decide to change their way of life. But the physical environment needs changing too. People can change their way of life only if the environment supports their efforts.

There are two fundamentally different approaches to the problem. On the one hand, we may decide that intimate contact can be sustained properly only by primary groups, as it always has been in the past; we shall then try to create new kinds of primary group which might work in our society. On the other hand, we may decide that adult primary groups are gone forever, and that it is unrealistic to try to recreate them in any form whatever in modern society; in this case we must try a more radical approach, and create a social mechanism which is able to sustain informal, daily contact between people without the support of a primary group.

It may be that the first of these approaches is the more hopeful one. This is what T-groups try to do, it is the idea behind the groups of families which Aldous Huxley describes in *Island,* and above all, it is the idea behind group work. If work can be reorganized so that people band together in small work groups of about a dozen, and each group is directed toward a single concentrated socially valuable objective, then the dedication and effort which develop in the group are capable of creating great intimacy, which goes far beyond the working day.

However, so far none of these methods has met with any great success. So far the forces which are breaking primary groups apart have been stronger than the efforts to construct artificial primary groups. I shall, therefore, assume that much more radical steps will have to be taken: that although children's play-groups can be saved, adult primary groups are doomed, and adults will have to sustain their intimate contacts in a new way, by frequent casual visiting. I shall now describe the reorganization of the housing pattern which is required by this approach.

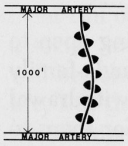
At present, people have two main kinds of housing open to them: either they live in apartments, or they live in single-family houses. Neither helps them overcome the autonomy-withdrawal syndrome. I shall now try to show that, in order for them to overcome the syndrome, the houses in a city must have twelve specific geometric characteristics, and that these twelve characteristics, when taken together, define a housing pattern different from any of those which are available today. The detailed reasons for the twelve characteristics are described in notes *a–l,* beginning on page 94. I recommend strongly that you read these reasons in detail. The characteristics themselves are these:

1 Every dwelling must be immediately next to a vehicular through street. If there are any multistory buildings with dwellings in them—like apartments—then there must be vehicular through streets at every level where there are entrances to dwellings.[a]

2 Each dwelling must contain a transparent communal room with the following properties: on one side the room is directly adjacent to the street, on the opposite side the room is directly adjacent

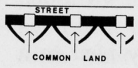
to a private open air court or garden. Since the room is transparent its interior, seen against the garden, and the garden itself, are both visible from the street.[b]

3 This transparent communal room is surrounded by free-standing, self-contained enclosed pavilions, each functioning as a bed-living unit, so arranged that each person in the family, or any number of people who wish to be undisturbed, can retire to one of these pavilions and be totally private.[c]

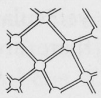


4 The street immediately outside the dwelling must be no more than about 1,000 feet long, and connected to a major traffic artery at each end.[d]

5 There must be a continuous piece of common land, accessible and visible from every dwelling.[e]



6 This common land must be separated from the streets by houses, so that a child on the common land has to go through a house to get to the street.[f]



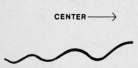
7 The common land, though continuous, must be broken into many small "places," not much larger than outdoor "rooms," each surfaced with a wide variety of ground surfaces, especially "soft" surfaces like earth, mud, sand, grass, bushes.[g]

8 Each house must be within 100 yards' walk of 27 other houses.[h]

9 Over-all residential densities throughout the metropolitan area must be as high as possible.[i]

10 The entire exterior surface of the residential area is an undulating hillside, covered with grass and flowers and trees: the houses are set immediately under the surface of this hillside.[j]

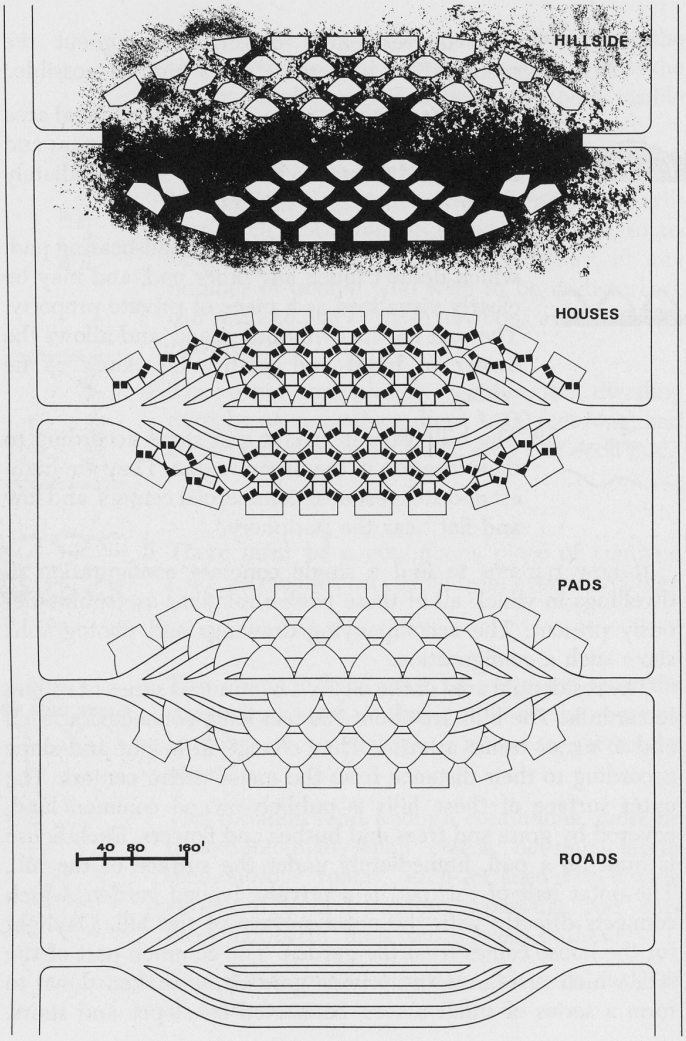
11 Each house is on an individual load-bearing pad, which doesn't touch any other pad, and may be clearly visualized as a piece of private property. The pad has its own open space, and allows the owner to build and modify his house as he wishes.[k]



12 The hills vary in height and slope according to their location in the urban region. They are highest and steepest near commercial centers, and low and flat near the periphery.[l]

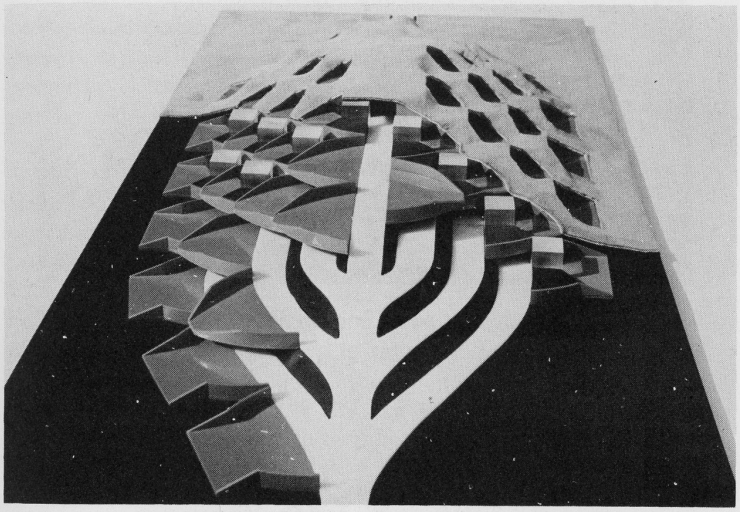
It now remains to find a single concrete configuration of dwellings in which all of these twelve relations are simultaneously present. The accompanying drawings and photographs show such a configuration.

The residential area of the city is a continuous series of rolling linear hills. The hills are about 700 feet long, connected at each end to major traffic arteries. They change in height and slope according to their distance from the major urban centers. The outer surface of these hills is publicly-owned common land, covered by grass and trees and bushes and flowers. Each house is built on a pad, immediately under the surface of the hill. The outer half of this pad is a private, fenced garden, which connects directly with the outer surface of the hill. Daylight for the house comes from the garden. The common part of the hill, which surrounds the private gardens, is broken down to form a series of small places, connected by slopes and stairs.

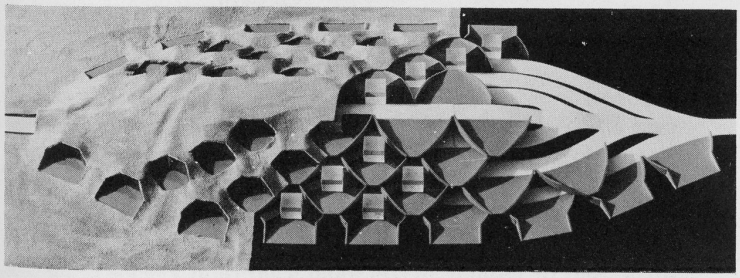


Four hills in plan, with different amounts cut away

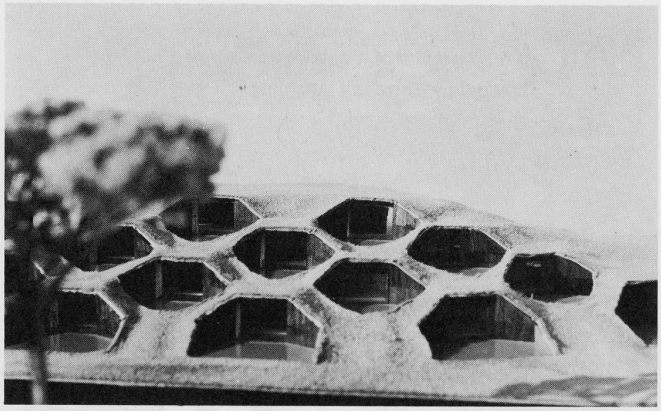
Photographs of a cutaway model of a hill.
Model by Terrence Mechling



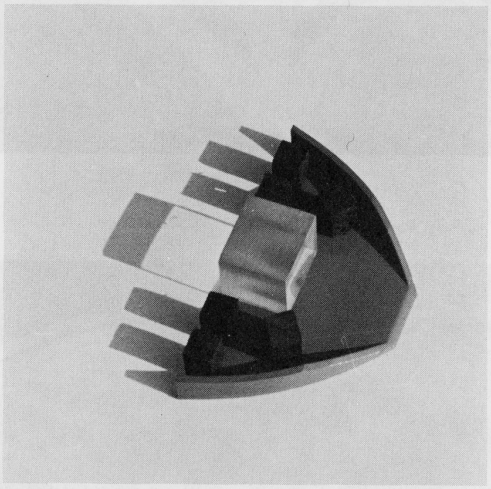
a.



b.



c.



d. Single pad with transparent communal room and six private pavilions

Each house is served by a street inside the hill, at its own level. The house is immediately next to its street. Each house has two basic components: a communal room and a number of private pavilions. The communal room, which is next to the street, between the street and the garden, is open to the street, and transparent, so that the garden is visible through it, and so that people inside this room are visible against the light. The private pavilions are arranged around this communal room, under the roof provided by the hillside above.

This configuration contains all twelve relations specified. Although it can be varied in many details without damaging any of the twelve relations, I do not believe that it is possible to find a configuration which differs *fundamentally* from the one I have described and still contains all of the twelve. However, I should not like this configuration to be thought of as a building. Many problems still need to be worked out before it can be built. The configuration must be thought of simply as a partial specification of what a city has to be, to function as a mechanism for sustaining human contact.

Let me once more repeat the central argument. It is inevitable that urban concentrations create stress. People in cities are exposed to stress more than people in small towns and villages. Our first reaction to this urban stress is to move away from it; to turn our backs on it; to try and escape it. This is very natural. Yet the remedy is worse than the disease. The ills of urban life which are commonly attributed to density and stress are in fact produced not by the original stress itself, but by our own actions in turning away from that stress. The stress is making us turn inward. If urban society is to survive, we must overcome this overreaction. There is only one way to overcome it. We must take our lives in our hands, we must overcome the temptation to turn away; we must make ourselves vulnerable. Each individual in society must once more expose himself to those dan-

gers which, in his eagerness to escape from stress, he has shut out altogether. If people do not expose themselves, if they do not dare to make themselves vulnerable, life will become more and more intolerable, and we shall see more and more of the signs of dissociation which are already far too evident. The pattern of twelve relations which I have presented has only this one objective. It brings people out of hiding, and lets them expose themselves to the larger fabric of the city and to society, and to their friends. In such a city there is some chance of breaking down the autonomy-withdrawal syndrome. In our own cities there is no chance at all.

---

a. In the modern city, many houses, and almost all apartments, are some distance off the street. Yet people live so far apart that they have to move around by car or motor-bike. Informal dropping-in will work properly only if all dwellings are directly on the street, so that people in the dwelling can be seen directly from a passing car.

It may be said that this is unnecessary since people who want to visit one another informally can telephone ahead, and ring the doorbell when they get there. This argument is superficial. People will make a regular habit of informal visiting only if they can be certain that they are really wanted when they get there. A phone call in advance, though useful for less subtle kinds of communication, does not convey enough information to make this possible. If you call someone, you cannot be sure from what he says on the phone whether it is really a good time to go around or not. This will be true even with TV-telephones. To be sure, you need to see him: you need to know who else is there, what they are doing, what kind of mood everyone is in, what the children have been doing, whether they are tired or not, whether the whole family would rather be alone. You can find these things out only by seeing for yourself.

But if you go and knock on someone's door, and it turns out to be a bad moment, your visit is already too far advanced for you to withdraw gracefully. Once you are on the doorstep, the hosts feel obliged to invite you in.

It is therefore essential to see the people you intend to visit inside their house, from your car. You wave to them; you sound the horn; you shout a few words. By then you have had a chance to assess the situation, and they have had a chance to react. If it is the right moment for a visit, they will invite you in. If it is not, you talk for a few moments, without leaving your car—and you can then drive on, without embarrassment to either side. It is therefore essential that the house be directly on a through street, and that some part of the house be transparent and directly visible from passing cars.

b. The part of the house which is visible must be indoors, so that it can be used year round and since it is indoors it must have windows both on the street side and on the far side, so that people inside can be seen from the street. It must therefore be a transparent room. The room must be designed in such a way that people will go there whenever they are feeling sociable, and likely to welcome a casual visitor. But if the room is merely facing the street, people won't want to sit there; the street is far less pleasant than it used to be. That is why the porch is obsolete. Nowadays people tend to build their living rooms facing away from the street, toward some kind of view or garden. The transparent room, though visible from the street, must therefore be oriented toward a private court or garden, with a view beyond. Under these circumstances it will be a natural place for people to go for family meals, when they want to read the paper, have a drink, or gossip. In warm seasons they may also sit in the court beyond, where they will still be visible from the street.

c. If the communal room of the house is visible from the street, and open to passing friends, then the private rooms of the house must be far more private than they are today, so that their privacy is not infected by the openness of the communal room. Each of these private rooms must be a more or less self-contained pavilion, where people can be entirely undisturbed—either alone, or two, or as a group. People who live in such a house must learn to distinguish deliberately between being accessible and being inaccessible. When they want to be accessible, they go to the communal room; when they want to be inaccessible, they go to one of the private pavilions.

d. The house must be so placed that people can drive past it easily, without having to go too far out of their way. This means that

the house must be on a street which is reasonably short, and connected at each end to a traffic artery that plays a major part in the over-all traffic system.

e. Suburban yards are far too private. They allow only small groups to form, they make it hard for children to find each other, and they allow parents to regulate the other yards their own children may visit. In order to overcome these difficulties, and to give children the chance to meet freely in groups, there must be common land where they can always go to find each other.

In some of the older and denser suburbs, the wide sidewalks provide such common land. However, most suburban tract developments have very narrow sidewalks, or no sidewalks at all: and anyway most middle-class parents consider even the sidewalk dangerous, or rule it out on the ground that "well brought up children don't play in the street." Most important of all, even in the suburbs, parents still feel very protective about the smallest children. They will allow these children to play freely on common land only if they are convinced that the children will be completely safe while they are playing there.

This means, first of all, that the access to the common land must be direct from every house; it must not be necessary to cross streets or other public thoroughfares to get there. Secondly, the common land must be visible from the house itself, so that the parents can, if they want to, watch their children playing there. Third, the common land must be so placed that a child cannot get to any vehicular street without going through a house. Finally, the common land must be disassociated from the street, and clearly meant for play, so that it has no connotation of "playing in the street." If all of these conditions are met, parents will allow the little children—even toddlers—to roam freely on and off the common land, and the play-groups have a good chance of forming.

f. See previous note.

g. One condition must be met, to make sure that the children really like the common land, and don't end up preferring their own yards, or other places. Little children do not enjoy playing in great big open areas. They seek small corners, and opportunities for secrecy; and they seek plastic materials—water, earth, and mud. L. E. White, "The Outdoor Play of Children Living in Flats," *Living in Towns*, ed. Leo Kuper (London, 1953), pp. 235-64. The common land, then, must be broken up into many tiny places, which have natural earth and mud and plants in them.

h. Let us assume that there are two children per household in the areas where children live (the modal figure for suburban households), and that these children are evenly distributed, in age, from 0 to 18. Roughly speaking, a given preschool child who is x years old will play with children who are $x - 1$ or x or $x + 1$ years old. In order to have a reasonable amount of contact, and in order for play-groups to form, each child must be able to reach at least five children in this age range. Statistical analysis shows that in order for each child to have a 95 per cent chance of reaching five such potential playmates, each child must be in reach of 27 households.

(The problem may be stated as follows: In an infinite population of children, one-sixth are the right age and five-sixths are the wrong age. A group of r children is chosen at random. The probability, $P_{r,k}$ that these r children contain exactly k right-age children is given by the hypergeometric distribution. The probability that r has 5 or more right-age children in it is $1 - \sum_{k=0}^{4} P_{r,k}$. If we now ask what is the least r which makes $1 - \sum_{k=0}^{4} P_{r,k} \geq .95$, r turns out to be 54, requiring 27 households.)

If we assume that preschool children are not able, or allowed, to go more than about 100 yards in search of playmates, this means that each house must be within 100 yards of 27 other houses. To achieve this density in a conventional suburban layout, house lots would have to be less than 40 feet wide, about half the width and twice the density they are today.

i. There is a second reason why residential densities must be higher than today. Informal daily dropping-in will not take place between two households that are more than about ten minutes apart. Since average door-to-door speeds in urban areas are about 15 mph, ten minutes is about 2½ miles, thus putting each person in reach of about twenty square miles, or about 100,000 people at current metropolitan densities. This is a tiny fraction of the population of a metropolitan area—a twentieth of a small one, a hundredth of a large one. Since we have started out with the axiom that a person's

best friends may live anywhere in the metropolitan area, this means that people are within dropping-in distance of no more than a twentieth of their potentially closest friends.

Obviously vehicle speeds and streets can be improved. But it seems unlikely that average door-to-door speeds will more than double in this century. This means that people in the largest metropolitan areas will still be within informal distance of less than one-twentieth of the population. While transportation must clearly be improved, it is clear that over-all mean densities must *also* be raised as far as they can be.

Many planners believe that high density is bad for man. This is based on the fact that high density is often correlated with the incidence of crime, delinquency, ill health, and insanity. If this belief were justified, any attempt to increase the density of population would obviously be ill advised. However, though the belief has a long history, the evidence available today does not support it.

Let us try to disentangle the evidence. First of all, there seems little doubt that overcrowding—too little living space per person—does cause damage. Calhoun has shown this dramatically for rats. J. B. Calhoun, "Population Density and Social Pathology," *Scientific American*, 206 (Feb., 1962), pp. 139-46. Loring, Chombard de Lauwe, and Lander have shown that it is true for humans. William C. Loring, "Housing Characteristics and Social Disorganization," *Social Problems* (Jan., 1956); Chombard de Lauwe, *Famille et habitation* (Paris: Editions du Centre National de la Recherche Scientifique, 1959); B. Lander, *Towards an Understanding of Juvenile Delinquency* (New York: Columbia University Press, 1954). This finding makes it clear that people who are now forced to live in crowded conditions either need more income, or need ways of reducing the square foot costs of living space. But it does not imply that the density of population per square mile should be reduced. Even dwellings which are individually very large can still be arranged at very high population densities without overcrowding.

What evidence is there that high population density itself causes ill effects? It is true that there is often a positive correlation between high population density and various indices of social disorder, like crime, delinquency, ill health, and insanity rates. Robert C. Schmitt, "Delinquency and Crime in Honolulu," *Sociology and Social Research*, 41 (Mar.-Apr., 1957), pp. 274-76, and "Population Densities and Mental Disorders in Honolulu," *Hawaii Medical Journal*, 16 (Mar.-Apr., 1957), pp. 396-97. However, it seems almost certain that these effects are caused by intervening variables, and are not directly caused by density. There are places—Boston's North End and Hong Kong, for instance—which have exceptionally high densities and exceptionally low indices of social disorder. Jane Jacobs, *The Death and Life of Great American Cities* (New York, 1961), pp. 10 and 206; Robert C. Schmitt, "Implications of Density in Hong Kong," *AIP Journal*, 29 (1963), pp. 210-17. Unless we assume that Italian-Americans and Chinese are organically different from other people, this means that density, as such, cannot be the source of trouble in the cases where a correlation does exist.

The following hypothesis fully explains all the observed correlations: Those social disorders apparently caused by density are in fact caused by low income, poor education, and social isolation. It is known that people who are poor and badly educated tend to live in high density areas. It is also known that people who are socially isolated tend to live in high density areas. Both variables are associated with high indices of social disorder. Although some published studies of density have controlled for one or the other of these variables, no study has controlled them both. Lander (p. 46) has shown that the correlation between *overcrowding* and delinquency, when controlled for these two variables, vanishes altogether. Schmitt has published a table showing that the correlations persist when income-education is controlled, but also showing a strong negative correlation between household size and social disorder (large households are less prone to social disorders), which suggests strongly that social isolation may be responsible for the persistent correlation. Robert C. Schmitt, "Density, Health and Social Disorganization," *AIP Journal*, 32 (Jan., 1966), pp. 38-40. The fact that there are very few social disorders in Boston's North End and in Hong Kong is clearly due to the existence of close-knit extended families: the lack of social isolation. I predict that the partial correlation between density and social disorder, when controlled for income-education *and* for social isolation, will disappear altogether.

This hypothesis explains all the available data. Although it is untested, there is no published evidence which contradicts it. As far

as we can tell, the high density characteristics called for by the need for contact are perfectly safe.

j. We cannot expect people to live at high density, just because it has certain social benefits. The low density of suburban tracts is not due to chance; it has been created by a number of insatiable demands, far more important to consumers than the point of view I have presented. These demands are so basic, and play such a basic role in the operation of the urban land market, that low residential density is a universal feature of emerging metropolitan areas throughout the world. Unless these demands can be satisfied equally well at higher densities, there is not the slightest hope that over-all densities will ever be increased. There are five main demands: (1) People seek more open space for their children than they can find in central urban areas. (2) People want to live in a house which is their very own property. (3) People seek more space per person than they can afford in central areas. (4) People want a house which is different from the next man's—not simply one of hundreds of identical apartments. (5) People seek grass and trees as symbols of stability and peace.

All of these demands lead to the same basic tendency: the desire for land. The pattern of density in an urban region is created by the conflict between this one basic tendency and another equally basic tendency: the desire for easy access to central areas. For a given income, each person can choose less land at the center, or more land further from the center. When a population of individuals tries to resolve this conflict for themselves, a characteristic pattern of density comes into being: density declines exponentially with distance from the center according to the equation: $d_r = d_o e^{-br}$. Brian J. L. Berry, James W. Simmons, and Robert J. Tennant, "Urban Population Densities: Structure and Change," *Geographical Review*, 53 (1963), pp. 389-405; John Q. Stewart and William Warntz, "Physics of Population Distribution," *Journal of Regional Science*, Vol. I (1958), pp. 99-123. This relation holds for cities all over the world. Colin Clark, "Urban Population Densities," *Journal of the Royal Statistical Society*, Series A, 114 (1951), Part 4, pp. 490-96; Berry, cited. What is even more surprising, the relation is almost entirely fixed by absolute population, and by the age of the city. This means that in a free market, neither the over-all mean density of a city nor the densities at different distances from the center can be controlled by planning action.

They can, however, be controlled indirectly. The density pattern comes into being as a result of millions of peoples' efforts to resolve the conflict between their desire for access and their desire for land. If we can make land more useful, so that a person can get a given level of satisfaction from a smaller piece of land than he needs to get that satisfaction now, then the desire for access will balance differently against the desire for land, and densities will increase.

Land is valuable for two basic reasons. First of all, it is the prime building surface. Secondly, it provides open space. The first is replaceable. The second is not. It is easy to create artificial building surfaces at many levels. But the area of open space cannot be increased beyond the area of the land. This is a basic natural resource. Yet this resource is almost entirely wasted and destroyed in urban areas today. Fifty per cent is wasted on roads and parking lots, which really don't require it: 25 per cent is wasted on roofs, which get no benefit from it at all. The 25 per cent of open space left over is chopped up and useless.

If a city were built so as to conserve this resource, with all roofs covered with grass and trees, and all roads roofed over, so that the total exterior surface of the city was a parkland of grass and flowers and bushes and trees, people could have the very same amenities they have today, at far higher densities.

How much useful open land does a family in a suburban tract command? At a gross density of 5,000 persons per square mile, each family has a lot about 70′ by 100′, 7,000 square feet in all. Of this, 2,000 square feet go to the house, and another 1,000 square feet to the driveway, leaving about 4,000 square feet of open land, or about 1,000 square feet per person. If the entire exterior surface of the city were artificial open land, it would be possible to house 25,000 people per square mile, and still give them the same 1,000 square feet of open land per person.

To make it work, the surface must undulate like a range of rolling hills, so that windows in the hillsides can get daylight to the houses under the surface.

k. So that people can get the same feeling of ownership, and the same opportunity to build what they want and the same private

open space that they get in the suburbs, the houses under the hillside must be built on individual artificial lots. To avoid the half-hearted feeling of ownership which condominium apartments offer, each lot must be totally separate from the other lots, and so made that the owner can build what he wants to on his own lot. Each lot is an individual load-bearing pad, large enough to hold a 2,000-square-foot house with a private garden.

l. Since density will still vary with distance from urban centers, even if the land-access equation changes, the hills must vary in height and slope. The highest and steepest hills, whose density is greatest, will be near the urban centers; the low flat hills at the periphery.

Comments on

Alexander

H. PETER OBERLANDER

Program of Community and Regional Planning, University of British Columbia

How does Mr. Alexander's insight help us to achieve a start in defining our notion of optimum environment? I have had the benefit of reading some of the things that Mr. Alexander has written before, and I will discuss what he has done and what still needs to be done.

In his book, *Notes on the Synthesis of Form*,* he distinguishes between form and context. Let me quote: "The ultimate object of design is form." He explains this by using the old example of iron shavings placed in a magnetic field, where they are obviously responding to these forces and creating a form. He then goes on to say, "Every design problem begins with an effort to achieve fitness between two entities; the form in question and its context. The form is a solution to the problem; the context defines the problem. When we speak of design, the real object is not the form alone but the

* Cambridge: Harvard University Press, 1964.

assembly comprising the form and its context. Good fit is a desired property of this assembly which relates to a particular division of this assembly into form and context." There is a wide variety of assemblies which we can talk about like this; the ecological example is very clear in our minds since Dr. Dubos outlined this notion.

"In the pursuit of urbanism," Alexander continues, "the assembly which confronts us is the city and its habits. Here the human background, which defines the needs for new buildings, and the physical environment provided for the available sites make a context for the form of the city's growth. In an extreme case of this kind, we may even speak of a culture which is in itself an assembly where the various factions and artifacts which develop are slowly fitted into the rest."

Density by itself, Alexander suggests, has no real impact one way or the other. I entirely agree, on the basis of my own studies and analyses. My concern is with space and its human usefulness as the basic, and perhaps most critical, component of our urban fabric.

If we look at the city from any vantage point we see that space is created by default, not by design. It is what's left over after people have built buildings and put them on the ground. Not only is that critical space negatively created, but it is created and enforced by law. This is the point I wish to stress. We are surrounded by and operate within a context of restraints which have the force of law. The basis of that, as we well know, is arbitrary. These are absolute measurements without real functional standards. The setback, the side yard, the front yard are all rule of thumb. What's magic about a 5-foot side yard? A 35-foot setback? Why not 34½ or 33⅓? Having studied building and zoning laws across the country this past five years, we have found a surprising similarity of these "magic" numbers. We have found that these are arbitrary and, I submit, based on an irrational notion of what space is and of its utility and on an entire negation of its utility for those who are supposed to use it, and above all, for those who own it. These standards of space are rigid and resistant to change, for they are enforced by law.

What are we trying to achieve in trying to make sure everyone has a setback, a side yard, a front yard, particularly in the most critical component of the urban environment, the residential sector? Why are we trying to separate buildings by force of law, and what

are we trying to achieve when we in fact impose space and, in effect, make people give up their land without compensation? The 35-foot setback in the city of Vancouver is, to my mind, a flagrant taking away of the usefulness of land without compensation.

We have to develop a system of space objectives. This can be paralleled with a system of space coordinates. These together could result in a matrix of space requirements which would be both rational and systematic and subject to both description and measurement. I am talking about performance standards which are responsive to changing needs and which can achieve the notion of the utility of space above and beyond the notion of density. Our studies are restricted to residential areas because that is where the problem seems to be the most critical.

Space as an essential component of human life, of human action and interaction, in the residential segment is subject to specific analysis. In the history of building standards and zoning by-laws you will find that they all started with a crisis. In the middle of the seventeenth century, the city of London was destroyed by fire. It was because of that fire threat that men began to insist on separation of buildings. So we looked at fire as a real measure of space and its utility. We then looked at daylight. We looked at noise and at the notion of privacy. As regards noise, science can tell us what man can stand and what he needs; as regards daylight, what he needs and what he does not need. It is possible to relate the findings of science in a systematic way and it is our hope to achieve a kind of matrix of space requirements which reflect scientific knowledge and the rational use of human space.

PHILIP THIEL
College of Architecture and Urban Planning, University of Washington

Professor Alexander has presented us with a provocative example of social engineering, in which the environment is consciously arranged to produce a social effect. In describing the rationale with which he arrives at his proposed arrangement of the environment he

cites a number of studies of correlations of mental health with urban form and types of social interaction, and implies therewith a causation. This is as if to conclude that since many umbrellas are carried on rainy days, the carrying of many umbrellas is what causes it to rain. How can he be sure that other (genetic?) factors are not in fact causal?

Aside from this point of interpretation, however, is the question of drawing all one's data from studies in pathology. Since our interest is in promoting optimums, it would seem more appropriate to involve the insights provided by studies on the creative, self-realized personality, such as those by Professor Maslow at Brandeis and Professor McKinnon at Berkeley. My impression is that the occurrence of this type of personality does *not* correlate with the type and degree of human contact and physical environment that Professor Alexander concludes to be essential, and that is to be produced by the forms he proposes. To generalize, would it not be even better to base causative conclusions on studies of broader groups, rather than on those which tend to come to the attention of the authorities?

But given his goals, one wonders at his requirement for people to drive past and peer into each residence's public zone. If the intention is to really promote a "frequent, informal, relaxed confrontation," analogous to that of the traditional extended family group in the local neighborhood, could not this be done better in our age with the closed-circuit television-phone, rather than with an enlargement of the picture windows on the public highway?

ROBERT F. WEHRLI
Department of Architecture, University of Utah

The environmental designer—urban planner and architect—has come face to face with technology. Should he take up the computer as a design tool? Should he adopt design methodology? Should he apply to design findings from the life and behavioral sciences? All of these issues are interlocking, for the use of the computer is not only itself a method but places demands for rigorous method upon its

users. The added burden of dealing with information from the life and behavioral sciences compels method; and the life and behavioral disciplines bring to the designer not only a backlog of scientific data and theory but scientific methodology as well.

Christopher Alexander is wrestling with these issues of technology. In his *Notes on the Synthesis of Form* he outlined a comprehensive method of stating design requirements, grouping the requirements according to sets, and resolving the sets by computerized mathematics. He substantiated his rationale for this set theory method with a great number of readings from many disciplines. In his presentation at this conference, Alexander revealed a novel solution to the problem of housing. As near as one can tell, the housing scheme was arrived at, not by his set theory method, but by the traditional method of concept getting, with the important difference that Alexander made a scholarly attempt to support his design concepts with theories from psychology, sociology, and the like.

Before discussing these two methods—set theory and concept getting—it might be well to say a few words about method generally, for it is a topic that has long been distasteful to the environmental designer, who views it as a threat to his role as a conservator of historic human values, as a champion of esthetics, and especially, as an intuitive artist trying desperately to make a lasting, personal impact upon society. Distaste for method is a carryover from the rebellion, now nearly won, against the beaux-arts system, which was concerned, however, not essentially with process, but with product. That is, its primary concern was not the thought process by which a scheme for a building or city was attained, but rather that the scheme should adhere to certain "laws" of order and proportion, or even that it be composed of historic forms adapted more or less directly. If we can be assured, as I think we can, that the present interest in method is process-oriented rather than product-oriented we should welcome it, for it ought not to delimit our schemes, but to give us a greater and more widespread capability for attaining them.

After all, every designer has a method. It is only that it remains a modus operandi until he directs his attention to it and talks and writes about it. For most designers the modus operandi is a set of habits

and techniques learned in a studio situation where assigned projects are periodically criticized and eventually judged by professionals trained in the same fashion. Again, the primary emphasis in the studio has been upon the product—a scheme at any state of completion—rather than upon the process of thinking and doing. Meanwhile human factors engineers, systems engineers, industrial engineers, and computer scientists have made progress in reducing design to method, while psychologists explore the relationships between language, imagery, and thought.

The bulwark of studio situation teaching is the getting of single, dominant concepts, which subsequently serve to guide secondary design decisions. Concept getting is a powerful method in capable hands and produces forms clearly related to a deep understanding and a comprehensive consideration of needs. Unfortunately, our lack of interest in method has resulted in a predicament where neither the teaching nor the use of concept getting is well understood, so that students and professionals repeatedly adopt concepts of form which are not so much appropriate as simply expedient or fashionable. This is a grievous situation when, as is presently true, needs are constantly changing, and when we may wish to state those needs in the terminology of the life and behavioral scientist but have no sure guide for converting from problem statement to form.

Alexander's set theory method aims at a comprehensive listing and logical resolution of needs. The method is sufficiently complete to be called a theory of design comparable to a scientific theory in that it is testable and original; it has already proved to be heuristic; and, it is reasonably explicit, simple, and self-consistent. The disadvantages are that it is verbal and mathematical rather than visual, and therefore not attractive to visual-minded architects and planners, and further, it has not been shown to produce a scheme in sufficient detail to be converted to working drawings and subsequently built.

In *Notes on the Synthesis of Form* Alexander used the design of a water kettle to illustrate his method, but he did not design or produce a water kettle. In the spring of 1966 Robert Nestor, a fifth-year student in architecture at the University of Utah, undertook to test Alexander's method by designing a water kettle as six week's credit for a two-hour course under my direction. Simply stated, the ques-

tion was: "Can an upper-class architectural student, aided only by Alexander's master set theory method, design a simple object?" Working diligently but without benefit of a competent mathematician, it is not surprising that Nestor got no further than a listing of requirements, a delineation of their interactions, and a few crude graphs. On the other hand, thirteen members of the same class produced sketches of a water kettle in twenty minutes by traditional methods.

These studies are by no means conclusive but suggest that architects and planners as presently trained will not find a ready use for set theory method as developed to date. To justify the necessary training in mathematics, the merits of the method must be proved for schemes brought at least to the working drawing stage, and these schemes must be shown to be superior to those produced by conventional means.

It appears that the basic fault of the set theory method is that the problem requirements, however exhaustively stated, elegantly clustered, and nicely resolved, are never really converted to form. Form, after all, is the sum of the attributes of a thing, and we name as many attributes as we wish to make decisions about. Certainly we need such elementary attributes as dimension, shape, color, light and shadow, location, and arrangement. The effect of technology is to name more and more attributes like heat loss, reflectivity, sound absorption, flame resistance, and the like. But Alexander stated requirements which do not seem to refer to or guide decisions about elementary attributes, much less technological ones. For many of his requirements it would be necessary to make some intermediary inference in order to make a reasonable reference to some attribute of form. This explains why Alexander's illustrative city is a collection of diagrams rather than a definitive design.

It appears that Alexander, when confronted with producing a definitive design—that of the housing presented at this conference—abandoned set theory design in favor of concept getting. Whereas set theory suffers from an inability to convert from verbal statement to constructed form, concept getting suffers from an inadequately broad statement of requirements, and thereafter from an unreasoning subservience to the central concept. No designer would deny

Alexander's stated need for intimate daily contacts with family and friends, but what about the growing need for fulfilling leisure time activities? What about the need for individuality and independence? What about the invasion of the home by television and the likelihood of a similar intrusion by "the family computer"? What about the tendency for mothers to work? And referring to the proposed solution, what about two cars and a boat and a camper parked in front of the living room? What about the extravagance of single loaded streets and underground construction? The great hope of the set theory method is that it would be capable of solving simultaneously such multivariate needs.

Further, if we intend to derive our design concepts from the findings of the life and behavioral sciences, we must devise methods of going from first order facts observed in existing environments to corrective forms for new environments. There are too many unsubstantiated inferences between the observed first order *fact*—monkeys reared with surrogate mothers become neglectful mothers themselves —and the resultant *form*—"invisible," or glassed-in, living rooms for all families. The need for invisible living rooms can be hypothesized only from observations of families living in both invisible and opaque living rooms, and then only with caution, for the connection between observed and predicted behavior of new families at new times and in new places is tenuous indeed.

In his *Notes* (p. 53) Alexander stated: "For although only few men have sufficient integrative ability to invent form of any clarity, we are all able to criticize existing forms." So it may be with my criticism of his work, which, in spite of obvious flaws, is original and scholarly and offers some hope for solving the great and complex design problems that lie ahead. Certainly it is the beginning of a sensible dialogue about method in design. Hopefully this will lead to new methods which will not only preserve but enlarge upon the creative powers of the environmental designer.

Afternoon Critique of University of California Paper

WILLIAM C. LORING, U. S. Public Health Service

Afternoon Discussion Groups (see below)

Evening Presentation of Rare Films

"Man, Iron and Fire"; "America on the Edge of Abundance"; "Human Response to the Visual Environment"; "City of the Bees"

TUESDAY

Morning Presentation

Introductory Remarks, by MYER R. WOLFE, AIP, Chairman, College of Architecture and Urban Planning, University of Washington

The City as a Mechanism for Sustaining Human Contact, by CHRISTOPHER ALEXANDER, Department of Architecture, University of California, Berkeley

Critique by H. PETER OBERLANDER, Head, Program of Community and Regional Planning, University of British Columbia; PHILLIP THIEL, College of Architecture and Urban Planning, University of Washington; ROBERT F. WEHRLI, Department of Architecture, University of Utah

Introductory Remarks, by GEORGE A. DUDLEY, Dean, School of Architecture and Planning, University of California, Los Angeles

The City of the Mind, by STEPHEN CARR, Department of City and Regional Planning, Massachusetts Institute of Technology

Critique by PAUL VINCENT GUMP, Department of Psychology, University of Kansas; GARY H. WINKEL, Department of Architecture, University of Washington

Afternoon Discussion Groups (see below)

Evening Highlight and Awards Dinner

Remarks by IRVING HAND, AIP President Elect, Executive Director, Pennsylvania State Planning Board

The Environment We See (slide presentation), by HERBERT H. SWINBURNE, architect, Philadelphia

Awards Presentations

Honor Awards: Camden, New Jersey; Capitol Region of Connecticut

Distinguished Service Award: Howard K. Menhinick, AIP

The City of Man: A Social Systems Reckoning, by BERTRAM M. GROSS, Director, National Planning Studies, Maxwell Graduate School of Citizenship and Public Affairs, Syracuse University

Habitat '67, by MOSHE SAFDIE, architect, Montreal

WEDNESDAY

Morning Presentation

Goals for Our Metropolitan Regions, LYLE FITCH, President, Institute of Public Administration

Introduction of William L. C. Wheaton, First Catherine Bauer Wurster American Life Lecturer, by ROBERT L. WILLIAMS, AIP Executive Director, American Institute of Planners

Form and Structure of the Metropolitan Area, by WILLIAM L. C. WHEATON, Director, Institute of Urban and Regional Development, University of California, Berkeley

Critique by HENRY FAGIN, Department of Urban and Regional Planning, University of Wisconsin; SCOTT GREER, Director, Center for Metropolitan Studies, Northwestern University; GIBSON WINTER, Divinity School, University of Chicago

The Link between Parts I and II of the Consultation and Introduction of Stanley J. Hallett, by WILLIAM R. EWALD, Jr., AIP, Development Consultant

Planning, Politics, and Ethics, by STANLEY J. HALLETT, Church Federation of Greater Chicago

Comments by CALVIN S. HAMILTON, AIP, Director, Los Angeles City Planning Commission

Afternoon Critique Session

Some Thoughts on the Future, by JOHN T. HOWARD, AIP, Head, Department of City and Regional Planning, Massachusetts Institute of Technology

lahoma City Area, Biophysics Laboratory, Aerospace Medical Research Laboratories, Wright-Patterson Air Force Base, Feb. 1965.

5. A. Verwoerdt and R. H. Douvenmuehle, "Physical Illness and Depressive Symptomatology, Aspects and Awareness," *J. of Gerontology*, 19: 330-35 (1964).

IV. Alexander: The City as a Mechanism for Sustaining Human Contact

1. Emile Durkheim, *The Division of Labor in Society* (Paris, 1893), trans. by George Simpson (Free Press, 1933).

2. Melvin M. Webber, "Order in Diversity: Community without Propinquity," *Cities and Space*, ed. Lowdon Wingo, Resources for the Future (Baltimore, 1963); Webber, "The Urban Place and the Nonplace Urban Realm," in Webber et al., *Explorations into Urban Structure* (Philadelphia, 1964), pp. 79-153; Marshall McLuhan, *Understanding Media* (New York, 1964); Richard Meier, *A Communications Theory of Urban Growth* (Cambridge: MIT Press, 1960).

3. Of course, people do occasionally have intimate contact with one another, even when these two conditions are not fulfilled. This happens between old friends, who now live 3,000 miles apart and see each other every few years for a day or two. But even in these cases, there must have been some period in the past when the two conditions *were* satisfied.

4. C. H. Cooley, *Social Organization*, first published New York, 1909; reprinted Free Press, 1956, pp. 23-31.

5. Edward A. Shils, "The Study of Primary Groups," in Lerner and Lasswell, *The Policy Sciences* (Stanford University Press, 1951), pp. 44-69; W. I. Thomas, *Social Behavior and Personality*, ed. E. H. Volkart (New York, 1951); George Homans, *The Human Group* (New York, 1950).

6. Homans, pp. 456-57.

7. Ralph Linton, *The Study of Man* (New York, 1936), p. 230.

8. For instance, Clarence Stein, *Towards New Towns for America* (Chicago, 1951).

9. Webber, cited; Ikumi Hoshin, "Apartment Life in Japan," *Marriage and Family Living*, 26 (1964), pp. 312-17; Rudolf Heberle, "The Normative Element in Neighborhood Relations," *Pacific Sociological Review* 3, No. 1 (Spring, 1960), pp. 3-11.

10. Ruth Glass and F. G. Davidson, "Household Structure and Housing Needs," *Population Studies*, 4 (1951), pp. 395-420; S. P. Brown, *Population Studies*, 4 (1951), pp. 380-94. This is also the same as saying that one-fifth of all adults in urban areas are either single, separated, widowed, or divorced. See U. S. Census, Vol. I, *General U. S. Statistics* (1960), Table 176.

11. Durkheim, cited; Cooley, cited; Louis Wirth, "Urbanism as a Way of Life," *American Journal of Sociology*, 40 (1938), pp. 1-24; J. Beshers, *Urban Social Structure* (New York, 1964); Janet Abu-Lughod, *The City Is Dead, Long Live the City* (Berkeley: Center for Planning and Development Research, 1966).

12. H. Gans, *The Urban Villagers* (Free Press, 1962); Michael Young and Peter Willmott, *Family and Kinship in East London* (London, 1957); M. Fried and P. Gleicher, "Some Sources of Residential Satisfaction in an Urban Slum," *AIP Journal* (1961), pp. 305-15.

13. Abu-Lughod, cited.

14. The numbers three and four have no special significance. I have chosen the range three to four, simply because one or two are too few, and more than about five too many to sustain at the level of intimacy I have defined.

15. R. E. L. Faris and H. W. Dunham, *Mental Disorders in Urban Areas* (Chicago, 1939), pp. 82-109.

16. Ibid., pp. 54-57.

17. Alexander Leighton, *My Name is Legion*, The Stirling County Study, Vol. I (New York, 1959); Charles C. Hughes, Marc-Adelard Tremblay, Robert N. Rapoport, and Alexander Leighton, *People of Cove and Woodlot*, The Stirling County Study, Vol. II (New York, 1960); Dorothea Leighton, John S. Harding, David B. Macklin, Allister M. Macmillan, and Alexander Leighton, *The Character of Danger*, The Stirling County Study, Vol. III (New York, 1963).

18. Hughes et al., p. 267.

19. Ibid., p. 297.

20. Leighton et al. (1963), p. 338.

21. T. S. Langner and S. T. Michael, *Life Stress and Mental Health* (New York, 1963), p. 285.

22. A. M. Rose, "Mental Disorder and Socio-economic Status," *Mental Health and Mental Disorder* (New York, 1955), Summary Table 4, pp. 102-104.

23. Langner and Michael, p. 286.

24. Ibid., pp. 287-89.

25. Neil A. Dayton, *New Facts on Mental Disorders* (Springfield, Ill., 1940), p. 464; C. Landis and J. D. Page, *Modern Society and Mental Disease* (New York, 1938), p. 163; Benjamin Malzberg, *Social and Biological Aspects of Mental Disease* (Utica, 1940), p. 70; Benjamin Malzberg, "Statistical Analysis of Ages of First Admission to Hospitals for Mental Disease in New York State," *Psychiatric Quarterly*, 23 (1949), p. 344; H. F. Dorn, "The Incidence and Future Expectancy of Mental Disease," *U.S. Public Health Reports*, 53 (1938), pp. 1991-2004; E. M. Furbush, "Social Facts Relative to Patients with Mental Disease," *Mental Hygiene*, 5 (1921), p. 597.

26. Malzberg (1940), p. 116; C. Landis and J. D. Page, *Modern Society and Mental Disease* (New York, 1938), p. 69; L. M. Adler, "The Relationship of Marital Status to Incidence of and Recovery from Mental Illness," *Social Forces*, 32 (1953), p. 186; Neil A. Dayton, "Marriage and Mental Disease," *New England Journal of Medicine*, 215 (1936), p. 154; F. J. Gaudet and R. I. Watson, "Relation between Insanity and Marital Conditions," *Journal of Abnormal Psychology*, 30 (1935), p. 368.

27. Harry F. Harlow and Margaret K. Harlow, "The Effect of Rearing Conditions on Behavior," *Bull. Menninger Clinic*, 26 (1962), pp. 213-24.

28. Harry F. Harlow and Margaret K. Harlow, "Social Deprivation in Monkeys," *Scientific American*, 207, No. 5 (1962), pp. 136-46.

29. Anna Freud and Sophie Dann, "An Experiment in Group Upbringing," *Readings in Child Behavior and Development*, ed. Celia Stendler (New York, 1964), pp. 122-40.

30. Herman R. Lantz, "Number of Childhood Friends as Reported in the Life Histories of a Psychiatrically Diagnosed Group of 1000," *Marriage and Family Living* (May, 1956), pp. 107-108.

31. R. E. L. Faris, "Cultural Isolation and the Schizophrenic Personality," *American Journal of Sociology*, 40 (Sept. 1934), pp. 155-69; R. E. L. Faris, *Social Psychology* (New York, 1952), pp. 338-62; R. E. L. Faris, *Social Disorganization* (New York, 1948), chap. 8; Paul Halmos, *Solitude and Privacy* (New York, 1952), pp. 88-92; Carle C. Zimmerman and Lucius F. Cervantes, S.J., *Successful American Families* (New York, 1960); R. Helanko, "The Yard Group in the Socialization of Turku Girls," *Acta Sociologica*, Vol. 4, No. 1 (1959), pp. 38-55; D. Kimball, "Boy Scouting as a Factor in Personality Development," Ph.D. Thesis, Dept. of Education, University of California, Berkeley, 1949; Melvin L. Kohn and John A. Clausen, "Social Isolation and Schizophrenia," *American Journal of Sociology*, 20 (1955), pp. 265-73; Dietrich C. Reitzes, "The Effect of Social Environment on Former Felons," *Journal of Criminal Law Criminology*, 46 (1955), pp. 226-31; E. Gartly Jaco, "The Social Isolation Hypothesis and Schizophrenia," *American Journal of Sociology*, 19 (1954), pp. 567-77; Aldous Huxley, *Island* (New York: Bantam, 1963), pp. 89-90; Arthur T. Jersild and Mary D. Fite, "The Influence of Nursery School Experience on Children's Social Adjustments," *Child Development Monographs*, 25 (1939); Helena Malley, "Growth in Social Behavior and Mental Activity after Six Months in Nursery School," *Child Development*, 6 (1935), pp. 303-309; Louis P. Thorpe, *Child Psychology and Development* (New York, 1955); K. M. B. Bridges, *Social and Emottonal Development of the Pre-school Child* (London, 1931); W. R. Thompson and R. Melzack, "Early Environment," *Scientific American*, 194(1) (1956), pp. 38-42.

32. This is, in effect, the same as the classic thesis of Cooley and George Herbert Mead, which says that the individual self appears only as a result of interaction with others, and that it is liable to disintegrate when these interactions are not available. Mead, *Mind, Self and Society* (Chicago, 1934); Cooley, cited.

33. Glass and Davidson, p. 400.

34. "The person who is diagnosed as suffering from schizophrenia perceives himself as bombarded by a multiplicity of personal and family problems he is not able to handle." L. H. Rogler and A. B.

Hollingshead, *Trapped: Families and Schizophrenia* (New York, 1965).

35. Robert Sommer and Humphrey Osmond, "The Schizophrenic No-Society," *Psychiatry*, 25 (1962), pp. 244-55.

36. Durkheim, pp. 283-303.

37. J. G. Miller, "Input Overload and Psychopathology," *American Journal of Psychiatry*, 116 (1960), pp. 695-704; Richard Meier, cited.

38. E. T. Hall, *The Hidden Dimension* (New York, 1966).

39. Ministry of Housing, *Families Living at High Density* (London, 1966), pp. 29-33; John Madge, "Privacy," Transactions of the Bartlett Society, University College, London, 3 (1965), p. 139.

40. Leopold Rosenmayr, *Wohnverhltnisse und Nachbarschaftsbeziehungen*, Der Aufbau, Monograph No. 8 (Vienna, 1956), pp. 39-91.

41. Hans Strotzka, *Spannungen und Losungsversuche in Stadtischer Umgebung, Wohnen in Wien*, Der Aufbau, Monograph No. 8 (Vienna, 1956), pp. 93-108.

42. Nelson Foote, Janet Abu-Lughod, Mary Mix Foley, and Louis Winnick, *Housing Choices and Housing Constraints* (New York, 1960), pp. 107 and 392.

43. Ibid., pp. 223-63, and Peter H. Rossi, *Why Families Move* (Free Press, 1955).

44. Ibid., pp. 187-93, and Irving Rosow, "Homeownership Motives," *American Sociological Review*, 13 (1948), pp. 751-56.

45. Center for Urban Studies, *Aspects of Change* (London, 1964), chap. 8, "Tall Flats in Pimlico." Santa Clara County Study, unpublished, 1966.

46. Charlotte Buhler, *Proceedings and Papers of the Ninth International Congress of Psychology*, 1929, pp. 99-102.

47. A few of the mothers who try to get their children into nursery school are, of course, trying to get greater freedom for themselves. However, at least one survey has shown that the majority of mothers do so, not because they want more freedom for themselves, but because they want their children to have more contact with other children. Cambridge Association for Advancement of State Education, *Report on Nursery Schools* (Cambridge, England, 1966).

VI. Gross: The City of Man: A Social Systems Reckoning

1. For the term "turbulent environment"—as distinct from a "placid" or "disturbed reactive environment"—I am indebted to Fred Emery and Eric Trist of the Tavistock Institute of Human Relations and their paper, "The Causal Texture of Organizational Environments," *Human Relations*, Feb., 1965.

2. Walt W. Rostow, *The Stages of Economic Growth* (Cambridge University Press, 1960).

3. Ben J. Wattenberg and Richard M. Scammon, *This U.S.A.* (New York: Doubleday, 1965), pp. 86-87.

4. This discussion is based on the discussion of "The Urban Revolution" in *Space-Time and Post-Industrial Society*, Occasional Paper, Comparative Administration Group, American Society for Public Administration, March, 1966.

5. Ibid.

6. Lauchlin Currie, *Accelerating Development* (New York: McGraw-Hill, 1966), p. 53. This book won the prize offered by the Society for International Development for the best book on development by a citizen of a "developing" country. Dr. Currie is Director of the Department of Economics in the National University of Colombia and of its new Institute for Investigations in Development.

7. These and other aspects of man-resource social systems are analyzed in much greater detail in my *The State of the Nation: Social Systems Accounting* (London: Tavistock Publications, 1966). This book is also incorporated in Raymond A. Bauer, ed., *Social Indicators* (Cambridge: MIT Press, 1966).

8. For a more detailed identification of the varieties of social systems, the section "The Complexity of a National Society," *The State of the Nation: Social Systems Accounting*, cited.

9. Eltor Mayo, *The Human Problems of an Industrial Civilization* (Boston: Harvard Business School, 1933), pp. 138-47.

10. The case for broader annual reports at the national level is presented in detail in my "The Social State of the Union," *Transaction*, Nov./Dec., 1965, and "Let's Have a *Real* State of the Union Message," *Challenge*, May/June, 1966.