

Stanley Milgram

# THE INDIVIDUAL IN A SOCIAL WORLD

Essays  
and  
Experiments



Second Edition



# Psychological Maps of Paris<sup>1</sup>



In this report we shall explore the way in which Parisians mentally represent their city. It is not an examination of Paris as a geographic reality, but rather of the way that reality is mirrored in the minds of its inhabitants. And the first principle is that reality and image are imperfectly linked. The Seine may course a great arc in Paris, almost forming a half circle, but Parisians imagine it a much gentler curve, and some think the river a straight line as it flows through the city.

Paris, the city of stone, is the template from which the mental map draws its structure, but it is not the same as the map. The person harboring a mental model of Paris may die, but the city endures. The city may vanish through flood or nuclear holocaust, but the maps encoded in millions of human brains are not thereby destroyed.

The main problem in investigating a mental entity is to learn how to render it observable. The person's mental image of Paris is not like his driver's license, something he can pull out for inspection. Rather, we shall have to tease the information from the subject, using whatever means psychology can offer to inspect the contents of the mind (Downs and Stea, 1973).

It is not quite as easy as simply asking the person. First, many of the concepts people have about cities are nonverbal, spatial ideas. They are not easily translated into words, particularly on the part of subjects of limited education. Moreover,

This paper was written in collaboration with Mme. Denise Jodelet. The research was supported by a fellowship to the senior author from the John Simon Guggenheim Memorial Foundation, and by a grant from the Délégation Générale à la Recherche Scientifique, an agency of the French Government. It was first published in *Environmental Psychology: People and Their Physical Settings* (second edition), H. M. Proshansky, W. H. Ittelson, and L. G. Rivlin (eds.), New York: Holt, Rinehart and Winston, 1976. Reprinted by permission of Alexandra Milgram.

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Parisians are all exposed to stereotypes about their city, readily available clichés, which do not so much tap their personal ideas of the city, as their immersion in a world of prepackaged platitudes. We want to get at something more personal and more closely tied to direct experience.

## HANDDRAWN MAPS

To begin, our 218 subjects, drawn from each of the 20 arrondissements (i.e., administrative sectors) of Paris in proportion to their numbers, were asked to draw a map of Paris in which they were to mention all of the elements of the city that came to mind; they could illustrate their maps with monuments, squares, neighborhoods, streets, or whatever elements spontaneously occurred to them. They were told further that their sketch should not resemble a tourist map of Paris, but ought to express their personal view. Let us now consider the maps of some of the subjects:

*Map 108* (Fig. 8.1). The subject is a 25-year-old commercial agent, with university degrees in physical chemistry. His first entries on the map were Boulevard St. Germain and St. Michel, then the Faculté des Sciences at Jussieu, suggesting that his student experience remains dominant. The modern structures of the Zamanski Tower at the Faculté des Sciences and the 50-story Maine-Montparnasse office tower are prominently shown. Youthful subjects, more often than their elders, include these contemporary elements as if the mental maps of the old were internalized a long time ago and cannot admit these recent additions. Rising in the northwest, the massive office complex, La Défense, is given an almost projective significance, as it hovers menacingly alongside the city. The map expresses the central dilemma of contemporary Paris: how can it preserve its distinctive character, formed in earlier centuries, while coming to grips with modernity?

*Map 070* (Fig. 8.2). Map 070 is drawn by a 50-year-old woman who, at the time of the interview, lived in the 12th arrondissement; however, for 15 years she had resided in the 4th, which she maps with scrupulous detail, even to the point of indicating the one-way street directions for automobiles. She centers her map not on Paris as a whole, but on a segment of it that has special meaning to her. Yet she is able to link her personal experience to highly public landmarks such as the Louvre and the Palais Royale. Perhaps it is characteristic of Paris that one can readily fuse private and public aspects of life through the network of streets and landmarks.

*Map 215* (Fig. 8.3). This subject is a 33-year-old butcher who lives in the 11th arrondissement. At first the map looks confusing, but we begin to discern the elements of a set of life circumstances when we examine it closely. He does not forget to include his home arrondissement, which is something of a hidden one to most subjects. Nor does he neglect La

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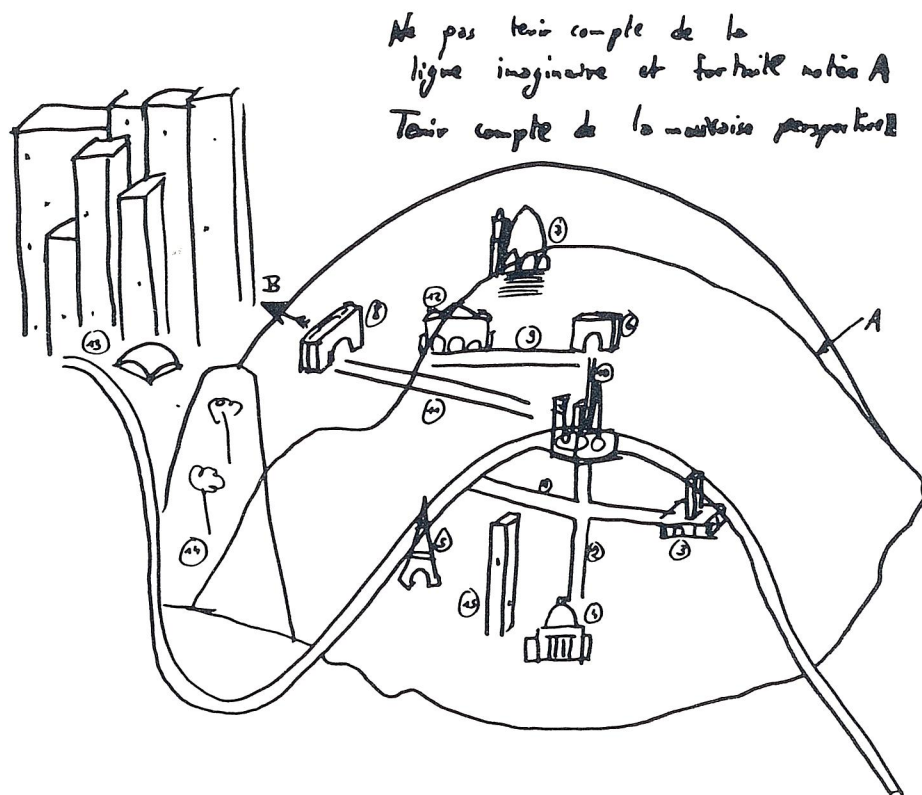


FIGURE 8.1  
Map 108.

Villette, where the major stockyards and slaughterhouses of Paris are to be found. One can imagine his visits to the great exposition hall at the Porte de Versailles, to see displays of meat cutting equipment, motorcycles, and perhaps automobiles. Faubourg St. Antoine, of revolutionary significance, is placed on the Left Bank, where it would seem to belong politically.

We are most confused, perhaps, by the inverted curvature he has given to the Seine; the disposition of elements along the river seem all out of line with reality. Yet if Etoile, Maison de la Radio, and the Porte de St. Cloud deviate from their true spatial coordinates, they do preserve a meaningful topological sequence.

*Map 037* (Fig. 8.4). A mental map is not limited to reality, but may incorporate visions of how a city ought to be. This subject, an architect, organizes the city around the Place de la Concorde. He envisages a major avenue stretching south from the Place, over the Seine, piercing the

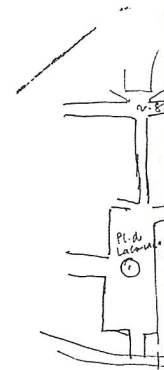


FIGURE 8.2  
Map 070.



FIGURE 8.3  
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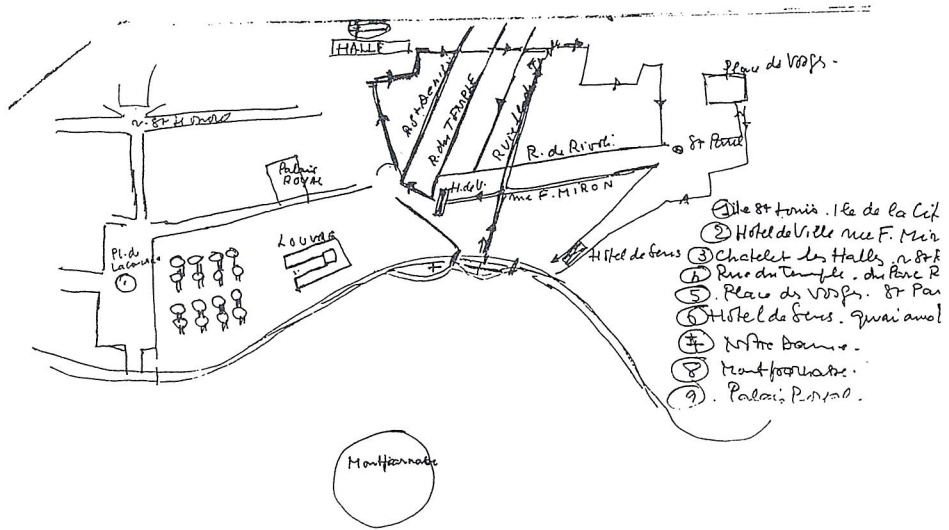


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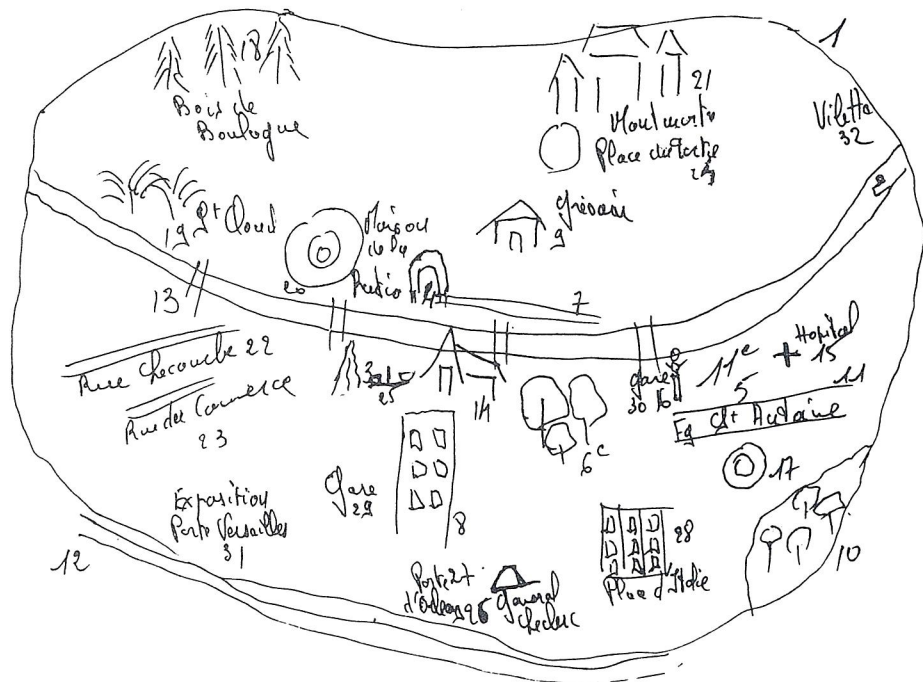


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Chambre des Députés, and continuing south into the heart of the Left Bank, terminating in an impressive structure (as yet unrealized). From that point, a broad avenue would sweep northwest to reveal the Eiffel Tower, and another northeast leading to the colonnade of Madeleine (displaced from its present location). Such mental maps are fanciful. Yet Paris as it exists was born first as a set of ideas, and the Paris to come is also germinating in the minds of architects and city planners. The subject's concern with problems of automobile traffic represents a realistic attention to the city's most severe environmental problem.

It is clear the subjects did not merely derive their maps from personal, direct experience with the city. They learned them, in part, from other maps. Street maps of Paris, prepared by technically skilled cartographers, are an inherent part of contemporary Parisian culture. Probably not a single subject could have generated a map of the city accurately showing its form and basic structure without reference in his own mind to maps he has already seen. But through processes of selectivity, emphasis, and distortion, the maps become projections of life styles, and express emotional cathexes of the participants.

Second, neither the city, nor the mental maps of the city, are simple agglomerations of elements; they are structures. It is the essence of

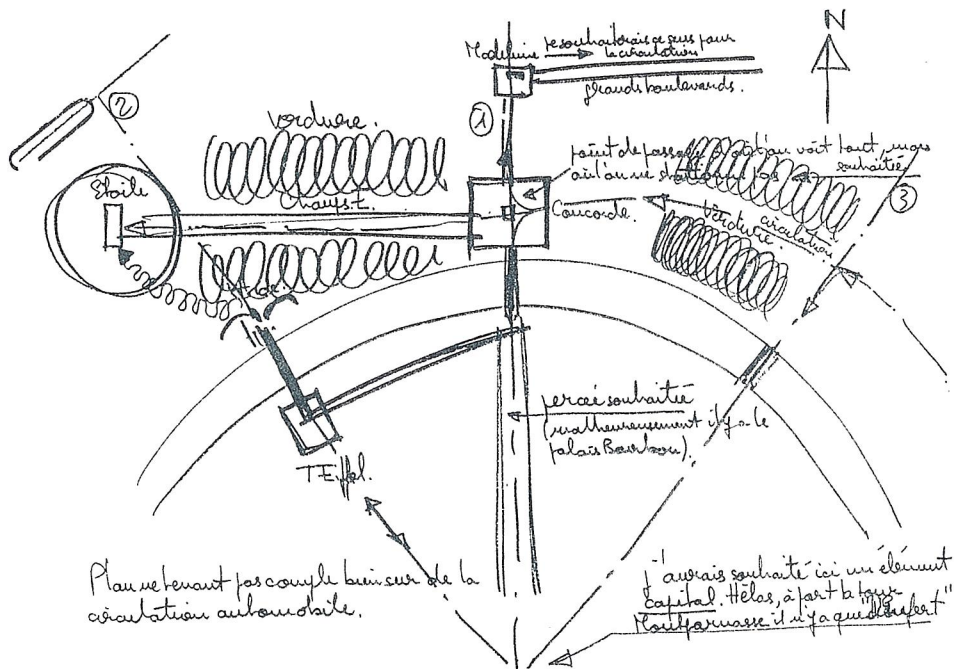


FIGURE 8.4  
Map 037.

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Finally, a map that a person draws of his city is not his mental map, but is only a clue to it. He may not be able to draw very well; he may have images in his mind which he cannot put on paper. He may make errors in his initial strokes that complicate his later completion of the map. But still, the sketch is an opening into his conception of the city.

## PARIS AS A COLLECTIVE REPRESENTATION

A city is a social fact. We would all agree to that. But we need to add an important corollary: the perception of a city is also a social fact, and as such needs to be studied in its collective as well as its individual aspect. It is not only what *exists* but what is *highlighted* by the community that acquires salience in the mind of the person. A city is as much a collective representation as it is an assemblage of streets, squares, and buildings. We discern the major ingredients of that representation by studying not only the mental map in a specific individual, but by seeing what is shared among individuals. Toward this end, we turn from the clinical use of individual maps to an actuarial analysis of the entire group of maps provided by the subjects.

## EMERGING ELEMENTS

The sequence that spontaneously emerges as subjects sketch their maps of Paris may tell us what is uppermost in their minds when they think of the city. What is most salient is probably what comes out first. With this point in mind, from the outset we had asked our subjects to number each element as they drew it, emphasizing that the numbering process is to accompany their process of drawing, and not be applied afterward.

Most subjects begin their maps of Paris by drawing a rough ellipse designating the city limits. Unlike many cities in the United States, such as Los Angeles, which do not possess a strong form and whose boundaries bleed off into surrounding areas, Paris possesses a clear boundary and its form impresses itself on the inhabitants. The boundary is sharply etched by the *périphérique*, a highway wrapped around the city, separating the city from the densely populated suburbs, and providing a contemporary moat-in-motion to replace the historic walls.

Within the city there are almost a thousand different elements included in the maps of our subjects, but only one feature is the first entry of a large number of participants, the Seine. After the city limits are sketched, it is the element that far and away is drawn first. It is not only a basic





geographic fact of the city, but its most salient psychological fact as well, and much of the subjects' subsequent mapmaking is organized around it.

But there is a serious distortion in the way the Seine is represented. In reality the path of the Seine resembles a wave that enters Paris at the Quai Bercy, rises sharply northward, tapers slightly as it flows into separate streams around the islands, initiates its flat northernmost segment at the Place de la Concorde, then turns sharply in a great 60° bend at the Place d'Alma to flow out of the southwestern tip of the city. But in their drawings, 91.6 percent of the subjects understated the river's degree of curvature. Several subjects pulled it through the city as a straight line, and the typical subject represented the Seine as a gentle arc of slight but uniform curvature.

Because the course of the river is made to resemble an arc of gentle convexity, some subjects find it necessary to force the river through the Bois de Boulogne, and there is no space for the Auteuil and Passy districts. Accordingly, these districts are eliminated or displaced to the Left Bank.

Figure 8.5 compares the actual course of the Seine to the average curvature imparted by the subjects.

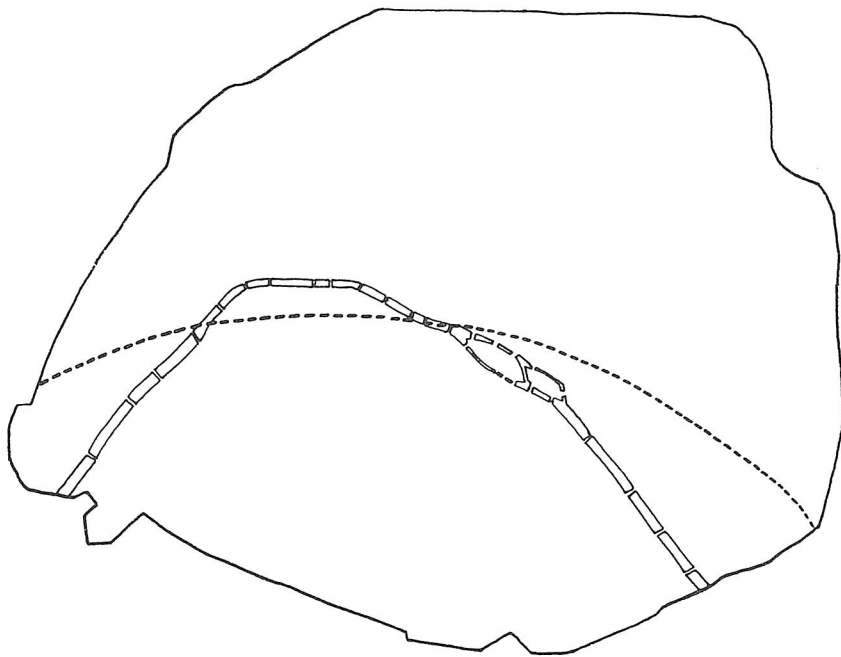


FIGURE 8.5  
Perceived curvature of the Seine. The dotted line represents the median curvature imparted to the Seine in the subject's handdrawn maps. It is superimposed on the actual course of the river.

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Why does this systematic distortion occur? Quite clearly it reflects the subjects' experience. Although the Alma bend of the Seine is apparent in high aerial views of the city, it is not experienced as a sharp curve in the ordinary walk or drive through the city. The curve is extended over a sufficient distance so that the pronounced turn of the river is obscured. Such long, slow curves have, in almost all studies of orientation in cities, proved to be the most confusing, and difficult to reconstruct (Lynch, 1960).

We return now to the general question of the sequence with which the elements are set down. After the Seine, Notre Dame and Île de la Cité are set down most often as the first entries. The three elements of the Seine, Île de la Cité, and Notre Dame are at the very heart of the idea of Paris. Lutèce was born on the Île de la Cité; Notre Dame was constructed there 800 years ago. The sequence with which subjects enter their elements in the handdrawn maps recapitulates this history.

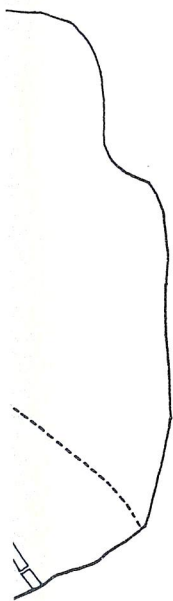
Unlike a city such as New York, whose psychological core has shifted continuously northward (and now focuses on the area between 34th and 86th Streets), the psychological center of Paris has remained true to its origins, building outward from the Seine, never shifting its center away from its historic root. The remarkable stability of the "heart of Paris" confers a dimension of permanence to the city's psychological structure.

## THE MAJOR ELEMENTS

Altogether our subjects entered 4,132 elements in their maps, an average of 19 for each subject. If the city did not impress on its inhabitants a sense of its structure, its highlights and nodes, we would find little agreement among the subjects. But, in fact, time and again we find the same locations, showing up in the handdrawn maps. Indeed, about half of all the 4,132 elements are accounted for by only 26 locations.

We need to translate the frequency of information into cartographic form. Perhaps we can take a cue from Rand McNally. When the population of a city is large, Rand McNally translates this information into **BOLD TYPOGRAPHY**, and the population of a small city is expressed by smaller print. In Fig. 8.6 we have shown the names of the locales, streets, and monuments in a size proportional to the number of people who cited them; that is, in proportion to their salience to the Parisians.

Parisians like to say that there is a tourist Paris, but the real Paris is something quite apart. But if we examine the maps produced by the subjects, we see that time and again tourist Paris—the famous monuments and landmarks—reappears as the basic structuring devices in their own productions of the city. Paris is integral, and it is not possible to efface l'Etoile, the Louvre, and others from any intelligent representation of the city.



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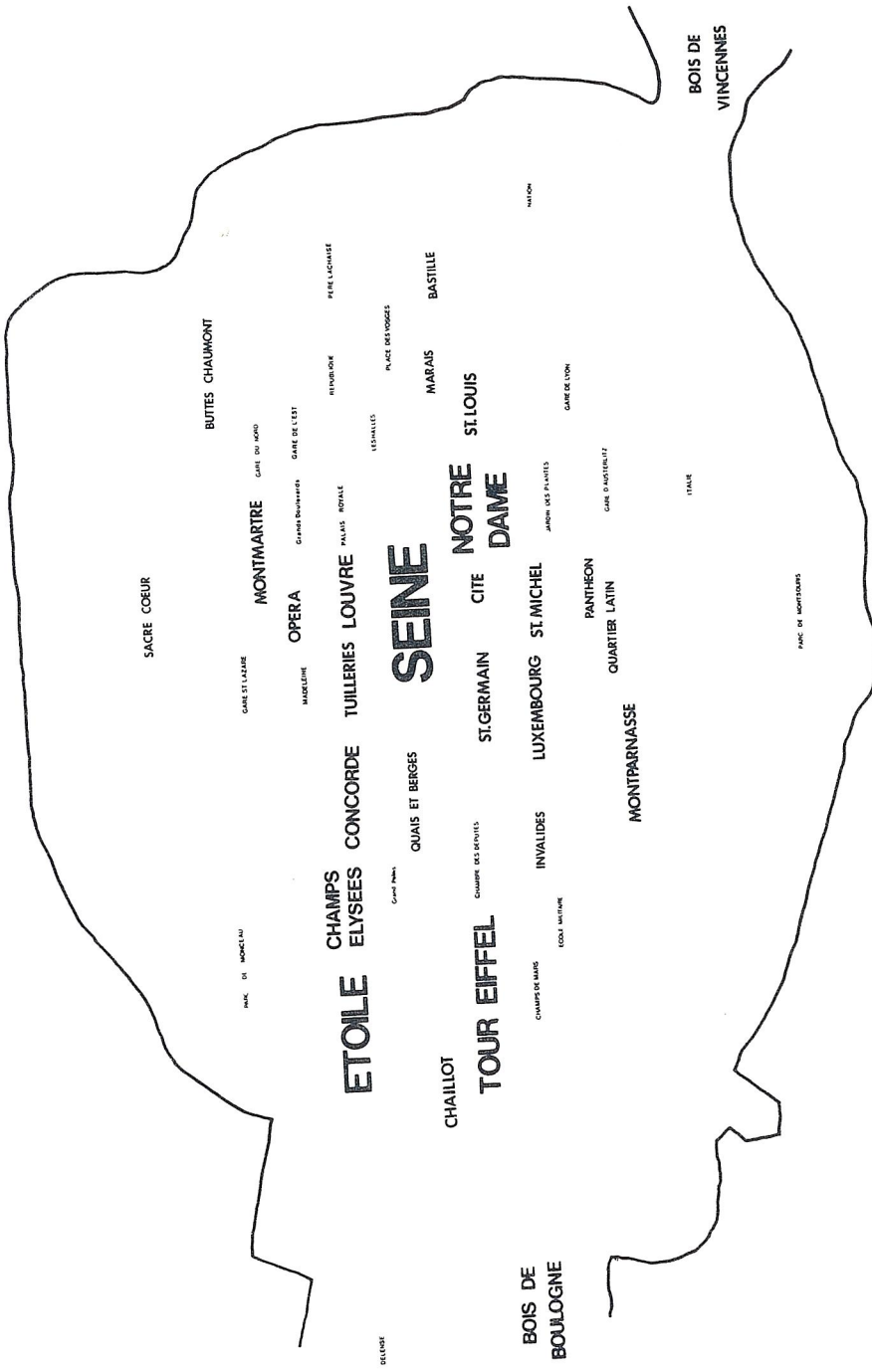


FIGURE 8.6  
The 50 most frequently cited elements. The name of each locale is shown in a size proportional to the number of subjects who included it in their hand-drawn maps of Paris.

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TABLE 8.1 THE FIFTY MOST FREQUENTLY INCLUDED MAPS OF PARIS

Rank	Name of element
1.	Seine
2.	Limites de Paris
3.	Etoile, Arc de Triomphe
4.	Notre Dame
5.	Tour Eiffel
6.	Bois de Boulogne
7.	Louvre
8.	Concorde
9.	Champs Elysees
10.	Jardin du Luxe
11.	Bois de Vincennes
12.	Gare et Tour M.
13.	Île de la Cité
14.	Tuileries
15.	Butte Montmar
16.	Chaillot, Trocac
17.	Île de St. Louis
18.	St. Germain
19.	Opéra
20.	Boulevard St. M.
21.	Invalides
22.	Marais
23.	Buttes Chaumo
24.	Sacre Coeur
25.	Quais, Berges



FIGURE 8.6  
The 50 most frequently cited elements. The name of each locale is shown in a size proportional to the number of subjects who included it in their handdrawn maps of Paris.

In scoffing at tourist Paris, Parisians imply they have access to a much deeper treasure, and choose to dissociate themselves from the city's public aspect. But, of course, the very greatness of Paris and its attraction to millions reside in its very availability as a city.

In Table 8.1 we have listed by rank, and irrespective of when the items appeared in the subject's map, the fifty elements of the Paris cityscape listed most frequently by the subjects.

TABLE 8.1 THE FIFTY ELEMENTS MOST FREQUENTLY INCLUDED IN THE HANDDRAWN MAPS OF PARIS

Rank	Name of element	Percent of maps in which this element appears	Rank	Name of element	Percent of maps in which this element appears
1.	Seine	84.3	26.	Bastille	22.1
2.	Limites de Paris	81.5	27.	Quartier Latin	20.7
3.	Etoile, Arc de Triomphe	61.9	28.	Panthéon	20.7
4.	Notre Dame	55.5	29.	Place des Vosges	18.4
5.	Tour Eiffel	54.6	30.	Gare de Lyon	18.4
6.	Bois de Boulogne	49.1	31.	Champ de Mars	17.9
7.	Louvre	45.4	32.	Madeleine	17.9
8.	Concorde	45.4	33.	Parc Monceau	17.0
9.	Champs Elysées	40.4	34.	Parc de Montsouris	16.6
10.	Jardin du Luxembourg	38.5	35.	Gare St. Lazare	16.6
11.	Bois de Vincennes	38.1	36.	Jardin des Plantes	16.1
12.	Gare et Tour Montp.	35.3	37.	Gare de l'Est	15.6
13.	Île de la Cité	33.9	38.	Palais Royale	15.2
14.	Tuileries	33.5	39.	Gare du Nord	14.7
15.	Butte Montmartre	32.1	40.	Place de la République	14.3
16.	Chaillot, Trocadero	32.1	41.	Gare d'Austerlitz	13.8
17.	Île de St. Louis	31.7	42.	Père Lachaise	12.9
18.	St. Germain	31.2	43.	Porte, Place d'Italie	12.4
19.	Opéra	30.7	44.	Place de la Nation	12.0
20.	Boulevard St. Michel	30.1	45.	Chambre des Députés	11.5
21.	Invalides	29.8	46.	École Militaire	11.5
22.	Marais	26.2	47.	Les Halles	10.1
23.	Buttes Chaumont	24.4	48.	Grand, Petit Palais	9.7
24.	Sacre Coeur	23.4	49.	La Défense	9.7
25.	Quais, Berges	22.5	50.	Grands Boulevards	9.2



## LINKS

No city consists of a set of isolated elements floating in an urban vacuum, but some cities possess a dense set of pathways tying its varied monuments and squares together. A city is either barren or fertile, depending on the degree to which its varied elements are woven into an interconnected web. The sum becomes greater than the parts by virtue of their relationship to each other. To uncover the associational structures of Paris, we posed the following problem to our subjects:

We shall name an element in the Paris scene, then we would like you to wander with the mind's eye to the next specific element in your own mental imagery, which we would then like you to write down. For example, if we say "Tour Eiffel" you might summon up the scene in your mental imagery, probe around mentally, and say "Palais de Chaillot" or "Pont d'Iéna," or you might think of the Champ de Mars. Whatever comes to mind as forming a natural connection is what interests us.

In this way we hoped to see how the varied elements in the subject's mental structure of Paris were held together. The 20 stimulus locales that we provided the subjects are listed in Table 8.2.

In Column A we have indicated the number of links forged between each stimulus location and some other location by at least 10 percent of the subjects. For example, there are six such links for the Arc de Triomphe, five links for the Tour Eiffel, and so on. There is a great difference in the degree to which the different stimulus locales are embedded in a context of mental associations. Among the most richly embedded sites are Arc de Triomphe, l'Opéra, Notre Dame de Paris, and Panthéon. The most weakly embedded are Buttes Chaumont and Père Lachaise.

The structure of associations for two of the stimulus locales is shown in the "molecules" in Fig. 8.7.

By linking up the separate molecules at points of overlap, one may map the entire network of associations for the city, the reticulate structure of its images.

A related measure of the "embeddedness" is the proportion of subjects who are unable to give any association whatsoever to a stimulus location. As Column B of Table 8.2 shows, this varies greatly from one location to the next. Fewer than one percent of the subjects were unable to provide an association to the Arc de Triomphe, while 34 percent were unable to provide any association for the Parc de Montsouris. The former is a well-embedded element, while the latter is poorly articulated with the main structure of the city.

Although we asked our subjects to concentrate on geographic, visual elements, they often included purely social or historical features such as "La Guillotine" or "clochards," as if these elements could simply not be excluded from the meaning of a particular locale. We used this informa-

TABLE 8.2 MEI

Stimulus locales

Arc de Triomphe  
 Notre Dame  
 Place de la Concorde  
 L'Opéra  
 Sacre Coeur  
 Le Louvre  
 Tour Eiffel  
 Gare St. Lazare  
 Bois de Vincennes  
 Porte St. Martin  
 Le Panthéon  
 Tour St. Jacques  
 Place de la Nation  
 École Militaire  
 Place de la République  
 Lion de Belfort  
 Parc des Buttes Chaumont  
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 Parc de Montsouris

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TABLE 8.2 MENTAL LINKS TO TWENTY STIMULUS LOCALES

Stimulus locales	A	B
	Number of locales with which stimulus locale is linked by 10 percent of the subjects or more	Percent of subjects who fail to link stimulus locale with any other locale
Arc de Triomphe	6	.5
Notre Dame	6	1.8
Place de la Concorde	6	1.8
L'Opéra	6	2.3
Sacre Coeur	2	2.3
Le Louvre	4	3.7
Tour Eiffel	5	5.1
Gare St. Lazare	1	5.5
Bois de Vincennes	3	6.9
Porte St. Martin	2	11.0
Le Panthéon	6	11.5
Tour St. Jacques	4	12.4
Place de la Nation	2	13.3
École Militaire	3	13.8
Place de la République	2	16.1
Lion de Belfort	3	18.4
Parc des Buttes Chaumont	0	20.2
Place d'Italie	3	22.5
Père Lachaise	0	27.0
Parc de Montsouris	1	34.0

tion to create an additional map (Fig. 8.8); one in which each locale is surrounded by the verbal associations it stimulated.

## RECOGNITION OF PARISIAN SCENES

There are numerous representations of things that a person cannot externalize through drawing or verbal recall. He may be able to see a loved one's face in his mind's eye without being able to draw it. But he is likely to recognize it if shown a photograph. And the same is true of cities. A person may have encoded visual aspects of the city that can be most sensitively uncovered through recognition, that is by seeing if the person can match an external stimulus to some memory of it. Accordingly, to supplement the method of "free recall" used in drawing maps of the city, we presented subjects with 40 photographed scenes of Paris, which they were asked to identify. Correct recognition shows that a scene is an active



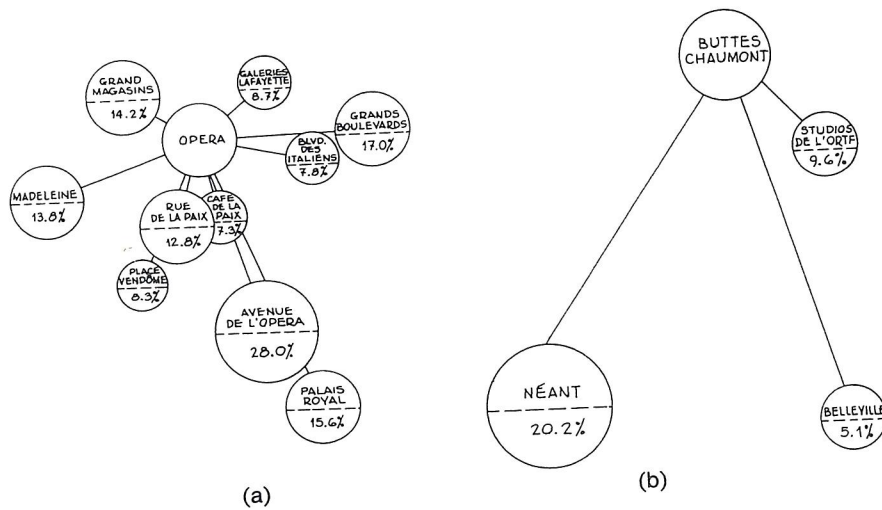


FIGURE 8.7  
 (a) Association to Opéra. Shows all associations to the stimulus locale Opéra made by at least 5 percent of the subjects. (b) Associations to Buttes Chaumont. Shows all associations to the stimulus locale Buttes Chaumont made by at least 50 percent of the subjects.

part of the subject's representation of the city, even if he did not spontaneously include it in his map.

We scored recognition by noting the percentage of subjects who correctly identified the scene, and as Table 8.3 shows, this ranged from 100 percent for Etoile to under 5 percent for Rue de Cambrai and Place d'Israël. We may touch briefly on four aspects of the recognition data: *icons of the city*, *confusions*, *class differences*, and *paradoxical unknowns* (see Fig. 8.9).

### Icons of the City

All of the groups shown the photographs, whether professionals or workers, recognized the same four scenes with the greatest degree of accuracy: Etoile, Notre Dame, Place de la Concorde, and the Palais de Chaillot. What distinguishes these scenes is not so much their beauty, as their monumentality, special historic significance, and scenic grandeur. (To this group one could, without doubt, add the Eiffel Tower and Sacre Coeur (Sondages, 1951).) Each of these scenes has come to be indelibly associated with Paris, not merely within the city, but abroad as well. One might conclude, therefore, that those sites which are universally identifiable among residents serve as internationally circulated symbols of the

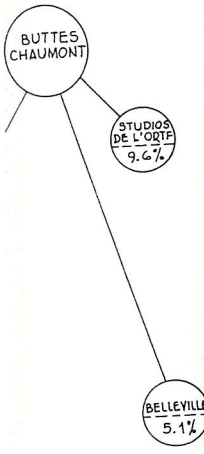
*Blanc-Manteau, renommée*  
 C'est dans ce village que Molière a été  
 baptisé mais ce village n'est plus  
 de nos jours. C'est un quartier de Paris  
 un quartier Coeur d'Or qui est très  
 tranquille et agréable.

*Paroisse de Mont...*  
 L'architecture et son nom. C'est une  
 paroisse de la ville. Elle est très  
 ancienne. Elle est très agréable.  
 Elle est très connue. Elle est très  
 agréable. Elle est très connue.  
 Elle est très agréable. Elle est très  
 connue. Elle est très agréable.

*Les points de plus haut de Paris*  
 Les points de plus haut de Paris  
 sont situés dans le quartier de  
 Buttes Chaumont. C'est un  
 quartier très agréable. C'est un  
 quartier très connu. C'est un  
 quartier très agréable.

*La plus belle place du monde*  
 La plus belle place du monde  
 est la place de la Concorde.  
 Elle est très connue. Elle est très  
 agréable. Elle est très connue.  
 Elle est très agréable. Elle est très  
 connue. Elle est très agréable.

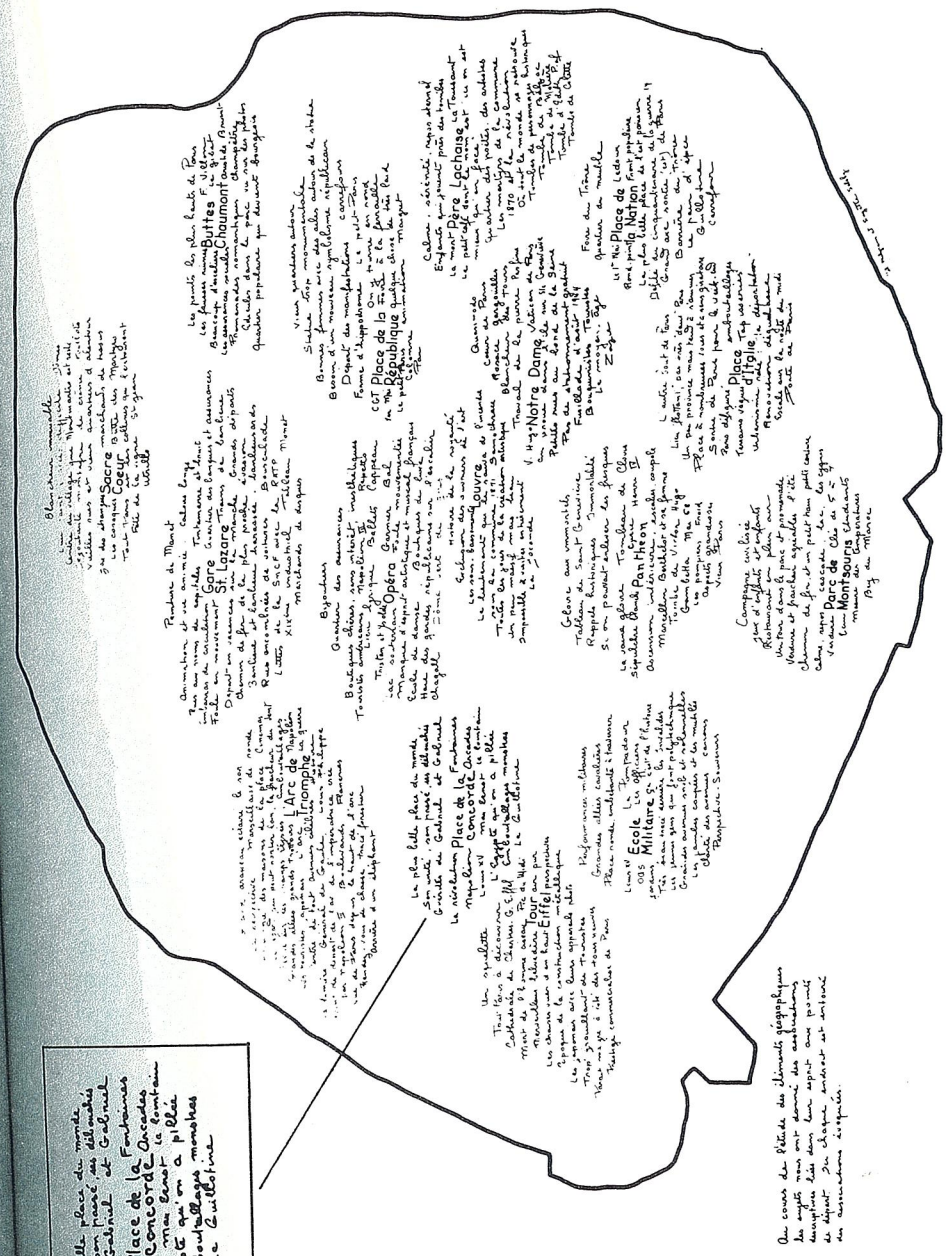




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Le plus belle place du monde  
son palais, son musée de dessin  
Grosvenor, le Grand et Gabriel  
Le néo-classique Place de la Concorde  
L'Opéra qui en a plein  
C'est la plus belle  
Le Louvre

On aime les pittoresques  
les rues, mais surtout les monuments  
l'Opéra, le Louvre, le Palais National  
le Sacre, le Sacre, le Sacre, le Sacre  
le Sacre, le Sacre, le Sacre, le Sacre

FIGURE 8.8  
Ideational associations to several stimulus locales.



TABLE 8.3 RECOGNITION OF PARISIAN SCENES

Scenes shown to group I*	Percent of S's who correctly identified scene	Scenes shown to group II*	Percent of S's who correctly identified scene
Etoile	100.0	Place Denfert	94.4
Notre Dame	98.5	Rochereau	90.8
Place de la Concorde	97.0	Place Vendôme	81.6
Palais de Chaillot	93.3	Place de la République	80.5
Mosque	82.8	Parc Monceau	79.3
Louvre (Porte la Tremoille)	79.0	Place du Tertre	61.0
Places des Vosges	70.1	Porte de St. Cloud	59.8
Porte St. Martin	67.0	Square du Vert Galant	58.7
UNESCO (Place Fontenoy)	52.0	École des Beaux Arts	56.3
Musée des Arts		Place des Victoires	55.2
Africains	46.4	Arène de Lutèce	55.2
Place Furstenberg	44.8	Fontaine Molière	54.0
Parc de Montsouris	44.8	Eglise d'Alésia	49.4
Eglise Orthodox	44.8	Fontaine des Innocents	49.4
Place Félix Eboué	39.6	Place St. André des Arts	31.0
Avenue d'Italie	36.6	Mémorial du Martyr Juif	23.0
Monument de la		Passage Dellesert	20.7
Déportation	30.6	Avenue Clichy	16.1
Fontaine Cuvier	37.7	Place Rodin	12.6
Avenue des Gobelins	7.5	Pont Bir Hakeim	12.6
Place d'Israël	4.5	Place de Santiago	6.9
Rue de Cambrai	4.5		

\*Twenty scenes were shown to each of two groups of subjects, studied at different times.

city. This formula is, however, too simple: Denfert Rochereau, with its imposing Lion de Belfort, though recognized by 94 percent of the subjects, in no way functions as an international symbol. (This raises questions of urban iconography too complex to discuss here. We may also ponder why Paris is so richly endowed with exportable symbols, while such great urban centers as São Paulo and Chicago lack them entirely.)

### Confusions

In the mental representation of a city, two quite separate geographic locales may be collapsed into a single imagined site. Thus, many Parisians mentally combined the nonsectarian Monument de la Déportation (located on the Île de la Cité) and the Mémorial du Martyr Juif (located in St. Paul) into a single locale, believing there is only one such monument, rather than the two that actually exist. Porte St. Martin was frequently

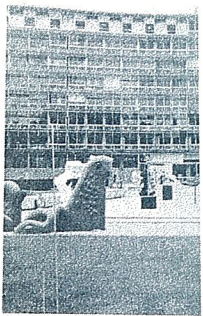
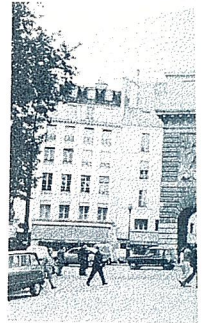


FIGURE 8.9  
Representative phot



*Percent of S's who correctly identified scene*

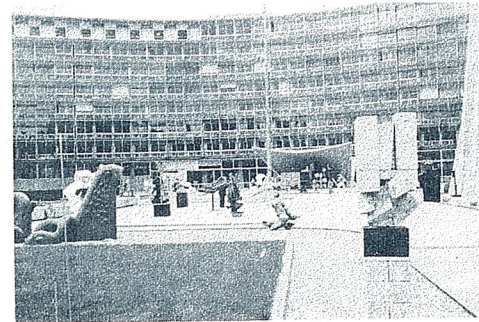
- 94.4
- 90.8
- 81.6
- 80.5
- 79.3
- 61.0
- 59.8
- 58.7
- 56.3
- 55.2
- 55.2
- 54.0
- 49.4
- 31.0
- 23.0
- 20.7
- 16.1
- 12.6
- 12.6
- 6.9



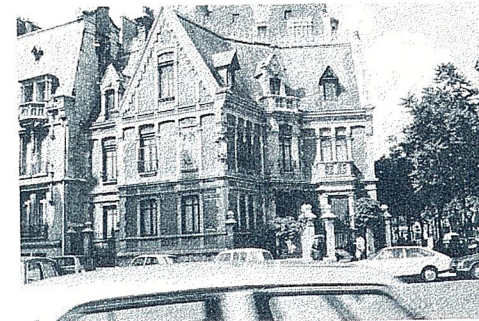
Icon: *Etoile*. 100 percent correct identification.



Confusion: *Porte St. Martin*, 67.0 percent identification. Often misidentified as *Porte St. Denis*.



Class differences: *UNESCO at Place Fontenoy*, 52 percent correct overall. Professionals, 67 percent; workers, 24 percent.



Unknown: *Place D'Israël*, identified by 4.5 percent of the subjects.

FIGURE 8.9 Representative photographs used in the recognition text.

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misidentified as Porte St. Denis, highlighting the psychologically interchangeable character of the two arches.

### *Class Differences*

Class factors shape the maps of the subjects by segregating rich and poor residentially, and also by transmitting a class-linked culture to various segments of the population. Thus, Place Furstenberg is recognized by 59 percent of the professional subjects, but only 17 percent of the workers; UNESCO headquarters by 67 percent versus 24 percent. The icons of the city, however, are recognized equally by all groups, serving as integrative elements in the urban culture.

### *Paradoxical Unknowns*

When a city is deficient in fine squares and architecture, mediocre locales may be widely publicized because they are the best of what is available. But in Paris, a surfeit of riches creates an opposite situation. Competition for a place in the mind is fierce; many worthy locales are excluded. Thus Place Felix Eboué, which displays an impressive and monumental fountain, is recognized by less than half of the Parisians, while 87 percent of the subjects cannot identify Place Rodin. Place d'Israël, which could serve as an architectural showpiece, sinks to virtual obscurity—identified by only 4.47 percent of the subjects. Locational factors play some part. But more critically, the data highlight how the mental maps which Parisians internalize are not only individual products, but are in an important degree social constructions. Any one of these last scenes possesses sufficient aesthetic value to serve as a widely known feature of the Parisian environment. If society chose to publicize Place Rodin, the square could become as famous as (God forbid) the urinating statue of Brussels. Social definition determines, through selectivity and reiteration, which features of the city acquire salience in the mental maps of the inhabitants.

## *PARIS, KNOWN AND UNKNOWN*

The photographic recognition test tells us about the knowledge of specific landmarks, but we wanted a more general picture of the known and unknown parts of the city. Accordingly, we provided each subject with an illustrated map of the city, which we overprinted with the boundaries of the 80 administrative districts (*quartiers*). We asked each subject to study his map and indicate the ten quartiers with which he was most familiar, and those that were least familiar to him. By combining the response for

all subjects, we generated a mental map of the city.

The five most familiar quartiers are the Quartier Latin and the Marais, but also the 17th and 18th, and the 8th. The 17th and 18th are asked to list the ten most familiar quartiers, and the 17th and 18th are asked to list the ten most familiar quartiers.

Figure 8.10 shows the results of the test. The map of the city is divided into 80 administrative districts, delineated by thin lines. The map is oriented with the Eiffel Tower at the top. The districts are numbered from 1 to 80. The map shows the results of the test, with the ten most familiar districts shaded in black and the ten least familiar districts shaded in white. The map shows that the most familiar districts are the 17th, 18th, 8th, 16th, and 15th, while the least familiar districts are the 65th, 64th, 63rd, 62nd, 61st, 60th, 59th, 58th, 57th, and 56th.

The residential density is highest in the center of the city, and lowest in the outskirts. The population living in the center of the city is much higher than in the outskirts.

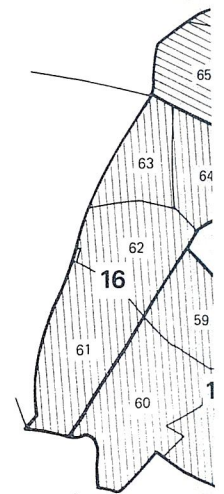


FIGURE 8.10  
Least known are indicated by white; most known are indicated by black.



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The five most familiar quartiers are contiguous and center on the Quartier Latin and Île de la Cité. The next five choices accrete to this cluster, but also extend to the Champs Elysées and Etoile. When subjects are asked to list the quartier they know least well, we find a striking movement away from the center of Paris to the peripheral arrondissements.

Figure 8.10 shows how these data, translated into respective arrondissements, delineate a ring of unknown areas around the core of Paris. Curiously, in this map the boundary between known and unknown parts of the city retraces part of the route of the last wall of Paris, the Fermiers Généraux. Although the wall was torn down in 1859 its effects endure in the mental maps of contemporary Parisians, with the least familiar parts of the city lying outside the boundary where the wall once stood.

The residential patterns of Paris create a class basis to known and unknown parts of the city. Generally speaking, the wealthier segments of the population live in the western part of the city, and the poorer classes

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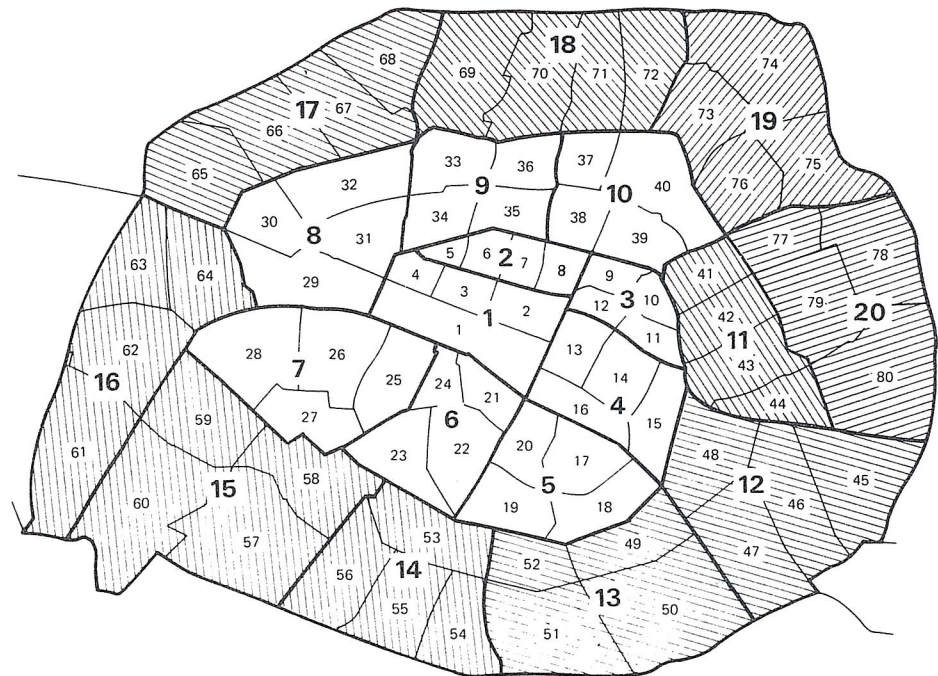


FIGURE 8.10  
Least known areas of Paris, by arrondissement. The shaded portion of the map indicates the ten arrondissements that contain areas subjects indicate they know least well.



TABLE 8.4 LEAST FAMILIAR ARRONDISSEMENTS BY SOCIAL CLASS

Rank	Arrond.	Percent of S's indicating a quartier in this arrondissement to be among the least familiar	Arrond.	Percent of S's indicating a quartier in this arrondissement to be among the least familiar
1	20	69.3	15	61.0
2	19	68.2	13	58.5
3	12	62.5	17	53.7
4	18	61.4	16	51.2

live in the east. It is not surprising, therefore, that the areas least known to the working-class subjects should differ from those of the middle-class professionals, as Table 8.4 shows. While all of the least-known arrondissements are on the periphery of Paris, there is no overlap between the class-linked perceptions. It is only a knowledge of the central arrondissements of Paris that is claimed by both groups.

## SOCIAL PERCEPTIONS

While ethnic turfs have a salient place in the representation of New York, with exception of the North African districts, and the Jewish quarter around St. Paul, they do not figure greatly in the mental maps of Paris. The city does not have the multiple ethnic concentrations found in New York, and areas are not selectively highlighted and affixed with an ethnic label, a process Suttles (1972) has shown to be important in the definition of ethnic neighborhoods. In pre-World War II Paris, areas of the city were rich in residents from particular provinces, and subjects continue to identify the quartiers around Gare de Montparnasse as *Paris des Bretons*. On the other hand, the Chinese community that once flourished behind the Gare de Lyon receives no representation in the maps of contemporary Parisians.

Subjects locate the very poor in the northeastern districts; while the wealthy are overwhelmingly situated in the 16th arrondissement, at the western edge of the city (Table 8.5). This is a sharply differentiated perception, with no geographic overlap between the two groups. The criminally dangerous areas of Paris are identified with the 18th and 19th arrondissements, with the greatest threat to personal safety ascribed to the Goutte d'Or quartier, which houses many North African immigrants.

The responses to several purely personal questions appear to derive from this rough socioeconomic map. When subjects are asked if there is a quartier they would refuse to live in under any circumstances, they cite the quartiers around Goutte d'Or (quartiers 71, 72, 73, 74).

TABLE 8.5 QUALITIES

Qualities
Paris of the rich
Paris of the poor
Dangerous Paris
Areas you like best
Areas in which you would live under any circumstances
Areas you know best
Areas you know least
Snobbish Paris
"Paris des Bretons"
Where you would most like to live
Friendlier, more relaxed atmosphere
Greatest loss of pleasure because of urban renewal

\*Subjects were instructed  
(There are four quartiers  
mentioned in terms of  
with the city.

The deepest affections  
are for the best-located  
1st, and 5th arrondissements.  
The arrondissement  
order of popularity.



TABLE 8.5 QUALITIES ASCRIBED TO DIFFERENT AREAS OF PARIS

Qualities	The arrondissements in which the quality on the left is most frequently located, ranked 1-4, and the percentage of all subjects locating the quality within this arrondissement.* (N = 218)			
	1	2	3	4
Paris of the rich	16 87.6%	17 20.6%	8 18.3%	7 17.0%
Paris of the poor	18 38.5%	19 31.7%	20 29.8%	13 11.0%
Dangerous Paris	18 38.5%	9 31.7%	10 29.8%	19 11.0%
Areas you like best	6 70.6%	4 65.1%	1 57.8%	5 51.4%
Areas in which you would refuse to live under any circumstances	18 37.2%	19 27.1%	10 18.3%	8 17.0%
Areas you know best	6 73.9%	1 61.5%	5 58.3%	8 57.8%
Areas you know least well	20 60.1%	13 58.7%	19 57.3%	18 55.0%
Snobbish Paris	16 49.1%	6 15.1%	8 14.7%	17 9.6%
"Paris des Bretons"	15 50.0%	4 34.9%	6 23.4%	—
Where you would move if you became wealthy	6 33.9%	4 31.2%	7 24.8%	16 21.6%
Friendlier, more relaxed atmosphere	6 30.3%	5 22.5%	4 18.3%	7 14.7%
Greatest loss of pleasant qualities because of urban renewal	15 43.1%	1 14.2%	13 13.8%	6 10.1%

\*Subjects were instructed to give all responses in terms of quartiers and not arrondissements. (There are four quartiers in each arrondissement.) But we have integrated the results and presented them in terms of arrondissements for ease of comprehension, particularly for those familiar with the city.

The deepest affection for the city is reserved for its central historic areas, with the best-liked quartiers falling out in the 6th, followed by 4th, 1st, and 5th arrondissements. Along related lines, subjects were asked to engage in a pleasant financial fantasy: *Suppose you came into a great deal of money, and could afford to live anywhere in Paris. Where would you move to?* The arrondissements exerting the greatest residential attraction are, in order of popularity, 6th, 4th, 7th, and 16th. The single most desired

SOCIAL CLASS

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- 61.0
- 58.5
- 53.7
- 51.2

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location is the Île de St. Louis. Popular with all groups, and particularly so with younger Parisians, 36.2 percent of those under 30 speculated that if they had a financial windfall they would move there, to the island in the middle of Paris, but removed from the bustle.

The subjects' attachment to "le vieux Paris" is expressed in a somewhat different form when they responded to the following hypothetical problem: *Suppose you were about to go into exile, and had a chance to take only one last walk through the city. What would be your itinerary?* Each subject was given an unmarked street map and was asked to trace a final itinerary of not more than three kilometers. Many idiosyncratic routes appeared as subjects traced paths through childhood neighborhoods, sites of romantic encounters, and so on. But when we focus on the commonly selected paths (any street segment transversersed by at least five of the subjects) a definite pattern is revealed (Fig. 8.13). The densest network of walks are along the quais of the Seine, on the Île de la Cité and the Quartier Latin. (Smaller numbers of subjects chose to stroll through Place des Vosges, Palais Royale, and Montmartre.) And a considerable group chose to walk along the Champ Elysées. Paris contains more than 3500 streets within its

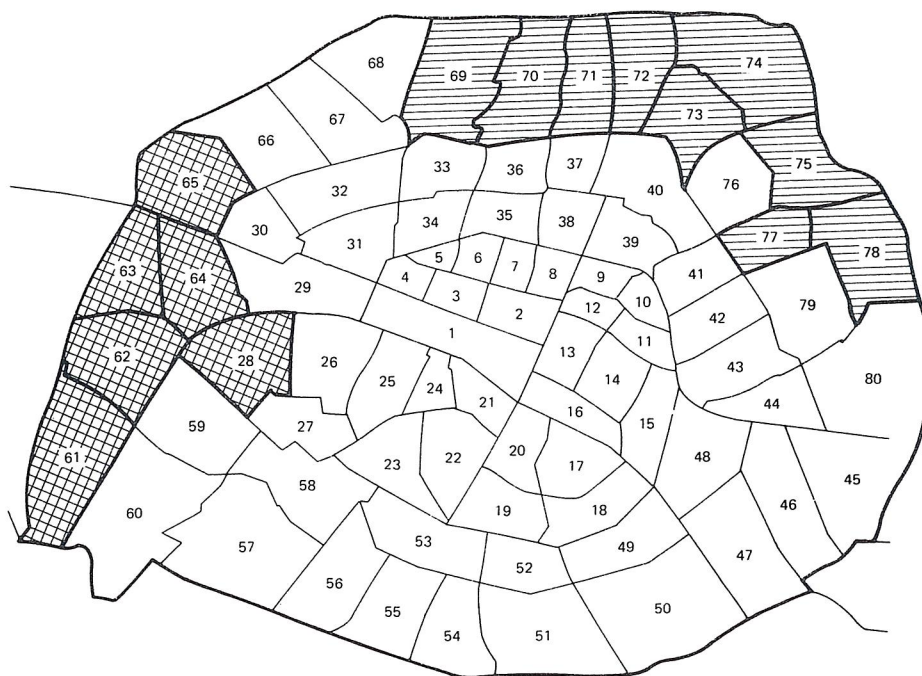


FIGURE 8.11 Perception of rich and poor areas. Shows all quartiers which at least 10 percent of the subjects indicated as among the right (grating) or poor (striped) areas of Paris.

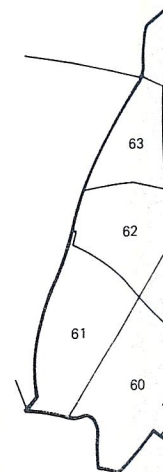


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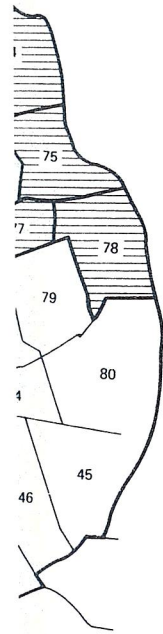
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PSYCHOLOGICAL MAPS OF PARIS

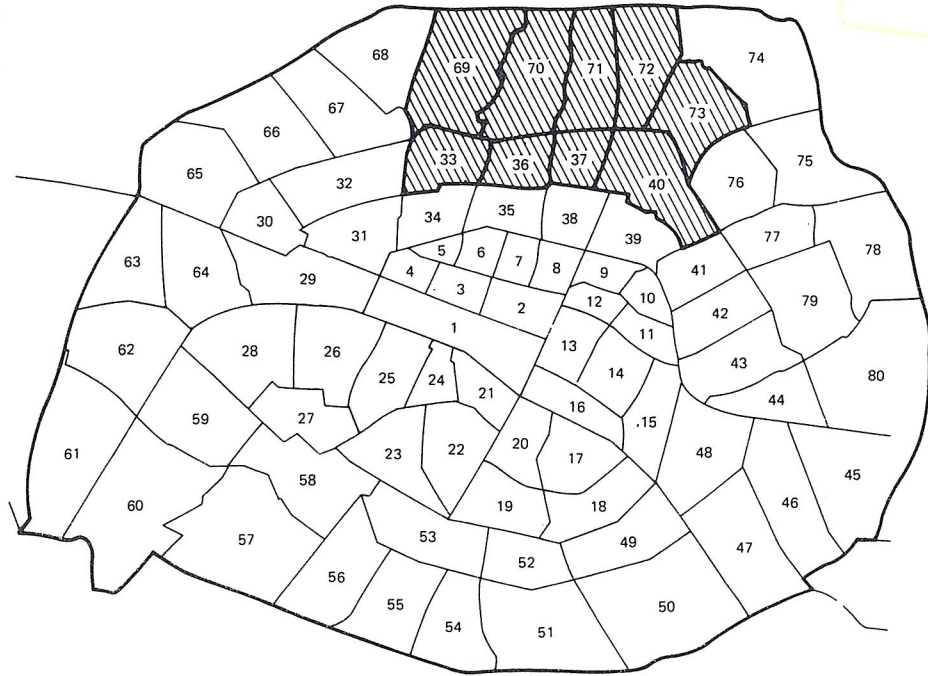


FIGURE 8.12  
Paris dangereux. Indicates the quartiers perceived as being the most dangerous, from the standpoint of criminal activity.

limits (Hillairet, 1964), but the concentration of choices on only a score of these reveals the few which have a shared emotional significance.

INTUITIONS AND SECRETS

Before drawing the report to a close, we wish to make a few additional observations about Paris and the processes of its mental representation. A person may know many things about a city while not being aware that he possesses such knowledge; and such implicit knowledge may be widely shared. Consider the following hypothetical situation we presented to the subjects:

Suppose you were to meet someone in Paris, a person whom you had never met before, and you knew the exact date and time of the meeting, but not the place. Assume the person you were to meet operated under the similar handicap of not knowing where you would wait for him. Where in Paris would you wait so as to maximize the chances of encountering the person?

Subjects were encouraged to use their intuition in answering the



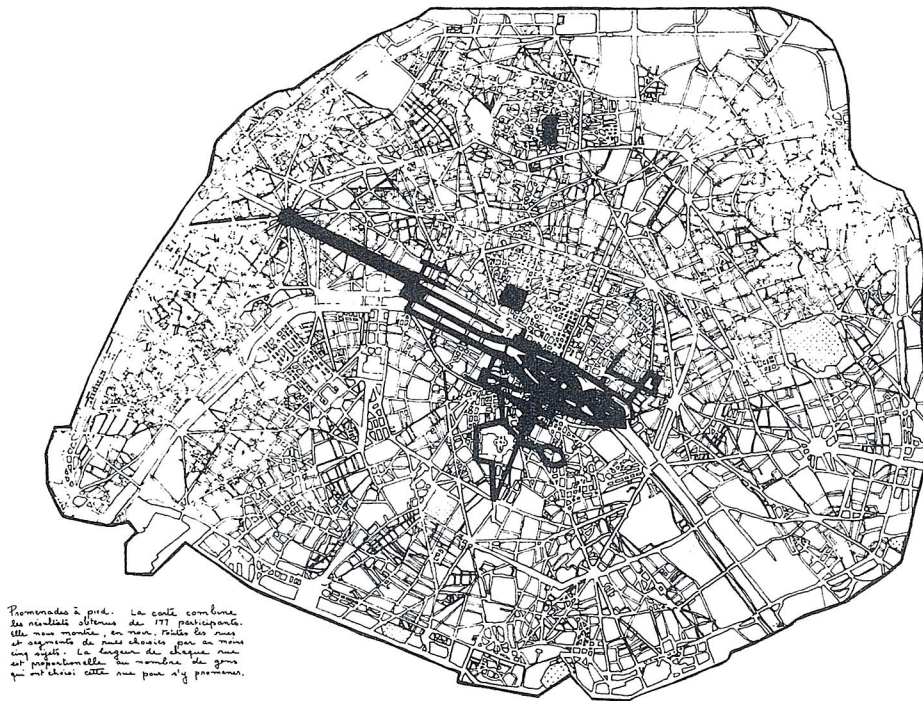


FIGURE 8.13

Last walks before going into exile. The black paths indicate all street segments chosen by at least five subjects. The width of each segment is proportional to the number of subjects who traverse segment during their last walk.

question, but this did not prevent many of them from denouncing the question as illogical, stupid, and unanswerable. But those who responded ( $N = 188$ ) demonstrated that a set of appropriate—even intelligent—responses was possible. (An answer to this question may be considered “appropriate” if it is selected by a large number of other respondents, and thus represents a shared intuition of where others are likely to wait.) Two principles governed the choice of locales: (a) some subjects selected a location that was unequivocally representative of the city, (b) other subjects chose locales that by custom and practice had become institutionalized waiting places (much as the clock at Grand Central Station in New York serves this function).

Six locations accounted for more than 50 percent of all answers, as Table 8.6 shows. The largest number of Parisians indicated they would wait by the Eiffel Tower, the preeminent symbol of Paris in modern times. (What would the dominant response have been prior to its construction in 1889? We have no psychological maps to tell us.) The second most popular choice was the Monument des Morts at the Gare St. Lazare. The

consensus generated an implicit, intuitive proper stimulus.

A second observation exercised a fascinating answered affirmatively not know well but *Marais*, a once unfashionable.) And subjects asked if they had chosen that were unknown quaint provincial surroundings rustic residential streets surrounding street Sèvres, which represented providing a great surface would suggest Rohan, and numerous were actually cited the subject's attitude that Paris is intricate

But it is false to assert that the city pollution, noise, and urban renewal is difficult to locate its worst effects modern apartment charm, but also the



TABLE 8.6 MEETING PLACES CHOSEN TO MAXIMIZE ENCOUNTER

Location	Percent of subjects selecting this location (N = 188)
Tour Eiffel	16.5
Monument des Morts (Gare St. Lazare)	8.0
Etoile	7.4
Opéra	7.4
Bvd. St. Germain	6.9
Notre Dame	6.9
Bvd., Pl. St. Michel	6.9

consensus generated by this question shows that the inhabitants share an implicit, intuitive knowledge of the city that can be crystallized given the proper stimulus.

A second observation is that even poorly known areas of a city may exercise a fascination for the inhabitant: thus, three-fourths of the subjects answered affirmatively when asked if there was any part of Paris they did not know well but were attracted to. (The most popular choice was *le Marais*, a once unfashionable area that has recently experienced a renaissance.) And subjects generated the names of 155 different locales when asked if they had come across any places of particular beauty or interest that were unknown to the general public. Among their responses were: quaint provincial streets off the Parc de Montsouris; Villa Montmorency, a rustic residential enclave of several acres into which the noise of the surrounding streets scarcely penetrates; the courtyards off the Rue de Sèvres, which represent the inner folds of the convoluted brain of Paris, providing a great deal more surface area than a mere skimming of the surface would suggest; Canal St. Martin; Place des Peupliers; Cour du Rohan, and numerous others. Many of the so-called "places of beauty" were actually cited by a large number of subjects, yet more important is the subject's attitude that the city yields some secrets to him alone, and that Paris is intricate, variegated, and inexhaustible in its offerings.

But it is false to end this report as a panegyric. For many Parisians assert that the city is declining in quality, succumbing to vehicular pollution, noise, and the flight of artisans from the city; they assert that urban renewal is destroying a good deal of the beauty of Paris, and they locate its worst effects in the 15th, 1st, and 13th arrondissements, where modern apartment buildings and office towers have replaced the greater charm, but also the greater decrepitude, of the older structures.



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The problem for modern Paris, then, is to learn something about the transmutation of charm into its contemporary forms, and to learn it quickly, before the old is brutally replaced by the new, and only the street patterns remain.

## SUMMARY

In this paper we described a number of psychological maps of Paris generated by its inhabitants, detailed representations of the city expressed in cartographic form, rather than as simple opinions, attitudes, and words. The peculiar value of such mental maps is that they tease out the person's view of a city in a way that permits a ready comparison with the reality. They allow a treatment of the city's spatial character in a way that words frequently avoid. And they show how urban space is encoded, distorted, and selectively represented, while yet retaining its usefulness to the person. For the image of the city is not just extra mental baggage; it is the necessary accompaniment to living in a complex and highly variegated environment.

Such maps are multi-dimensional. They contain cognitive and also emotional and intuitive components, and a variety of procedures is needed to bring them to light. The maps are not only individual products; they are shaped by social factors, and therefore acquire the status of collective representations—that is, symbolic configurations of belief and knowledge promoted and disseminated by the culture.

## NOTE

1. Grateful acknowledgment is made to Professor Serge Moscovici for his generous aid, and to Anne André, Ben Zion Chanowitz, Alexandra Milgram, and Judith Waters for research assistance. The services of the Institut Français d'Opinion Publique were employed in interviewing the working-class segment of our sample and in computer analyzing the data from all subjects. The assistance of Paris MENSA is gratefully acknowledged.

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## APPENDIX MENT

### Arrondissement

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APPENDIX DISTRIBUTION OF SUBJECTS BY SEX AND ARRONDISSEMENT

Arrondissement	Percent of subjects in study (N = 218)			Percent distribution according to 1968 census
	Men	Women	Total	
1	1.6	2.2	1.8	1.3
2	0.8	2.2	1.4	1.4
3	3.2	1.1	2.3	2.2
4	4.8	1.1	3.2	2.2
5	4.0	4.3	4.1	3.2
6	2.4	1.1	1.8	2.7
7	4.8	2.2	3.7	3.4
8	2.4	3.3	2.8	2.7
9	2.4	5.4	3.7	3.4
10	4.8	4.3	4.6	4.5
11	6.3	4.3	5.5	7.0
12	8.7	4.3	6.9	6.1
13	4.0	4.3	4.1	5.8
14	7.1	6.5	6.9	6.2
15	8.7	12.0	10.1	9.1
16	8.7	5.4	7.3	8.4
17	7.1	8.7	7.8	8.3
18	7.1	14.1	10.1	9.4
19	6.3	5.4	6.0	5.5
20	4.8	7.6	6.0	7.2

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