"THE DANGEROUS EDGE OF THINGS":

PARIS, LES HALLES:
A STUDY OF THE INTEGRATION OF BUILDING PROJECTS
INTO AN EXISTING URBAN FABRIC

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1966

A Thesis Submitted in Partial Fulfillment
of the Requirement for the
Degree of Master of Architecture
at the Massachusetts Institute of Technology
June, 1972

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The physical treatment of edge conditions of new building projects in
an existing urban structure is considered to be an important influence on
the way people perceive and use a city. These edge conditions have been
explored in terms of formal physical definition in order to ascertain what
configurations can establish continuity between new and existing parts of
the city. Examples for analyses have been drawn from the site of les Halles,
the central markets, in Paris. These examples include both built and pro-
jected alterations to the site.

Thesis Supervisor: Stanford Anderson
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I. INTRODUCTION

The intent of this thesis is to explore a method of analyzing the physical integration of building projects into an existing urban environment, particularly when the latter is an area of significant historical interest. The outcome of the explorations in this paper should be twofold: 1) a system of cataloguing various recorded configurations of the insertion of new buildings into the existing urban pattern; and 2) a system of cataloguing possible configurations of the edge conditions in this situation.

The edge condition, or the point of contact between what was existing and what is to be added to it, was chosen for study because of the effect the treatment of this junction can have on both the immediate and the larger urban environment. It can connect them, so that they operate continuously and in harmony, or it can separate them and form a lapse or rupture in the formal urban fabric and in the sequential experience of the city.

Kevin Lynch, in The Image of the City, sees edge conditions as one of the elements of urban structure which can either orient or confuse the people using the city:

Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together. These edge elements, although probably not as dominant as paths, are for many people important organizing features, particularly in the role of holding together generalized areas, as in the outlines of a city by water or wall.

Later he adds, "Edges may augment the tendency of districts to fragment the city in a disorganizing way." In the situation chosen for study,
where a hole has been made in an existing urban pattern, that hole may be filled in so that either continuity or discontinuity is established between the existing and the proposed new parts, no matter what the previous relationship had been. The treatment of the edges of the project area as "seams" is considered desirable in certain cases so that the city can be experienced continuously and sequentially. Continuity of physical definition and use is considered by the author to be a positive attribute of well-functioning cities due to personal observations both in field research in Paris and in personal experience of other cities. This attitude does not rule out changes in either the physical forms or the activity patterns among various parts of the city, but urges that continuity should be established at the edges of new projects and change should take place within the newly built section. This treatment allows both continuity and change, and that change can be an integral part of the newly organized system. 3

The preservation of either historic buildings or districts or even recently completed structures in and around the project area is a separate consideration, for no matter what is preserved and what destroyed to form the boundary of the project area, that edge will have to exist somewhere. The judgment of whether and what to preserve is associated with the meaning both history and the buildings in question hold for the society making the decisions at the time. 4 Several authors concerned with the structure of the city have argued for the preservation of historical parts of cities. Lewis Mumford's analysis of the evolving structure of urban life and its relationship to the physical form of the city in The City in History argues for the retention of certain historic areas:

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From the original urban integration of shrine, citadel, village, workshop, and market, all later forms of the city have, in some measure, taken their physical structure and their institutional patterns. Many parts of this fabric are still essential to effective human association, not least those that sprang originally from the shrine and the village.  

The physical characteristics of the edge, as well as its meaning in the overall context of the city, will determine whether it is respected or ignored. Future projects may be planned to change these edges to relate to the new intervention, for example they may be slated for renewal at a later date. These variables are recognized, but given the vagaries of municipal budgets and politics and uncertainties of proposed projects, it would seem better to build each stage in relation to its contemporary surroundings. Future neighboring projects can then respond to the new configuration. This attitude is echoed by Lawrence Halprin, who writes eloquently about change and continuity in the city:

A city, like a forest, is a delicately balanced ecosystem, always in transition. The city's structures, of course, are buildings rather than trees, its plazas are like clearings in the woods... some buildings and places need to be preserved in a city for reasons beyond the purely functional. We need, in cities, buildings of different ages reflecting the taste and culture of different periods reminding us of our past as well as our future... Old buildings and old sections of cities establish a character, a flavor of their own, which often becomes the most interesting and provocative part of a city. Part of this is due to scale, since each age develops its own sense of scale and relationship of parts.  

Bernard Rudofsky, in his book on urban form entitled Streets for People, discusses continuity in terms of streets in the context of city form:
... the street is not an area but a volume. It cannot exist in a vacuum; it is inseparable from its environment. In other words, it is no better than the company of houses it keeps. The street is the matrix: urban chamber, fertile soil and breeding ground. Its viability depends as much on the right kind of architecture as on the right kind of humanity. The perfect street is harmonious space. Whether it is confined by the near-hermetic houses of an African Kasbah or by Venetian filigree marble palaces, what counts is the continuity and rhythm of its enclosure. One might say that the street is a street by courtesy of the buildings that line it. Skyscrapers and empty lots do not a city make. It is worthwhile pointing out that the triumphs of Western architecture are not celebrated in individual buildings... but in the sum total of streets and squares of a town. Anonymous houses determine a town's complexion no less than architectural monuments. The priceless objets d'art, the landmarks, are but the raisins in the dough that goes into the makings of a town.7

The argument for continuity in urban structure is also supported by Paul Zucker, who, in his work on public open space, Town and Square, assumes a surrounding urban context for his study: "The square dictates the flux of life not only within its own confines but also through the adjacent streets for which it forms a quasi estuary."8 Steen Eiler Rasmussen also assumes this larger context for his work, Towns and Buildings:

In the present book an effort has been made to bring the reader to look on the city as an entity which expresses certain ideals. The individual monuments, the buildings, thus become part of a whole. 9

Camillo Sitte, in his influential and still applicable book City Planning According to Artistic Principles, discussed the aesthetic considerations of continuity of physical definition in the city:

The same rule always holds true: whatever the eye can encompass at once should be harmonious and that which one cannot see is of no concern. Thus one is guided by actual effects and can never err.10
André Chastel, in an article entitled "Paris d'Haussmann à nos Jours", defines the Medieval, Renaissance, and nineteenth-century types of historical organization of cities which together make up contemporary Paris, and then states:

It is the relations among these three equally legitimate and necessary cities which constitute the total problem of the real Paris, and ask to be stated precisely according to renewed points of view.1

Finally Gaston Bardet, speaking of the relation of new street patterns to the existing city in his conclusion to Naissance et Méconnaissance de l'Urbanisme states:

We have seen, when we are faced with an existing city, a city of flesh, and not the 'ruinous wastelands' seen otherwise. Grand diagonals must not traverse communities, must no longer create hemmorhages, they must glide between existing communities, grow supple, serve as a tie and not as a rupture.12 [author's emphasis]

Historical continuity, by means of preserving certain existing building complexes, and continuity of physical definition among parts of the city, come together and interact in a situation where an area designated for new construction is bounded by old and significant preserved buildings, as is the case in les Halles in Paris.13 The attitude that historical and physical continuity are desirable in the urban environment is not an original nor even an unusual one. The decision to study Paris is not unusual either, since it has been the object, perhaps even the genesis, for many urban studies. The city of Paris is especially appropriate for this type of study due to its long and continuous history of urban structure and form, without major destructive disasters. Until recent large-scale urban renovation started,
each planned change in its internal structure had been made in relationship to existing urban form on a comparatively small scale since Paris has not suffered any large-scale unplanned demolitions such as, for example, the 1666 fire or World War II bomb damage in London.

Within Paris, the area of les Halles, the market-place, has been the subject of continuing public, royal, and municipal concern since its inception and has therefore stimulated the production of many plans for its renovation or transformation. Today once again the quarter is the subject of great political turmoil as six of Baltard's cast-iron market pavilions dating from the 1850's have been razed and the Municipal Council has not yet accepted a concrete architectural plan for their replacement.

The paper will begin with a discussion of the formal properties of edge conditions in the urban environment. Then these isolated definitions of edges will be explored as they are used in multiples to join or separate existing and new built form. A history of the physical development of les Halles will prepare for the analysis of the edge conditions of several projects proposed for les Halles in the eighteenth, nineteenth, and twentieth centuries. A brief discussion of possible ways of extending this study will conclude the presentation.
II. EXPLORATION OF URBAN EDGE CONDITIONS

Webster's definition of an edge is "the line where an object or area begins or ends." When this definition is applied to the three-dimensional spatial configuration of urban form, this "line" becomes more elastic, possibly even three-dimensional itself. The "dangerous edge" is seen by the author to be one which disrupts or disconnects two parts of the city, or neighborhood, or block, forming isolated islands of people and activity which have no realized interrelationship. This "dangerous edge" is often built with accompanying words describing it as forming a bond between the two parts it really divides. The analysis of the physical attributes can help to show whether this edge treatment is actually working to connect or divide new and existing parts of the city, although it must be realized that activity patterns can change these attributes of connection or discontinuity.

The choice of a particular boundary line for a project in the city is affected by many concerns. The desired conditions on the perimeter can affect the placement of the line, which may be set by one or many of several sets of people, such as a municipal, state, or national governing body; by private developers, by individual owners; or by the designer himself. The reasons that establish this line may be economic, sociological, political, hygienic, aesthetic, functional, preservationist, or may fall under that encompassing term "urbanistic". When the designer sets these boundaries himself, their location may be affected by his particular conception of the finished project. When working with predetermined boundaries, he may in some cases feel it necessary to raise the question of their placement again and to change it.
Once the location of the edge line is set, the configuration of that edge then responds to that location. It will respond to a greater or lesser degree depending on whether the process of arriving at the organization of the new addition is a centripetal one, working from the existing edge conditions into an organizational scheme, or a centrifugal one, proceeding from a central organization outward to the edges. The process of organization can also be and probably always is a reciprocal one in which both edge conditions and organizational concepts affect the final design.

The meaning that particular parts of the city or particular formal configurations have for the culture as a whole and for the designer in particular also influence the physical configuration of this edge. The prevalent attitude toward the immediate surrounds of a project area, for instance whether the buildings are considered valuable historical relics or unsanitary threats to a healthy urban life, can force their maintenance or their destruction, or the maintenance or destruction of ties between them and the new construction. These general attitudes are the result of the entire historical and cultural context at a particular point in time as well as the specialized concerns of the people responsible for setting the outline of the problem and the project area. Only hindsight can show whether the treatment of edge conditions in a certain built project was successful in terms of the evolving use of the city. For those projects which had form on paper only, this judgment must be conjecture.

The physical definition of the edge can be described in concrete terms at both an architectural scale and also at a scale of local urban design. For the former, the essential defining elements of edges are
simply the physical qualities of forms which analytically describe any physical artifact. These definitions have been described in terms of plan and section characteristics in the matrices which appear in Appendix A. They can be categorized as the components of three major sets of definitions: 1) ground form; 2) two-dimensional planar form; and 3) three-dimensional built form, the product of combinations of the first two sets. Ground form, which is by definition a continuous surface, has two sub-categories: a) non-negotiable ground, which is visually accessible but physically inaccessible, such as water or plantings; and b) manipulated ground, meaning planned level changes, which may or may not be negotiable according to their configuration and size. The two-dimensional planar definitions which, added together, make three-dimensional form are the screen, which is visually penetrable but physically obstructive, such as grillwork, or the opposite, such as a row of trees; the plane, which is visually obstructive, but, by itself, of small enough dimensions or so placed that both sides of it can be seen and experienced; and the wall, which is both physically and visually obstructive and separating. In the category of three-dimensional definitions, each form defines a space within itself: the arcade or colonnade, defined by posts or columns, is accessible from all sides but directional along its length; the pavilion is visually and physically penetrable from all sides; the eroded wall, or niche, is visually and physically accessible from one side; and the solid building block is an essentially closed, non-penetrable entity. In these last four three-dimensional definitions, we find that we have established the first definition, that of ground form, on the roof.
These categories are defined for the purpose of establishing the limits of the present study and do not pretend to encompass or completely describe built form or its relation to its environment. There are variations in these definitions, openings such as doors and windows, that allow penetration and access to varying degrees. The simplification of these formal definitions is posed only to better understand their basic qualities.

At the scale of local urban design, we are concerned with the configuration of several buildings and how they relate to each other and to the immediate public space and street network of the neighborhood. The edge of a building project can be conceived and built in three ways in the urban structure: enclosed in built form; existing in space; or defined by both built form and space. Each of these possibilities implies a different way of conceiving the edge conditions, of envisioning the reciprocal use and relationships of the new addition to its surroundings (Figure 2).

Each of these edge configurations requires a unique sequence of physical attributes to define it (Figure 3 and Appendix A). A connection between form and its effect can be seen in this logical ordering of physical definitions and configurations to define the edge. The edge in built form can be tangential, with new and old touching along a straight line, in which case the descriptive sections of "II. Edge in Built Form" are sufficient to describe the edge diagrammatically. If this built edge is an interlocking one, however, with interpenetrations in plan or in section, its description also requires "III. Juxtapositions in Plan" and "IV. Superimpositions in Section" to describe the edge...
Fig. 2 Possible locations of edge of new building projects in relation to the existing surroundings.
FIG. 3 DIAGRAMMATIC DESCRIPTION OF EDGE CONDITIONS
conditions. In this case, either the new can envelop the old or the old can envelop the new.

For the edge that is defined across space, the equivalent to the tangential connection in built form is a parallel one, with a corridor of space separating old and new built form. The section diagrams of "I. Edge in Space" describe this junction adequately. If that spatial edge causes the old and the new buildings to interlock, however, by creating a new space that is contained by both, then "I. Edge in Space," "III. Juxtapositions in Plan," and "IV. Superimpositions in Section" are required to describe it. For the edge that occurs in both built form and space, all four categories are necessary to describe the junction. There clearly exists a hierarchy of means of definition and complexity of connection at this edge.

The physical configuration in plan and section of the built forms that define the edge between new and existing determines to a large extent whether these two parts will be joined together or divided. Join or non-join is more specifically defined by the quality of the physical definition used here, whether it is open and allows penetration or closed and prevents access. For tangential edges in built form, an open edge definition, such as a grill or door, is necessary to make a connection between the two parts, while a closed definition, such as a wall, marks a division. In an interlocking built edge, on the other hand, any edge definition will make a join since the three-dimensional nature of the edge ensures that there will be some area which will be defined partly by new definition and partly by old forms. This difference may be covered over, for instance where the join takes place in a room and all the surfaces are covered to conceal this junction. The join will not be apparent,
and the question of its effect is similar to the question of the existence of a "sound" that nobody "hears". This study is mainly concerned with the shared exterior public space of the city, however, so that this problem is not a major concern. In an exterior situation, the join could also be hidden by a new facade, but the newly created space could still effectively interlock new and old by using both definitions to create a new three-dimensional configuration, which is again subject to change over time.

For the edge defined in space, the parallel configuration forms a join no matter what the physical definitions are as long as that in-between space is experienced in conjunction with the forms on either side of it. The nature of this join can be further defined by the degree to which its sides are open and interrelate. A rupture or division occurs if this space becomes over-extended in relation to its edges, so that the space does not relate to them; or if an additional definition, barring both visual and physical access, is added within this space. When the edge in space is an interlocking one, the same conditions apply. The edge that occurs in both built form and space, which can only be interlocking, acts to join new and old definitions, as long as its space is not over-extended; it is an extended case of the join in interlocking built form.

In summary, the main conditions that determine join or non-join between an existing part of the city and an insertion of new constructions into it is the possible use of the area that is the edge. Some physical definitions, such as walls, restrain physical access. Some definitions, such as grills, ditches, or level changes, allow visual access and
communication but restrict use. The size of a space and the activity taking place there can determine whether new and old can be used in conjunction with each other or not. For instance, the broad expanse of the Boulevard de Sébastopol, with its fast-moving traffic, effectively forms a barrier between its two sides (Figure 4). The broad expanse of the Pointe Saint-Eustache, however, formed a connection between the market pavilions and the wholesale activity on the rue Montmartre during market hours due to the intense activity there (Figure 5). It is a related study to ascertain how use can change these conditions of join or non-join, but it is an impossible one for projects which were never built.

Factors ignored in the above discussion are orientation of the project area for sun, prevailing winds, and desired views; the transportation network; and the historical context, all of which are important concerns in studying the urban structure and will be included in discussions of particular projects. The process of isolating formal considerations of edge conditions for study does not imply that other approaches are not equally necessary, but simply seeks to better explain the edge conditions as abstractions in order to more cogently compare them.

The site of this study has been kept constant in order to provide an element of continuity. Some project analyses and comparisons profit from looking at projects on extended or neighboring sites, but the core of the study area is the Pointe Saint-Eustache and the church of Saint-Eustache, a constant and unchanging urban symbol and physical landmark, and the area to its south which was covered by Baltard's
Figure 4. Boulevard de Sébastopol as represented in a mid-nineteenth century advertisement. (de Sacy, Bibl. Nat. Est.)
Figure 5. View of the rue de Rambuteau between the pavilions and the church Saint-Eustache during market hours. (deSacy)
iron market pavilions in the nineteenth century. Figure 6 shows the area in relation to present-day Paris. Figures 7-10 develop the physical history of the study area through successive representations of exact properties in 1705, 1830, 1900-1903, and 1955-1968.  

The context in which the edge conditions are being defined is important to an understanding of them. The site has been densely built and completely surrounded by built areas since at least the sixteenth century. Each proposed building project studied here, of which the earliest dates from the eighteenth century, has therefore had to deal with edge conditions strongly defined by the encircling urban fabric, and the method of study has been devised with this situation in mind. Using the same method, however, analogies can be made to additions to cities in other geometrical configurations, such as the normally one-sided case of city extensions.

Ideal city plans and utopian plans are for the most part outside the range of this study because they are conceived as isolated entities, although their organizational ideas and patterns have had decided influence on urban building projects. Le Corbusier did, however, set one of his developing ideal city plans, the Plan Voisin, in the middle of Paris, encompassing les Halles, which provides an opportunity to examine the meeting of a large-scale abstract idealized scheme and an existing urban built edge.

Having discussed the edge condition in the abstract, it is now necessary to turn to the specific, starting with a history of the development of the site over time to establish the context for analysis of specific examples of building projects for the site in terms of their historical context and their edge conditions.
Figure 6. The outlined area on this map of Paris indicates the site represented in Figures 7 - 10.
KEY TO FIGURES

LANDMARKS

A. Louvre
B. Saint Germain l'Auxerrois
C. Saint-Eustache
D. Châtelet (1705); Place du Châtelet (1830, 1900, 1955)
E. Cimetière des Saints-Innocents (1705); Marché des Innocents (1830); Square des Innocents (1900, 1955)
F. Cloître Saint-Opportune (1705, 1830); Place Saint-Opportune (1900, 1955)
G. Ancienne Halle au blé (grain market)
H. Hôtel de Soissons (1705); nouvelle Halle au blé (1830); Bourse de Commerce (Chamber of Commerce) (1900, 1955)
I. Halle aux draps (yard goods)
J. Halle aux cuirs (leather)
K. Piliers de la Tonnellerie (coopers)
L. Petit piliers de la Tonnellerie
M. Piliers des Potiers d'étain (pewterers)
N. Marché aux Prouvaires (named after adjacent street; butchers)
O. Halle au beurre (butter)
P. Halle aux poissons (fish)
Q. Cité des Halles
R. Halles Centrales

STREETS

1. Pont Neuf
2. Quai de la Mégisserie
3. Rue Saint-Denis
4. Rue de Grenelle
5. Rue Jean Jacques Rousseau
6. Rue du Jour
7. Rue Coquilière
8. Rue Traînée
9. Rue Montmartre
10. Rue Montorgueil
11. Rue Comtesse d'Artois
12. Rue de la Grande Truanderie
13. Rue de la Petite Truanderie
14. Rue des Deux Ecus
15. Rue d'Orléans
16. Rue des Vielles Étuves
17. Rue du Four
18. Rue des Prouvaires
19. Rue de la Tonnellerie
20. Rue de la Cordonnerie
21. Rue de la Grande Frimerie
22. Rue de la Petite Frimerie
23. Rue de la Poterie
24. Rue de la Fromagerie
25. Rue du Marché aux Poirées
26. Rue de la Lingerie
27. Rue des Prêcheurs
28. Rue de la Cossonnerie
29. Rue aux Fers
30. Rue Saint-Honoré
31. Rue de la Ferronnerie
32. Rue de l'Arbre Sec
33. Rue de la Monnaie
34. Rue du Roule
35. Rue des Bourdonnais
36. Rue des Lavandières
37. Rue de Viarmes
38. Passage des Prouvaires
39. Rue du Contrat Social
40. Rue des Potiers
41. Rue des Potiers d'Étain
42. Rue du Louvre
43. Rue Rambuteau
44. Rue Berger
45. Rue Vauvilliers
46. Rue de Turbigo
47. Boulevard de Sébastopol
48. Rue Baltard
49. Rue Antoine Carême
50. Rue Pierre Lescot
51. Rue du Pont Neuf
52. Rue des Halles
53. Rue de Rivoli
III. PHYSICAL DEVELOPMENT OF THE SITE: LES HALLES

The reason behind the numerous presentation of projects for the renovation of les Halles through the course of centuries has been well stated by Martineau:

No one has been satisfied with the functioning of les Halles. All the possible reproaches, or almost all, have been addressed to them: unaesthetic, not enough space, unhealthy, commercially archaic, a constraint to traffic, excessive power of the concerns that show themselves there, etc... In consequence, the greatest of the Parisian and national markets has spawned many reform projects, centered on one or another strong idea: transformation on the same site, displacement, or breaking it up, several of which we have seen disappear... only to be succeeded by many others.17

The reasons which underlie this discontent lie in the history of the markets themselves and their role in the life of the city. A brief view of this history is pertinent to the subject of this paper in order to more fully understand the attitudes with which the various designers would approach a project for les Halles and to ascertain why certain periods should enjoy a plethora of building projects for this site while others are almost devoid of them.

A list of accomplished and unaccomplished projects has been compiled and is set forth in Appendix B. These lists do not pretend to be complete, compiled as they are for the most part from secondary sources and given that historical records are not complete, but they do serve to show a grouping of both realized and unrealized projects by time period so that

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a pattern begins to develop which can be related to other historical facts, political, economic, sociological, etc. The periods which saw major realized renovation of les Halles were the mid-sixteenth century, when a total rebuilding, but not a reorganization on a large scale, took place; from the mid-eighteenth century to the beginning of the Revolution in 1789, during which time single buildings were built or rebuilt; the mid-nineteenth century, when a total reorganization and rebuilding of the area was accomplished; and the similar actions in the third quarter of the twentieth century, the results of which are still unknown, but much debated. In comparison, building proposals which were not linked to a period of realized changes flourished in the late seventeenth century and the beginning of the nineteenth century and started to build in a gradual crescendo from the 1920's to the present.

The history of les Halles on its current site begins, as far as can be determined with a good degree of accuracy, under the reign of Louis VI the Fat (1108-1137) who started to transact the transfer, completed under his son Louis VII the Young (1137-1180), of the parts of the hillock called the Champeaux which did not belong to him, but had become the fief of various bishops and churches. This hillock, strategic in location due to its higher elevation which protected it from the flooding of the Seine, was on the present site of les Halles, convenient to the major north-south routes to Rouen (rue Saint-Denis) and Senlis (rue Saint-Martin) and the east-west route across Paris, rue Saint-Honoré.

In 1183, Philip Augustus (1180-1223) had two large market buildings erected on the market site. Martineau relays Rigord's description of them: a wall pierced with entrances surrounded the area, and covered
lodgings were placed in the middle and along the length of the wall. The king owned les Halles and rented them to merchants. Philip Augustus was responsible for erecting a wall around the Cimetière des Saints-Innocents for health reasons, thereby fixing the eastern limit of les Halles throughout later history. He also placed les Halles firmly in the urban structure by virtue of the fact that the new defensive walls started by him in 1190 encompassed them.

Under Louis IX, better known as Saint Louis (1226-1270), three new market buildings were constructed. Other limits to the market area began to be set. The busy streets of rue Saint-Denis, rue de la Ferronnerie, and rue Saint-Honoré also formed limits in that their traffic and heavy use made it difficult to cross them. The Pointe Saint-Eustache, where fish arrived at the market via the rue Montmartre and rue Montogueil, also formed a barrier due to its heavy activity. Commerce spilled over into the neighboring streets even in the reign of Saint Louis.

During this period the status of les Halles as the "Market of the King" was firmly established, to remain as such until the end of the Ancient Regime and the subsequent expropriation of all royal property. The city of Paris did own some market places:

... at the same time that the merchant guild of Paris, the 'marchandise de l'eau', became a municipality, its domain transformed itself into the property of the city. It was therefore not extraordinary that the city possessed some markets. But it could never have imposed itself on les Halles.

The alimentary character of les Halles was established as early as the thirteenth century according to Martineau's careful research, and already was operating on a regional basis for all types of
merchandise except food. At this time, deliveries to the market were made by both land and water. Royal concern was already in evidence concerning the appearance of les Halles:

... the Court and the royal provost had an aesthetic preoccupation. They regret that the central market does not contribute to the 'decoration' of Paris ... 

After futile attempts at renovation of les Halles since the middle of the fourteenth century, a rebuilding was finally achieved under Francis I (1515-1547). The market was by then in total disrepair, if not collapse, aggravated by the creation of the new fair Saint-Germain on the left bank by Louis XI the Spider (1461-1483) after the end of the Hundred Years' War (1338-1453), which had been responsible for the beginning of the decline of les Halles. The essential text of the sixteenth-century renovation is the edict of September 20, 1543. There is little or no other physical evidence available except for maps executed before and after the changes were effected. From these sources, Martineau reasons that the reformation of the markets was completed by 1572 and then, as well as can be gleaned from contemporary sources, remained unchanged until the middle of the eighteenth century. 

From his analyses of extant maps covering the period, Martineau concludes that "It is therefore incontestably the circulation embellishment aspects of the operation which dominate in the Reformation of the sixteenth century." The walls enclosing the market hall were pierced and opened to allow through circulation. Buildings on the perimeter were rebuilt, but their disposition changed little if at all. He also contends
that the changes were undertaken not to prepare for any future development but only to restore the market function to its original site.

Royal power wanted les Halles to conserve their character of a central market where strict regulations would direct commodities to form the impression of abundance in order to maintain moderate prices. It had bad luck, repeating the prescription for a long time to no avail. Tired, it began to no longer react, occupying itself for the most part in embellishing the area of les Halles and above all gaining money from empty sites when the chance presented itself.31

During the seventeenth century, only fragmentary changes were undertaken32 but the presentation of project proposals was renewed. "The accession of Louis XIV established a climate that was once again favorable to propositions of this nature, which had been certified since 1630. From 1660, projects for new markets multiply, taking up the old themes with more vigor and amplitude. . ." 33

Turgot's 1739 plan of Paris (Figure 1) represents the area of les Halles and its surroundings very clearly. Projects for its change start to be presented again around 1740, spurred by the possibility of using the site of the Hôtel de Soissons (Figures 11-12), which was finally demolished in 1748.34 A turning point in assumed responsibility for les Halles occurred in 1762 when the Municipal Council agreed to purchase the site of this complex for the purpose of erecting a new Halle aux blés (grain market), the opportunity having been offered to them in 1755 by an impecunious crown which could not afford to subsidize the project. "It is the first time that royal authority gave way to the city of Paris in the organization of the central market of the capital."35 Construction of the new grain market, designed by Camus de Mézières in 1762, was started in 1763 and completed in 1767 (Figures 13-14).36 Its open central
Figure 11. Plan of the Hôtel de Soissons. (de Sacy, Bibl. Nat. Est.)
Figure 12. View of the Hôtel de Soissons engraved by Israël Silvestre.
(de Sacy)
Figure 13. Design for the new Halle au blé designed by Camus de Mézières in 1762. Drawing by Maréchal, 1786. (de Sacy, Bibl. Nat.)
Figure 14. View of the new Halle au blé at the beginning of the nineteenth century. (Fontaine)
space was covered by a roof formed of wood vaulting, designed by Legrand and Molinos, in 1783, the roof structure proposed by Camus de Mézières having been rejected. 37

Renewed interest is shown in completing the church of Saint-Eustache at this time, too. The church, started in 1532 on the site of a chapel dedicated to Saint Agnes, was still incomplete (Figure 15).38 In 1752 a project for the facade was commissioned to Jean Hardouin-Mansart de Jouey (1705-1754) by the churchwardens,39 and less than ten years later Louis-Pierre Moreau was working on a similar project.40 The possibility that the Cimetière des Saints-Innocents (Figure 16) would be closed shortly and available for market activities, strengthened by a Parliamentary declaration in 1765 forbidding burials inside the city limits, also prompted proposals. 41

The configuration of les Halles during this period is shown in Figure 17. Realized building projects which changed les Halles before 1789 included the removal of the pillory, which is shown in this view, in 1786.42 The Halle aux draps (Figure 18) was rebuilt on the same site to a design by Legrand and Molinos, after the houses and shops leaning on the old market-hall had been removed following an order from the King's Council on July 16, 1785.43 The cemetery was finally closed in 1780 and, after an elapsed period to allow the ground to rest, and after the removal of bones, a herb and vegetable market was established there, which opened under brightly colored umbrellas shortly before the Revolution.44 The fruit market also moved to this site in 1790. This new commercial activity prompted the construction of the Cour Batave in 1790, containing boutiques and dwellings (Figure 19), on the east side of the rue Saint-Denis.
Figure 15. Drawing of Saint-Eustache and its surroundings at the beginning of the eighteenth century. Anonymous. (de Sacy)
Figure 16. Engraving of the Cimetière des Saints-Innocents by Israël Silvestre. (de Sacy)
Figure 17. Painting by Philibert-Louis Debucourt depicting the celebration of the birth of the Dauphin in 1782 in les Halles. View includes the pillory to the right. (de Sacy, Musée de Carnavalet)
Figure 18. View of the Marché des Innocents with the Halle aux draps in the background. This drawing must have been done between the installation of the market in 1879 and the erection of wooden shelters there in 1811. (de Sacy)
Figure 19. The Cour Batave, built in 1790, was designed by Jean Nicolas Sobre. The erection of this building, which housed boutiques on the ground floor and apartments above, indicates the new commercial activity in this part of the quarter following the transformation of the Cimetière des Saints-Innocents to a market place. (de Sacy)
just north of the cemetery. A new market-hall for fish (Halle aux poissons) was started, after the design of Damiette and des Forges, on the site of the famous Cour des Miracles, near the present rue Réamur north of les Halles. The Revolution stopped work on the project, however, which was completed in 1800 as an ironworks. Fish selling continued on the old site, to be situated in a new hall in 1822. The Halle aux cuirs, however, was moved to a new building on the rue Mauconseil north of les Halles, the transfer taking place in 1784. The old Halle au blé was taken over by the fruit and vegetable market, which still needed more space. Sometime after the start of the Revolution in 1789, the building called Cité des Halles (Figure 20) was built, although houses had been demolished to clear the site for it as early as 1785. It was apparently intended for the selling of butter, with dwellings above the ground floor.

Martineau explains the reasons why these progressive piecemeal changes were effected rather than large-scale alterations:

> In every case, the projects met two major obstacles; the impossibility to raze the extended sectors of habitation, because of the fabulous financial cost of the operation, and in the hypothesis of moving the market, the difficulties of diverting the intense commercial current. . . This is why in practice one ended up by improvement on the same site and with progressive but modest extensions.

It also explains why there were so many proposals - there was always something wrong.

Between 1793 and 1797 the first overall plan of the city of Paris was finally drawn up, the "Plan des Artistes" which Patte had called for as early as 1769 in his Memoirs sur les objets les plus important de l'Architecture Verniquet's plan, supported by the
Figure 20: Measured drawing of the building called Cité des Halles made by Davioud between 1852 and 1854. (Babelon, "Les relevés d'architecture du quartier des Halles", Bibl. Hist. de la Ville de Paris.)
government since 1785 although personally undertaken by him since 1774, presented the existing state of the city in detail and at a large scale and provided the base map for the work of the Commission des Artistes, which was created by laws dating from the 1st and 4th of April 1793. There were in effect two reasons for the establishment of this commission, one practical, the other idealistic. The first was the necessity to establish the location of the new properties acquired by the State which it needed to sell or rent to raise money. The second was its desire to make a mark for posterity, particularly in the Roman tradition, and it was stated that "all the monuments that the Republic wants to erect mark its power and encourage the arts which must transmit to posterity the sublime traits of the Revolution and add to the glory of the first century of Liberty." Verniquet's plan establishes the state of les Halles prior to the Revolution; the plan of the Commission des Artistes begins a new round of proposals for change. The Commission was officially terminated in April 1797 by the government of the Directory (1795-1799), for the two express reasons that most of the national property of the city had been sold and because the Ministry of the Interior had its own artists working on the details of the embellishment of the city and alignment of streets. The work started under the Monarchy and planned under the Republic was to be enlarged upon by Napoleon I (First Consul 1799-1804; Emperor 1804-1814), who issued a decree February 24, 1811 stating: "A great Halle will be constructed occupying all the territory of the existing Halle, from the Marché des Innocents to the Halle au blé."
The demolitions and the works will commence at the end toward the Halle aux farines" (meaning the Halle au blé) and article 38: "The plans and estimates for the great Halle, as well as the estimate of the terrain of the houses to be acquired, will be submitted to us before June 1, 1811; the buildings will be finished at the end of 1814." A decree of May 19, 1811 established the plan of the Halle and ordered the acquisition of the houses between the rues du Four and des Prouvaires. Bellanger was named architect for the project in 1812. The plans were indeed grand; the changes that actually took place are partly due to that grandiose planning, but the grand scope wavered and fell with the fortunes of the first Empire.

The first chronological effected change was the erection of two rows of wood shelters, covered by slate, to replace the umbrellas in the Marché des Innocents in 1811 (Figure 21). The area to be rebuilt by 1814 was not even totally cleared by them, but the disengaged land between the rues du Four and des Prouvaires was slated for construction of a meat market by an order of November 27, 1816, which was inaugurated as the Marché des Prouvaires (Figure 22) in April, 1818. According to Baurit, whose sources are not precisely stated and whose relating of facts seems rather casual, this market was one of three built by the administration of the Hospitals which had obtained the right to erect buildings at its expense. The administration had the right to collect taxes "in compensation." Hugueney describes the triangular Halle au beurre, completed in 1823, as being built by the Hospitals "at its expense and for its profit." The administration of the Hospitals also erected a third building, a new Halle aux poissons completed in 1822. These two buildings effectively filled up the hole of the old "carreau", or open area of the market.
Figure 21. View of the Marché des Innocents following the addition of the wooden shelters in 1811. (Fontaine)
Figure 22. Marché des Prouvaires, built between 1816 and 1818 and demolished to allow construction of the western set of Baltard's pavilions. (de Sacy, Bibl. Nat. Est.)
Other changes were the building of the "light pavilions" for the Marché aux verdures inside the old Halle au blé, which crowded this area in 1819.\textsuperscript{64} Remodeling changes included the roofing-over of the Marché du Léguat, between the Halle aux draps and the Cité des Halles,\textsuperscript{65} and of the new Halle au blé, whose wooden roof had burned in 1802 and was replaced by an iron one in 1813, designed by Bellanger.\textsuperscript{66}

Figures 23-29 supplement the preceding illustrations in order to establish the existing physical environment for les Halles during the mid-nineteenth century period when decisions that would completely reorganize its structure were being made.

The question of les Halles was seriously taken up again during the July monarchy (1830-1848), which saw the culmination of all the previous arguments and projects and added some new ones, leading up to the total rebuilding under Napoleon III (1852-1870) and Baron Georges Haussmann, his Prefect of the Seine. The July Monarchy was "... the only period before 1871, at least from 1834 to 1848, when the elected Municipal Council, even though suffrage was restrained, was allowed to discuss the destiny of the city with equality with the central power."\textsuperscript{67} Discussion of the matter started in 1837, although the final form of the new pavilions was not to be realized until 20 years later when the first six of Baltard's pavilions were completed (Figure 30). Lavedan surmises that Haussmann was in fact simply carrying out the decisions taken before he entered office, and that the only position he broke with was the stated attitudes of former governments toward the establishment of social equilibrium among the various quarters of the city.\textsuperscript{68}
Figure 23. The church of Saint-Eustache.
Figure 24. Drawing of buildings in the rue Saint-Martin which were destroyed for street improvements in 1854. Elevations of many street facades slated for destruction were collected by Davioud for the Prefecture of the Seine between 1852 and 1854. (Babelon, "Les relevés d'architecture du quartier des Halles", Bibl. Hist. de la Ville de Paris)
Figure 25. Sixteenth-century buildings in the rue Saint-Denis, drawn in 1835 by Turpin de Crissé for Souvenirs du vieux Paris. (de Sacy)
Figure 26. Delaunay engraved this view of the herb market in the rue de la Ferronnerie in 1866. (de Sacy, Bibl. Nat. Est.)
Figure 27. Photograph of the rue Saint-Honoré, taken from the rue de la Lingerie, before the destruction of this part of it in 1866. Photograph by Marville. (de Sacy)
Figure 28. These two representations of the Grands Piliers de la Tonnellerie show different characteristics of the street. The photography on the left dates from around 1860, while the drawing by Provoet on the right appeared in the Magasin pittoresque in 1873. (Left: de Sacy, Bibl. Nat. Est.; Right: Hugueney)
Figure 29. Davioud’s measured preliminary drawings of buildings on the southern and eastern perimeters of the market area which were demolished for street improvements between 1852 and 1854. (Babelon, "Les relevés d'architecture du quartier des Halles", Bibl. Hist. de la Ville de Paris)
Figure 30. View of the ensemble of twelve market pavilions as presented by Baltard in his *Monographie des Halles Centrales de Paris*. (Hugueney)
The main new point in the mid-nineteenth century discussion is the possibility of changing the site of the central markets. This question was raised and examined during the years 1839-1842 by the Counselor Jacques Seraphin Lanquetin, who throughout all discussions of the matter fought for a different site for les Halles: "... neither in a quarter where traffic is too active nor on a point of communication, where they would impose annoyances to people whose business did not call them to the market; that it be commodiously and easily approached from all the barriers and all the markets of each quarter; that its perimeter be sufficiently large for all the services to be extended there without confusion; finally that parking can be done in surrounding neighboring places." The site of les Halles remained the same, however.

The chronology of the affair is interesting. In 1837 Lahure, architect of the city, proposed a project for les Halles, which was accepted by the Commission on Alignments, but in 1838 the question of displacement of the population came to the fore and a new discussion started. Grisart, and Lahure and Daniel drew up plans to illustrate the arguments of Lanquetin and Rambuteau respectively. In July 1842 Rambuteau set up a Commission to study the question of les Halles. The decisions that set the site and, in effect, the architect, took place in 1845, when the Municipal Council approved Boutron's report from a new Commission. On July 11, 1845 the former decision to build on the same site was reviewed and reaffirmed.  

Victor Baltard (1805-1874) and Callet were appointed as architects in August, 1845. Baltard's plan had been attached to Bourtron's report.
The Revolution of 1848 stopped the demolition which had begun for Baltard's pavilions. The question was posed again, to a new Municipal Commission, which had replaced the Municipal Council. Various ideas for decentralization of the markets were proposed. Counter-projects had been proposed by Horeau, Dédéban, Duval and Pigeory. A Commission of June 1851 again chose the Administration's project. In September, 1851 the first stone was laid for the first pavilion by Louis Napoleon Bonaparte, as President. As construction progressed, the pavilion became popularly known as the "Fort de la Halle", and in June of 1853 Napoleon suspended work on it, with the roof still lacking (Figure 31). Forty-two projects, some of them repetitions or variations of former proposals, were presented and perused. The actual final achievement of the iron pavilions by Baltard, who had been so maligned for his stone "forts", was the product of an historical accident, that his former schoolmate, Georges Haussmann, Prefect of the Seine, should have felt compelled to offer his aid to Baltard. Receiving a sketch and the statement "Vast umbrellas is what I need, that's all!" from Napoleon, Haussmann persuaded Baltard to produce, on the third try, a design conforming to the directive, winning him the commission once again.

The eastern set of six pavilions, covering 21,080 square meters, was started in May of 1851 and finished in 1857, at which time the western set of four pavilions covering 12,400 square meters was started. Baltard proposed that two more pavilions be added to this western set, which was agreed upon by Haussmann and by the Municipal Council, but in fact they were not built until the twentieth century.
Figure 31. Baltard's second project was under construction and this pavilion was almost completed when work was halted by Napoleon III due to public indignation at this "Fort de la Halle". (Revue Générale de l'Architecture, 1854)
This urban intervention was on a massive scale and concerned much more than the markets themselves, concerned in fact the reorganization of the entire city of Paris, which has been well described by Pinckney in *Napoleon III and the Rebuilding of Paris*. An interesting dichotomy resulted from the rebuilding in this area, however, for while the realized aims of Napoleon and Haussmann would have left a totally new neighborhood, the exigencies of practicality left many vestiges of the prior physical state. These often ancient building complexes which surround the site of les Halles are today a source of contention among various factions who argue for their demolition or their retention on the grounds of, respectively, their squalor or their historical importance (Figures 32-34). The juxtaposition of ancient narrow streets and broad thoroughfares cut through the district during the "urban renewal" of the 1850's and 1860's (Figure 35) together make up a complicated pattern which is the setting for today's discussions on rebuilding in this quarter.

Napoleon III's aims in rebuilding this quarter of Paris and other parts of the city were understandably complex. Major concerns were strategic placement and widening of streets to allow the quick dispersal of troops and to prevent the erection of street barricades; a public works program to employ the citizens and thereby lessen discontent; embellishment of the city; the welfare of the citizens, in terms of the healthfulness of their neighborhoods; and provisions for the increasing vehicular traffic. A comparison of the maps of 1830 and 1900 (Figures 8 and 9) shows how radical the changes to the fabric of the city were: the size of the parts (buildings and blocks), the scale of their relationships, and the organizational pattern of the quarter had all been altered.
Figure 32. Rue des Lombards.
Figure 33. Narrow street off the rue Saint-Martin.
Figure 34. Rue Montorgueil.
Figure 35. The rue des Halles (to the left) and the rue Sainte-Opportune (to the right) were both created as a result of Haussmann's street alterations.
After Haussman was relieved of office in 1870, his proposed works were carried on up to the early 1890's. Part of this effort affected the area of this study. In 1880 several schemes were proposed by the committee of the Paris Chambers of Trade to set up a commercial exchange, and the finance committee preferred one proposed by the Chamber of Commerce to convert the Halle au blé to this purpose. Since the erection of the two additional market pavilions was still envisioned, the argument was raised that the building of the Chamber of Commerce alone would make the acquisition of the surrounding property for the pavilions too expensive, so the projects were combined in 1884, only to be separated again. The developer Blondel finished the new Bourse de Commerce, which retains the dome and inner supports of the Halle, in 1889, but higher costs had forced expenses over the budget and made it financially impossible to undertake the building of the two new pavilions.

Change in the area around the vicinity of les Halles also affected the activity of the quarter. Department stores were opened to the east on the Rue de Turbigo in 1858, opposite the Hôtel de Ville, and in 1907 on the quai near the Pont Neuf (La Belle Jardinière and Samaritaine). These large complexes caused the destruction of old houses and created large blocks and new surrounds for the markets.

At the end of the nineteenth century, the quarter was generally arranged into the following areas of activity: alimentation between the quais and rue de Rivoli, but never on the rue de Rivoli or the Boulevard de Sébastopol; textiles east and north-east of les Halles; public administration and professions to the east and south; and many hotels, cafes, and restaurants throughout.
There was much talk about building the final two pavilions and
widening the streets around les Halles in the early twentieth century, as
evidenced by articles in the periodical *Construction Moderne* in 1901, 1902,
1908, 1909, 1910, and 1921, each stating that projects were being considered
or had been approved or funded. There was, however, little action. I have
not been able to find a complete list of all the projects submitted for the
1919 Competition for the Improvement of Paris, in which one section was
devoted to projects exclusively concerned with the embellishment of the
central city, to ascertain whether projects were proposed for the site of
les Halles. I have found no mention of projects for this site, however.

In 1922, Corbusier presented his Plan Voisin for the right-bank
center of Paris (which included the site of les Halles), as part of his
Ville Contemporaine exhibition at the Salon d'Automne. This presentation
was followed by further explanations and projects in the 1925 Pavillon de
l'Esprit Nouveau at the Exposition Internationale des Arts Decoratifs; in
a film by Pierre Chenal; and at the 1937 Exposition in the Pavillon des
Temps Nouveaux. He was not concerned solely with the site of les Halles,
but more with a development plan for urban living. Corbusier conceived the
problem as part of a larger one of how an individual can lead a reasonable
life, which he termed a city life, but which in effect had very little to do
with "the city", or Paris, as it existed then. It was rather more of an
ideal plan placed in Paris. Certainly his choice of the right-bank central
city area for his site accomplished several possible objectives. It
required the razing of an area in which many îlots insalubres, or
unhealthy blocks, had been identified by the city for renovation. It
abolished the Halles Centrales, thereby emphasizing his visionary new supply
network. It concerned an area which, due to its concentration of the
public activities of consumption, was known to a large number of Parisians. It left the grand monuments of Paris intact, preserved along the banks of the Seine, and provided a new backdrop for them. And last but not least, it was centered on the site of the "grande croisée", the crossing point of the north-south and east-west routes across Paris, thereby requiring the reorganization of the major traffic patterns of the city.

The projects and the ideas behind them will be discussed more fully in the following section on project analyses.

Although Corbusier's series of plans and thoughts on urban building were never proposed in any official capacity for Paris, they received broad professional and public attention through his numerous publications and, along with his executed schemes for urban structures, have clearly influenced the projects which have been proposed since the 1950's for the renewal of les Halles. Many of his ideas have become generally accepted without a real understanding of their intent, and have insidiously affected contemporary thinking on urban structure.

At the same time, official channels were not empty. In 1925 the Prefect of the Seine presented three projects of re-construction, transfer, or improvement of les Halles. These proposals were prepared by Haour, who suggested a huge market covering the bed of the Seine between the Pont de Bercy and the Pont National; by Bechmann, who proposed demolishing les Halles and breaking them up into five separate market halls on the lines of the old fortifications, convenient to the railroad lines; and by the Society of Research and Industrial Perfection together with the Municipal Council, who wanted to transfer les Halles to the site of the Halle aux vins in the fifth arrondissement, which was built under
Napoleon I, and move that to Bercy. The projects for decentralizing the market function recall earlier discussions on the same issue, such as Jaillot's 1778 project for local markets; Perreymond's discussion of the market problems in Paris; and Marie's proposals for a new market structure published in 1850. But a prefectoral memo dated the 9th of December, 1929 maintained les Halles on the same site. Demolitions for the two western pavilions, next to the Chamber of Commerce, began immediately, but the buildings were not completed until 1936. Baltard's final scheme for the ensemble of market pavilions was realized eighty-two years after the beginning of construction, only thirty-five years before it was to be destroyed.

The central markets continued to operate through both World Wars, including the occupation. Legaret, official reporter on les Halles to the Municipal Council, himself a Deputy and Councillor and also a professor at the School of Advanced Commercial Studies, describes the limits of les Halles after the Second World War as being the boulevard de Sébastopol, the rues de Turbigo, Etienne-Marcel, du Louvre, and de Rivoli, extending well beyond the physical boundaries of Baltard's market pavilions. He describes the market as having insufferable traffic problems; insufficient space; unkempt buildings; underuse and misuse of certain parts, especially the two pavilions built in the 1830's; and little interest taken in them on the part of the Prefecture of Police, which was responsible for the operation of the market.

Shortly after the Liberation of Paris on August 29, 1944, proposals started being made for the markets once again. The Economic Council, in a report issued June 15, 1949, studied the possibilities of breaking up the
market buildings and functions, forming a satellite market at a railway
terminal, transferring them completely, or maintaining them on the same site,
and the latter alternative triumphed. But at the same time the Economic
Council decided on the rule of the "three unities", "Unity of time, unity of
place, unity of sales", which would eventually force a move out of the
city.92

Legaret contends that a series of decrees made by the national govern-
ment in 1953 and 1954 established the legal framework for the eventual
transfer of les Halles by providing for the partial transfer of a part of
the market, slipped under the rug, as it were, without any previous profes-
sional or public consultation.93 "The decrees of 1953-1954 mark incontestably
a turning point in the history of les Halles. They manifest a seizure by the
Government [i.e., the national government] of the great Parisian market."94

Economic and organizational proposals made between 1949 and 1960 fall
into three categories: maintaining the market on its present site; breaking
up the selling of commodities into scattered satellite markets; or total
transfer.95 The two projects which have succeeded, transferring the meat
markets to la Villette and the rest of the market functions to Rungis,
originated in two proposals made possible by the government's creation
in 1956 of a permanent Committee of Markets of National Interest and of the
Distribution of Alimentary Agricultural products, headed by M. Heilbronner,
a Councillor of State.96 Rungis was declared the official site by the Prefect
of the Seine in December, 1958.97 Legaret criticizes these committees for not
having professional, public, or municipal representation or consultation.98

Legaret summarized the resulting problems for the residents of les Halles:
8,000 to 10,000 people work at present in the market of les Halles. What will become of these workers who, for the most part, are lodged in the immediate neighborhood of their place of work? Must they tomorrow 'split up between Argenteuil and Rungis'? How will they then find the necessary lodging? Is one going to build in these locales more monstrous 'satellite cities' or does one envision these workers continuing to live in the center of Paris in order to make an inhuman and costly voyage every night? 

He did not foresee, however, the larger problem of what it would be like for them to continue to live in a quarter whose life would be sapped by the removal of its dominant function, and whose entire environment would be changed by the new buildings and activities replacing les Halles.

As early as 1957, two years before the final decision was made to move the markets, Raymond Lopez began working on a comprehensive study of Paris which included plans for les Halles. After 1960, he worked with the planner Rotival. He proposed the creation of a park to connect this site with that of the Plateau Beaubourg, which had been cleared in 1930 as the result of the razing of an "Ilot insalubre", and which is now the site for the new Cultural Center being designed by Piano and Rogers, winners of the 1971 competition for the commission. Lopez presented his scheme to the Municipal Council in 1959; it was rejected in 1969.

In the meantime, the "Halles affair", as it came to be known, took on more and more of the aspects of confusion and conflict that marked the nineteenth-century rebuilding procedure, which it has surpassed in terms of length of debate. The Plan d'Aménagement et d'Urbanisme de la Region Parisienne, which included guidelines for redevelopment of les Halles, was approved by decree in August, 1960. In 1963 the Municipal Council created the S.E.A.H., the Société d'études pour l'aménagement des Halles, to analyse all aspects of the quarter, such as sociological, demographic, economic, and architectural data. De Gaulle entered the
debate and, together with the municipal authorities and the Minister of Cultural Affairs, sponsored a limited competition for renewal of the les Halles site, inviting six architects to propose plans following a program developed by the Municipal Council. Arretche, Charpentier, de Marien, Faugeron, Marot and Tremblot, and the A.U.A. (Association d'Urbanisme et d'Aménagement), presented their projects in June, 1967. The projects were displayed in January, 1968 at the Hôtel de Ville and elicited impassioned response, largely negative. In February the Municipal Council, in a heated session, refused to consider the projects. In 1969 all six projects were officially refused. At the end of 1968 A.P.U.R. (Atelier Parisien d'Urbanisme) was charged by the Council of Paris (which replaced the Municipal Council during 1968) with establishing a program and a plan for the renewal area. At the same time the boundaries of this area were reduced to a zone of new construction of approximately thirty-seven acres and a zone of restoration and rehabilitation encompassing about fifty acres.

Many issues were aired during the years of debate, which are not yet ended. The battle between preservationist forces and new construction, or urban renewal, advocates is probably the most basic and enduring issue. Sutcliffe, tracing the gradual development of preservationist influence in this quarter of Paris during the twentieth century, thinks that

\[...\] whatever changes of population and employment take place there, it is very unlikely that the appearance of the right bank centre will be modified appreciably in the next half century. Whether or not this can be regarded as a satisfactory state of affairs depends on whether one can reconcile the survival of one of the oldest and most fascinating city centres in Europe with the tribulations of many of those who have to live and work there.\[106\]
Although statistics on the quarter indicate sub-standard living conditions, the accommodations are still the least expensive in the city, an important consideration for some sectors of the population.

The concerns of the city in renovating the area is indicated in one of their Memos dated November 18, 1963, which, judging from recent official study projects on the site (A.P.U.R., Paris Projet, no. 1, 1969), is still applicable:

The center must be at the same time a forum and a condensation of Paris. It must be animated both day and night. It must be popular without calling for mass manifestations; appealing by means of its superior planning and its attraction to students; commercial by the prolongment of the axis of the rue Saint-Honoré and the tie between the rue de Rivoli and the rue Montorgueil; a tourist attraction due to the path to be established between the complex Louvre-Palais Royal-Place des Victoires and the Marais; aerated by green improvements conceived in walkways as much as in Haussmannian parks; protected from traffic, but open to pedestrians by differentiated levels; and active by a mixture of dwellings and activities accessible by public transport; sufficient parking; embellished by restoration of its historic ensembles and enriched by compositions of quality.

Various citizens' groups concerned with one or another aspect of the rebuilding of their quarter have appeared in recent years, among them the Union des Champeaux (1966), the Commercents (merchants), the Association de la Défense des Locataires (Tenants' Defense Association), the Comité d'Initiative et d'Animation des Quartiers des Halles (1968), and most recently the Syndicat d'Initiative des Halles (1970), which is trying to coordinate citizen action to play an effective role in the continuing deliberations.
In March, 1969, the market moved to Rungis, and in June the pavilions started a brief new life as a sort of public forum and cultural center which attracted new interest in the area and stimulated the establishment of new commercial activity, mainly small boutiques, in the quarter.\textsuperscript{110} The six eastern pavilions were finally pulled down, in spite of sometimes violent protest, during the summer of 1971, and the site stands empty, waiting, for a still unknown reconstruction (Figure 36).

The destruction of the pavilions assures that the quarter is going to be radically changed by some sort of new building complex beyond the kind of change of activity patterns that might have ensued had the pavilions been retained and renovated to new public functions. Whether this change is going to work to establish continuity between the new construction and its existing setting, as well as continuity between the quarter of les Halles and its neighboring areas, remains to be seen. The second chapter sets out various diagrammatic conditions of treatment of the edge between new and existing parts of cities which allow the analysis of the treatment of this edge in terms of join or non-join, of establishing a continuous urban fabric across project boundaries or creating breaks in the rhythm of physical definition and actual use and experience of the city. The following chapter will explore the edge conditions in various proposals for changes on this particular site since the eighteenth century with the intent of showing changes of attitude in the approach to this problem and suggesting by it some approaches that have not recently been employed that might serve to help establish the continuity that is so often stated as an aim of recent project proposals.\textsuperscript{111}
Figure 36.
Just as the investigation of edge conditions in general was set out in terms of form, use, and meaning, so can the examples be profitably compared in these terms. Continuity between the new and the old in form and use is being searched for because of the tradition of continuous urban structure and use patterns that have existed throughout the urban history of the site. The meaning that the site has had during different periods and for different designers has affected the form of each building proposal. Most of the projects have been described by their designers or promoters in terms that emphasize the continuity of either form or use, or both. Yet the projects show markedly different attitudes toward the integration of the edge of the new project into the existing urban fabric. These different attitudes are evidenced in the treatment of the edges, with the various possibilities of join or non-join described in Chapter Two.

Marked differences in treatment of the edge conditions separate the proposals of both realized and unrealized projects into three distinct groups according to time period: the eighteenth-century examples, the nineteenth-century examples, and the twentieth-century examples. Le Corbusier's project, however, stands alone as a unique large-scale idea scheme which extends beyond the context of this site.

At the turn of the nineteenth century, an important change occurred in the responsibility for marking out the boundaries of the site, prepared for in 1762 when the City of Paris purchased the Hôtel de Soissons in order to
build a new grain market there. When Napoleon marked out the perimeter of
the new central market area in 1811, (although his appointed architect,
Bellanger, did not adhere to them in his plan) he set the precedent for the
governmental powers to define the site and its boundaries, while the archi-
tect or designer was responsible only for the building or buildings which
were to stand there. It seems to me that this was the beginning, at least
in this case, of the definition of project areas with streets as the peri-
meter. The city was responsible for the street widenings, and it used these
new streets as the framework for the proposed market project. The archi-
tects had nothing to say about the choice of the boundary line for the imme-
diate project or its treatment as anything other than a street space. The
large size of the streets surrounding the constructed pavilions would seem
to separate these structures from their surroundings, but the intense
activity of the market area served to connect them during market hours
(Figure 5).

The urgent necessities of renovation at this time included larger
streets connected in a continuous network to try to ease the vehicular
congestion which was building up. The extent of changes in the urban fabric
around the project area of les Halles, which extended over the entire city,
was due to this concern.

In the twentieth century, however, a different approach is currently
taken to solve the problems of vehicular circulation in cities, such as
underground transportation and expressways, for example those built and
projected on the banks of the Seine. The R.E.R. (Réseau Express Régional,
a regional rapid transit system) will have a station on the les Halles
site. A major central north-south route, now formed by the Boulevard de
Sebastopol going north and, unbelievably, the rue Saint-Denis going south,
must be preserved. But recent proposals for circulation networks have often sunk them into the ground or built over them, so that there is not a street system on the ground plan of the project drawing.\(^{114}\) Yet in trying to connect all parts of the site by virtue of unbroken physical form, many of these proposals seem to have ignored the connection with the surrounding urban structure, which is defined in terms of streets. It does not follow that unbroken physical form assures continuity. Most of the possible treatments of edge conditions which can join new and existing parts of a city, as outlined in Chapter II, as well as the particular approaches used by past designers for this site, have been ignored in the contemporary proposals. In all the projects, streets are used as the boundary lines between new and old, but these streets are not always treated as continuous spaces in themselves. In several projects, for example that of Marot and Tremblot, even the rear courtyard side of buildings, exposed by demolition of the rest of the block, are fronted with a sidewalk and a new street and left as they are! These ragged remains of preservation could well have been integrated into the project organization by adding to the structures and creating a new block.

Boffrand's 1748 project seems to provide the most complete and varied treatment of integration of a new building complex into the surrounding urban environment. His sensitive treatment of the various edges of his proposed plan in different ways responding to the particular condition at each point, and his integration of these treatments into his organizational scheme, could be a good example to contemporary urban designers. This coherent approach to projects on both an urban and an architectural scale may often require the resetting of the physical boundaries of project areas by the designers. His principle of establishing continuity with existing built form at the perimeter of his site, and then absorbing the changes between this configuration and that of his project core within built form, provides
an example of a working method that should be applied to contemporary urban projects.

The following descriptions of projects for les Halles in chronological order, including illustrations of projects which have not been analysed graphically, will serve to show the broad range of concerns about the site through the eighteenth, nineteenth, and twentieth centuries and explain the projects more specifically in terms of edge conditions.

The choice of projects to be analyzed rests on several factors, the critical one being the possession of sufficient information to make the analysis accurate enough for profitable study. In addition, there are also cases where the project is not one which actively engages the question of edge conditions, such as projects for remodeling, renovation, or upper level additions on the same site. The desired condition for analysis is a convergence of built and spatial changes at a scale that effectively intervenes in the surrounding urban environment. Appendix B contains a complete list of all the built and proposed changes to the area that have come to my attention which, although incomplete, serve as a frame of reference for the projects which are discussed and analyzed. Projects appearing on these lists which have been graphically analyzed for this study are marked by an asterisk.

The graphic analysis of the projects in plan has been devised to define the limits of existing form; to mark the limits of proposed new form; and to define and describe the relationship between them. (Refer to Figure 43 for an illustration of the system.) The white section is that area to be defined by new construction and is therefore either interior built space or exterior space that is completely surrounded and shaped by new built form. The darkly shaded section is that area where all built and spatial relationships remain the same. The lightly shaded section is what is left between the other two
areas, and indicates new spatial relationships that have occurred due to a reordering of the site. The various relationships of shading in the analytic drawings indicate whether the edge between the new building project and the existing built surrounding has been defined in built form, space, or by a combination of built form and space. When darkly shaded and white areas are juxtaposed, which can only occur inside a building line, the edge must be defined in built form. When darkly and lightly shaded areas meet, which can happen at a building line or across exterior space, the edge is defined across space. When lightly shaded and white areas touch, which can only happen at a building line, the edge is again defined across space. The configuration of the plan and section must be studied to ascertain whether these edges are defined by both built form and space, and whether they act as joins or non-joins.

The solid light lines represent the extent of previously existing buildings which have not been altered, and the light broken lines represent those building lines that have been changed. Proposed new building lines or elements of structure, such as columns, are shown with heavy lines. The very lightest lines indicate proposed new level changes or elements of definition such as fences or low walls.

The lightly shaded sections of the drawings, which indicate new spatial relationships, locate the area of interest to this study. Since the form and configuration of the city is experienced through its exterior public spaces, these gray areas therefore represent the space in which the change between formal configurations of new and existing definitions will be encountered.

The purpose of this system of graphic analysis is to clarify the treatment of the edge condition, to denote whether the transition from new
to old takes place across a thin line or an insulating space, and to record how many different ways it has been treated. It has facilitated the comparison of the various projects in terms of these physical aspects of edge configuration. Even without being able, for reasons previously outlined, to include use and its effect on the continuity between new and existing form, it is possible to project and compare the relative continuity or division inherent in the edge configuration and physical organization of each project.

The first projects that are of interest to this study, both anonymous, date from 1714 and 1717. They do not appear on the list in Appendix B due to the fact that they were proposed for a site north of les Halles, the present rue de Clery north of rue Réamur. They represent, however, early projects for market buildings, and are interesting for their representation of the edge conditions. Their site was apparently vacant, according to Jouvin de Rochefort's plan dating from around 1672. The drawing of the 1714 proposal (Figure 37) considers the new market in terms of its surrounding buildings at least on two sides. It is completely cut off from these surrounding houses by an encircling wall, convenient for locking the area at night and preventing stealing. Although dimensions can not be taken accurately from this drawing, it is still evident that the insertion of the new project would have changed the existing relationship between house rows from an open space into a street condition, one side of this street being walled and inaccessible. The 1717 project (Figure 38) is similar in proposing a walled enclosure, but it does allow entrance from the two long sides and on the corners, and pulls these four outer corners of the walls back into either quarter circles or semicircles which, depending on their distance away from the surrounding buildings, would make a marked or a slight open place in the newly-formed street.
Figure 37. 1714 project for a market hall. (Chastel, "L'aménagement du marché central de Paris", Arch. Nat.)
Figure 38. 1717 project for a market hall. (Chastel, "L'aménagement du marché central de Paris", Bibl. Nat.)
Figures 39 and 40 show the elevations of the only two other market buildings proposed for Paris in the beginning of the 18th century which are preserved in drawings. There is no accompanying site plan. The Halle aux blés (grain) is a series of arcades, an open form which was to continue to be used until the mid-nineteenth century.

The competition opened in 1748 for a Place Royale to honor Louis XV produced a project for les Halles which surpassed any preceding ones in scale and grandeur of conception and was to foreshadow future projects. Pierre Patte, a student of Boffrand, has preserved this project in his exquisite work, Monumens érigés à la gloire de Louis XV. It is necessary for a comprehension of this project to understand that this was an idea competition more than one expecting practical solutions to real problems. A second contest was held after a site outside of the built-up area, the Place de la Concorde, was donated by the king so as not to displace the merchant quarter nor a number of the citizens of Paris. Hautecoeur provides us with the intellectual setting for the proposal:

The eighteenth century professed to be a 'republican' century, that is to say devoted to the public good, and solicitous of the well-being of the 'citizens' ... The idea spread that the State is responsible for the beauty and hygiene of the cities.

Patte relays a desire to leave a mark for posterity:

Cities are presumed to be immortal, and we should be proud to leave for posterity a great idea of our century, the foresight that was had for the public good, and the high degree of perfection which the arts attained in our day.

As further description will show, Boffrand seems to have accomplished what Voltaire criticized as lacking in this competition of ideas:

One speaks of a plaza and of a statue of the King. It is indeed the question of a plaza! Paris will still be very inconvenient and very irregular, when
Figure 39. Project for a Halle aux Blés considered by Chastel to date from the beginning of the eighteenth century. (de Sacy, Arch. Nat.)
Figure 40. Early eighteenth century project for a Halle aux toiles. (de Sacy, Arch. Nat.)
this plaza will have been built. What is needed is public markets, fountains which actually give water, regulated intersections, and public theaters. What is needed is to enlarge narrow streets.122

The project itself (Figures 41 and 42) and Patte's description of it seem to stress the idea of creating a connection between the new buildings and their pre-existing surrounds. The representations of the project were all done by Patte and his students, so that they are only second hand, and presumably done after Boffrand's death in 1754, so that no further information would be available. Several inconsistencies between the plan and elevation drawings confirm this inexactness, but it is to be expected in a work representing so many different projects. Patte describes the project in terms of its envisioned use and meaning:

His plan [for the Place pour le Roi] was a square, surrounded by porches which would have served for the lodging of the ragmen and clothiers, grocers and other merchants of all kinds, whose stores would have had entrances as much by the porches as by the adjacent streets. ... This architect has imagined to make this monument allegorical in regard to its placement, desiring that the figure of the King be grouped with Abundance, Foresight, and Health. Louis XV, in this position, would have found himself in the middle of his people, who are indebted to him for his vigilance for the cheapness of commodities and the ease of their existence. It is thus that the statue of the Emperor Trajan, that adored Prince of the Romans, was placed in the middle of the market of ancient Rome.123

The analytic drawing of the 1748 Boffrand project (Figure 43) reveals the variety of conditions that exist around the perimeter as to retention of existing buildings, the shape and distribution of open spaces, entrance conditions, and continuity of open spaces. Most of the transitions from old to new are joins through both built form and space, connections that leave a three-dimensional space defined partly by old and partly by new construction. The join which appears around the majority of the perimeter is that from built
Figure 41. Boffrand's project for a Place pour le Roi, Halle aux Blés, and Halle aux Légumes, 1748. (Patte)
Figure 42. Elevation of Boffrand's project, taken facing Saint-Eustache. (Patte)
Figure 43. Analytic drawing of Boffrand's plan.
form to arcade, which gives a three-dimensional join in section since the arcade can be seen as an extension of the exterior space. Joins across space occur across all the street spaces left between new and old construction, and this connection is strengthened on the east boundary of the project by the addition of arcades to the buildings there, providing more shelter for merchants and suggesting an extension of market activity to the east and also along the new north-south street adjacent to the new arcades. The entire perimeter of edge conditions is defined in terms of joins, in edges in built form, space, and built form plus space.

Edge conditions also exist within the new project, between the three newly created plazas, and are interesting in comparison to the edge between new and existing form. Visual communication is established between each enclosed plaza and its surrounds by means of colonnades or openings around the perimeter, and a view along the entire longitudinal axis is achieved, as well as a view perpendicularly across the complex to the facade of Saint-Eustache. In each case the view is terminated, monumentally by Saint-Eustache, more haphazardly at the western end of the complex.

Physical access to the new plazas is restrained only in the case of the Halle au blé, for reasons of security originating in the method of sale. Usage would seem to determine if the three plazas would act as an extended unit or if their possible continuity would be broken up by traffic. A progression can be seen from the most continuous built enclosures of the Halle au blé, emphasized by the enclosing circular form of the west end, to the Place pour le Roi enclosed in a square with colonnades as screens, to the Halle aux Légumes which is open to the surrounds at the east.

A depiction of the project by Hegeman and Peets in 1922 (Figure 44) is interesting for what it says about the different attitudes toward integration.
Figure 44. Sketch of Boffrand's project as conceived by Hegeman and Peets.
of the project into its surrounds at the latter period. They represent the facade shown in Patte's interior elevation as the exterior elevation also. According to Boffrand's attitude expressed in his treatment of the edges of the project, the exterior facade would not have to match that of the interior. The section drawings in Patte's presentation show that changes in the formal structure of the project take place inside the built section, so that the building absorbs the mutations. Boffrand, by means of both the configuration of his plan and his careful choice of formal elements to define the edge of his project, integrated his monumental plazas into the urban environment.

A 1751 project by Jean Hardouin-Mansart de Jouey (1705-1754) for the facade of Saint-Eustache was accompanied by a project for a plaza in front of the church (Figure 45), of which this view, an engraving by de Poilly in 1754, is the only document. The church would have stood free, with a street opening opposite the west facade to allow a view of it, but the general effect would have been an enclosed one with no cross views. This project is only one of several concerned with the public space in front of the church during the period between 1740 and 1770.

Fourteen years after Boffrand's project, Camus de Mézières proposed an entirely different set of edge conditions in his project for a new Halle aux blés on the site of the Hotel de Soissons (Figures 15 and 46). This project had different conditions attached to it, too: it was a realistic project, backed by letters patent, not an idea scheme; it was to be built by the city, not the crown; and it was for a specified single building on a specified and clearly defined site. This large plot of land happened to be surrounded by streets, since it had been privately owned since 1572 when Catherine de Medicis acquired the land of the Convent of the Penitent Daughters (Monastère des Filles nommées Penitentes) and joined it to that
Figure 45. Project for a plaza in front of Saint-Eustache by Hardouin-Mansart de Jouey, engraved by de Poilly in 1754. (Paris Projet, no. 1; Bibl. Nat. Est.)
Figure 46. Analytic drawing of project for the new Halle au Blé by Camus de Mézières.
of the Hotel d'Albret, forming the five-sided block that appears on the plan (Figure 11). A plaza was again projected in front of Saint-Eustache in this project, although it was not realized.

The analytic drawing of this project (Figure 46) reveals a much less intricate set of edge conditions. The new construction and the space it encloses are set down on the site with a thin insulating street space between them and their neighbors. The plaza in front of Saint-Eustache acts as a connection due to its relatively small size and its almost continuous enclosure. The streets surrounding the new building lots of the five-sided parcel all form joins across an edge in space, with more cross-use to be expected between existing buildings and new ones than was the case with the blank walls enclosing the gardens of the Hôtel de Soissons on the east and west sides. The buildings on these newly created properties form a frame for the new Halle aux bles, separated from it by a corridor of space, popularly called the "eternal street" because it has neither a beginning nor an end. This street does form a join, however, both due to its width in relation to the heights of the surrounding buildings and due to its circular form which makes each successive section of street an enclosed space. The new open space created in the center of the market hall, intended as the market, is entirely defined by new construction but is still connected to its surrounds visually through the grills in the surrounding arcade even when it is to be locked for security.

The project takes into account existing property that was not part of the hôtel itself, incorporating these parcels into the scheme. The resulting edge conditions in built form are all non-joins since all the property lines shown in these areas on the 1705 map are existing in the same state on the 1830 map. In comparison to Boffrand’s scheme, the ways
of joining new and existing definitions are fewer in number, and are not envisioned in any three-dimensional way.

Barbier's proposal in 1765 is close to Boffrand's in its treatment of edge conditions in built form, and similar to Camus de Mézières in its abrupt insertion of a new formal and spatial configuration into the city (Figure 47). The plan is introduced in an anonymous letter published with the accompanying plan in the September issue of Journal oéconomique of 1765, in which the writer acknowledges the author of the plan to be Barbier, an artist and engraver. Starting with the usual description of the horrors and inadequacies of the present market place, notwithstanding the recent building of a new Halle au blé to the west, he describes the project:

... he does not want to situate the market of les Halles somewhere else, he leaves it in the place where one currently sees it; but he proposes to enlarge this plaza, to give it the most convenient form, to ease access to it by increasing the number of streets leading to it and enlarging and aligning them.130

The process of the determination of the form of the plaza is described:

In the proposed plan, one drew a line from the first intersection to the second, from the second to the third, and returned to the first; the distance between intersections being equal, this gave the form of an equilateral triangle for the plaza. It is obvious that it would be necessary to demolish all the houses enclosed in this triangle.131

Arcades, with four floors of apartments above them, would be built "with a simple and agreeable uniformity." 132 "This body of buildings would include 88 arcades in the interior of the plaza, forming a gallery to serve as a public passageway and for shelter for the bakers on market days." 133 "One would leave, for vehicles, a passage 7 toises wide [approximately 40 feet], between the body of buildings and the
KEY TO FIGURE 47.*

Streets
1. Aubri le Bouché
2. aux Fers
3. des Bourdonnais
4. de la Chanverrerie
5. du Cigne
6. Comtesse d'Artois
7. de la Cordonnerie
8. de la Cossonnerie
9. Saint-Denis
10. de la Fromagerie
11. de la Fripperie
12. de la petite Fripperie
13. Saint-Honoré
14. de la Lingerie
15. du Marché aux Poirées
16. Mondétour
17. Montmartre
18. de la Poterie
19. des Prêcheurs
20. des Prouvaires
21. du Puits
22. de la Réalle
23. Traisnée
24. de la Tonnellerie
25. de la grande Truanderie
26. de la petite Truanderie
27. Verdelet

*Spelling of original document maintained.
Plazas
28. Halle au Bled
29. Halle aux Cuirs
30. Halle aux Draps
31. Halle aux Toiles
32. Cimetière des Saints-Innocens

Buildings
33. Ste-Eustaches
34. Les Saints-Innocens
35. Le Sépulcre
36. Fontaine des Innocens

Explanation of the proposed plan:
A. Public fountain.
B. One-hundred and thirty-eight wooden shops for all manner of merchandise.
C. Eighty-eight arcaded galleries which decorate the plaza and on top of which are built four uniform stories of lodgings. This gallery is intended to be used as a public passage and to shelter the bakers on market days.
D. Covered market hall for salt-water fish, replacing the one located in the large market-hall. The selling would be held in the open space of the marché aux bleds [F.] on market days, leaving the public passage free.
E. Entrances allowing communication between the new large market and the Halle au bled [F.]
F. The land of the Halle aux bleds, which is proposed to become the market for small grains and dried vegetables after the pork market and part of the chicken market move to new market halls. The dots which surround the new buildings indicate bollards, which would be placed three feet away from the buildings and would protect both sellers and buyers.
The pebbled surface represents the existing buildings which would have to be demolished in order to execute this plan.
Figure 47. Barbier's project for restructuring les Halles, 1765.
(Journal oeconomique)
boutiques covered by slate, numbering one hundred thirty eight: they would be separated from each other by passages which would make access to them more convenient and therefore commerce easier. The retailers of all sorts of commodities, which would use these boutiques, would have the convenience of being able to shut them at night; a row of bollards placed three feet away from the boutiques and the buildings would render both shelter from vehicles."\textsuperscript{134} He also envisioned a fountain in the center of the new plaza both to provide a source for water carriers and to water the horses. This fountain would be topped by a clock and three lanterns to light the plaza at night. He also planned another fountain for the pointe Saint-Eustache at the intersection of the rues Montmartre and Montorgueil. The writer also mentions the greater convenience of the aligned streets to the north of the plaza forming a more direct route between the rue Saint-Denis and the place des Victoires to the northwest. This connection had not been considered before, at least in existing plans. It is interesting that the writer speaks of new access and through routes, and yet the plan does not show an improved network of streets surrounding the project, only improvements within the triangle itself.

The analytic drawing (Figure 48) shows that, in a manner similar to Boffrand's, Barbier makes a combination built-form-and-spatial connection through arcades between the existing buildings he has left and the new open space. Chastel links this treatment to the popular taste of the day, permitting the reproduction of "the traditional organization of the Piliers de la Tonnellerie and des Potiers d'etain sacrificed by this project."\textsuperscript{135} It seems possible, however, that Barbier, an artist and engraver\textsuperscript{136} would have seen Patte's book, which appeared two years earlier, and might have been influenced by Boffrand's scheme, as well as several others that employed
Figure 48. Analytic drawing of Barbier's plan.
arcades. Chastel's opinion that "The triangular form of the market place is simply regularized, to the detriment of the bordering blocks and to a part of the old Halle au blé"\textsuperscript{137} seems to result from seeing the old market hall as severed rather than as gaining a new form and relationship to the rest of the market place through its new edge. It may indeed be barbaric treatment to the old form, but which organization, the old or the new, would serve the prescribed function better? It is an example of a join being made by a combination of both built form and space. Although almost the entire outer edge of the new project is connected three-dimensionally with the old due to the use of arcades, the variety of definitions and of edge conditions used by Boffrand is not present here. The edge is predetermined, not as a result of the particular existing situation at each point on the boundary as Boffrand's scheme seems to be, but by a geometric device. The resulting plan configuration is then set into the site and welded there by the arcades, which form a three-dimensional join in both built form and space. The juxtaposition of new and existing is immediate, with no intervening subleties of definition.

Maille Dussausoy's project was published by him in 1767 following the completion of the new Halle au blé in January\textsuperscript{138} (Figure 49). Dussausoy posed as "one of the numerous 'disinterested citizens' of the eighteenth century who dream of the embellishment of their capital"\textsuperscript{139} He asks, "How, with such examples [preceding discussion of Greek and Roman markets], has an enlightened Nation which loves glory been able to support for so long, in the center of the Capital, these disgusting markets, these infected Halles?"\textsuperscript{140} He proposes new uses for the old Halle au blé since the new one has been completed\textsuperscript{141} and he also supports renovating the Cimetière des Saints-Innocents into an herb market.\textsuperscript{142} He assumes that the present
KEY TO FIGURE 49.

I. New Halle aux Cuirs et à la Filassee.

II. Intersection Jean de Bausse, site for a new market hall.

III. Site of the Halle aux Cuirs to be used for a new market hall.

IV. Fountain and watering trough.

V. Guard house.

VI. Firestation.

VII. Fountain and reservoir.

VIII. Protective grills and sidewalks.

IX. New buildings.

X. New streets and openings.
Figure 49. Dussausoy's project for improvements in les Halles, published in 1767 in his book *Le Citoyen Disintéressé*. 
site is the proper one: "... these Halles are located in the most happy position, they are at the center of the Capital and the four largest streets of Paris either cross them or end there." He has a novel suggestion for lowering the cost of the project: wait for the houses that must be appropriated for the project to fall down. Dussausoy also aims to separate those market activities having to do with alimentation from any others, which prompts him to suggest the appropriation of the convent of Saint Magloire for a new Halle aux draps and Halle aux toiles. He summarizes his intent:

One sees that the number of sites in les Halles is greatly increased by this project: one opens up their interior for the cleanliness of the air, which at the same time eases communication from one Halle to another, and renders them safer and more commodious.

It seems from his own descriptions that Dussausoy's aim was a practical and efficient reorganization of the functions that exist in the market area, and had very little if anything to do with a physical projection of an ideal market. Existing buildings are left as the edges of the project area, and in most instances are left unaltered. All the edges between new and old in the analytic plan (Figure 50) form joins in space or joins in both built form and space. Joins in space occur in the new streets that surround the two triangular market complexes. Joins in both built form and space are formed by the combination of the old Halle au blé with new buildings to enclose a newly-defined space; and by the insertion of a new building on the north side of the Cimetière des Saints-Innocents. A totally new complex is inserted to the east of the old Halle au blé. Dussausoy does not connect new built form directly to that existing, except that his new street lines would require the addition of a new facade to the adjacent buildings. He only carves space out of existing buildings;
Figure 50. Analytic drawing of Dussausoy's plan.
he does not propose the addition of new construction touching existing for
the purpose of shaping a new spatial configuration, as was done in the three
earlier examples.

Louis-Pierre Moreau, made Director of Buildings of the City
of Paris in 1763, appointed a royal architect in 1785, and guillotined in
1795, proposed a plaza in front of Saint-Eustache. This was part of
a plan for a series of improvements and embellishments for Paris he
designed in 1768, and presented to Louis XVI, which were approved by him in
1769. His plan was based on the idea of improving the
city along both sides of the Seine, but his work as architect for Saint-
Eustache from 1772 to 1788 and for the Palais-Royal attracted his interest
to these locations as well. His representation of the project for a
plaza and new streets around Saint-Eustache is not reproduced here due
to lack of clarity in the only reproduction available, but is analyzed
graphically (Figure 51). Bardet provides us with no further description of
the plan from the text accompanying the portfolio.

The main features of the plan are the new plaza enhancing the west
facade of Saint-Eustache; a small plaza before the north door to the
church, breaking up the block of houses surrounding the church; and the
enlargement of the Pointe-Saint-Eustache by removing part of the block
between the rues Montmartre and Montorgueil. The limited opening of the
church so that it would be more visible and accessible from all sides yet
still attached to its surrounding houses seems to indicate an attitude of
limited disengagement to allow more visual relationships among parts of
the neighborhood without entirely destroying the existing order. The
edges where new and old meet occur in built form, in space, and in both
built form and space. From a comparison of his proposed plan and the 1705
Figure 51. Analytic drawing of Moreau's plan.
plan of existing property lines, Moreau has carefully represented the existing property lines which would be respected, thereby showing what difference would have to be filled in between them and the lines of his new streets. Depending on whether neighboring properties acquired this in-between space or it was sold to new proprietors would determine whether these edge conditions would form a join or a separation. In either case, all the newly created streets and plazas form a join between new and existing forms due to their relatively small size and enclosure. In the case of the two plazas around the church, both represent joins that occur by a combination of both built form and space.

A project by Jaillot in 1778, presented in his *Lettres sur les embellissements de Paris* and reconstituted from the text and analysed by Chastel is interesting to note due to two points: 1) it presents the idea of decentralized neighborhood markets as opposed to a central market system; and 2) he proposes a round market building for the quarter of les Halles, which would apparently be placed in the irregularly shaped open space left by the demolition of existing market buildings between the Piliers and south to the Halle aux draps. This foreshadows Duval's 1850 project.

An anonymous project presented around 1784 proposes to insert some sort of square pavilion into a cleared area nearly congruent with Dussausoy's two proposed triangular halles (Figure 52). In this case, the old Halle au blé is quite rudely chopped up. There is no accompanying description of the project, but it would seem likely that it would be a roof supported by colonnades similar to the new Halle au blé.

Plans were developed around the turn of the nineteenth century for a new market on a grand scale on the traditional site of les Halles, but the
Figure 52. Anonymous project for les Halles, 1784. (Chastel, "L'aménagement du marché central de Paris", Bibli. Nat. Est.)
lack of any information on what would be built in the vast cleared space
of the Plan des Artistes (Figure 53) or the Imperial Plan (Figure 54) make
it impossible to analyze their edge conditions. The Imperial Plan, outlining
the site chosen by Napoleon for the new market halls, was included by
P.F.L. Fontaine (1762-1853) in a series of explanatory texts, joined with
issues of Monuments de Paris, and sent to Emperor Alexander of Russia
between 1809 and 1815. This plan appears in the twelfth part of the
series, dealing with markets, which was presented in 1815. Bellanger,
appointed architect for the new central market in 1812, did execute a
project for the site, but it has not been published. The analytic
drawing published in Chastel's article is presented in Figure 55. The
site is a different size and shape than that presented by Fontaine, but
it treats the delineation of the perimeter in the same way, with straight
edges cut through existing building blocks. In all three plans, treatment
of this edge would require the addition of new facades to these buildings,
thereby making the edge configuration almost entirely joins in built form.
Assuming that the market building or buildings would stand free in the newly
freed space, as in Bellanger's plan and in other markets during this
period (Fontaine), this approach presages the projects which were to be
presented in the mid-nineteenth century.

The general sequence of events surrounding the long and involved
deliberations over the massive reorganization and rebuilding of les Halles,
finally accomplished in 1936 only to be torn down 35 years later, has
been outlined above. The vast number of projects proposed attests to the
intensity of the political furor of the affair. The list presented
in Appendix B is unfortunately limited due to lack of access to original
sources, It still manages to convey the sheer bulk of the project material,
Figure 53. Detail of the reconstituted Plan des Artistes published in *Les Travaux de Paris, 1789–1889*. Dark shading marks proposed street alignments.
Figure 54. The "Imperial Plan". (Fontaine)
Figure 55. Drawing of Bellanger's plan published by Chastel in "L'aménagement du marché central de Paris".
although it includes only nine of the forty-two projects purportedly presented after the cessation of work on "les Forts des Halles" in 1853.\textsuperscript{154} The projects that will be analyzed graphically are the second project by Lahure for Rambuteau, presented July 5, 1842\textsuperscript{155} (Figures 57 and 58); the second project by Hector Horeau dating from 1849, published in the \textit{Revue des beaux-arts}, 1851 (Figures 61 and 62);\textsuperscript{156} and Baltard's final project, presented to Napoleon III and approved by him in its final state in 1853\textsuperscript{157} (Figures 73 and 74). Illustrations of other projects are included in (Figures 56, 59, 60, and 63-72) chronological order.\textsuperscript{158} They have been well described by J. Hugueney.\textsuperscript{158}

Lahure's plan as presented in the analytic drawing (Figure 58) is similar to Boffrand's in that both building complexes are surrounded by a gray network of insulating spaces which are projected streets, but the similarity ends there. Boffrand's scheme is conceived as a connected series of open plazas defined by continuous built form, while Lahure's plan presents separate free-standing buildings, although he also includes an open plaza. This difference in organizational conception does not entirely account for the difference in treatment of the edge conditions, however. Boffrand's building complex could also have been composed of entirely new construction and stood free in a space carved out of the surrounding buildings. It seems that the Plan des Artistes and the Imperial Plan, by delineating the project boundaries separately from proposing what was to be constructed, initiated a view of building projects for this site which would regard the surroundings as a frame for new construction, and not an existing organization to be respected or continued, even at the edges.

Lahure's plan was envisioned as only part of a more encompassing scheme to open up and ameliorate this quarter of Paris. This large scale of city planning has most often been attributed to Haussmann's administration
Figure 56. A "mystery project", described in Paris Projet, no. 1, as being taken from an 1830 map by Vasserot. It must have been drawn after 1837, however, when the rue de Rambuteau was started. A series of market pavilions is shown proposed on the official site.
Figure 57. Lahure's second project, presented July 5, 1842, for the Administration. (Lavedan, La Question du Déplacement de Paris)
Figure 58. Analytic drawing of Lahure's second project plan.
Figure 59. Daniel's project presented July 6, 1842 for the Administration.  
(Lavedan, La Question du Déplacement de Paris)
Figure 60. Baltard's second project for the Halles Centrales, approved in 1851. One pavilion was built between 1851 and 1853.
Figure 61. Horeau's second project, published in the *Revue des beaux-arts* in 1851. (Hugueney)
Figure 62. Analytic drawing of Horeau's second project (1849, published in 1851).
Figure 63. Pigeory's project (1850), published in *Revue des beaux-arts* in 1851. (Hugueney)
Figure 64. Duval's first project, published by him in a book entitled *Halles Centrales de Paris* in 1851. (Hugueney)
Figure 65. Horeau's third project, presented in 1853 and published in 1854 in the Revue Générale de l'Architecture.
Figure 66. Duval's second project, located on the official site. (*Revue Générale de l'Architecture*, 1854)
Figure 67. Project presented by Storez for the official site. (Revue Générale de l'Architecture, 1854)
Figure 68. Roze's project proposes a complete physical and functional change for the ancient site of les Halles by turning it into a "residential quarter". (Revue Générale de l'Architecture, 1854)
Figure 69. Proposal by Schmitz for the official site. (Revue Générale de l'Architecture, 1854)
Figure 70. Flachat's project for the official site. *(Revue Générale de l'Architecture, 1854)*
DEUX PROJETS DE M. ARMAND.

Figure 71. Armand presented two alternative schemes for the official site.
(Revue Générale de l'Architecture, 1854)
Figure 72. Map published in *Revue Générale de l'Architecture*, 1854, locating the sites of the nine proposals presented for les Halles. By the time this issue was published, Baltard's third project had already been officially accepted.
Figure 73. Official plan, dated March 1, 1854, indicating the location of Baltard's pavilions and showing land to be appropriated for street alterations.
of the Prefecture of the Seine, but it is evident that he and Napoleon III were only continuing work started under the July Monarchy. The sources might in fact lie in the uncompleted but grand plans of Napoleon I, which are often cited as precedents for projects for the new central markets.159

Lahure's description of the scope of the work accompanying the project is partly repeated by Lavedan:

... to suppress the blocks of houses circumscribed by the rues des Prouvaires, du Contrat-Social, de la Tonnellerie and Traînée; also, to only subtract enough from those properties along the rues de Marché-aux-Poirées and de Piliers-des-Potiers-d'Étain so that it comes under the category of street improvements.160

Lavedan continues, "The intention is evident: to reduce or appear to reduce the original project in order to lessen the difference with the cost of Lanquetin's project while still obtaining an equivalent area." 161

We see for the first time, in the analytic drawing of Lahure's plan, conditions of non-join being created between many of the new and existing buildings and within the new building complex itself. Of course Lahure's plan was diagrammatic, and perhaps the actual construction of such a project would have included secondary definitions, such as level changes, trees, or grills which would have tied these parts together to some extent. As the plan is presented, however, the large undefined open spaces seem to fall in the category of over-extended space which does not join new and existing forms. It seems that the desire to ease traffic congestion has lead to the creation of large street spaces that have the effect of changing the entire scale of the projects. Boffrand's project, covering a larger area than Lahure's, still underwent a change in scale around its périmètre so that it was responsive to the surrounding environment.
The three projects that Hector Horeau proposed in 1845, 1849 and 1853 all envision the moving of the market buildings to a site stretching between the Marché des Innocents and the Seine, and the creation of a residential sector and a park on some of the sites of the old market buildings. This project is the first one that proposes a different use for the traditional site of les Halles. His second project of 1849 was published in the Revue des beaux-arts and indicates his proposals for this site (Figure 61). He assumes several Administration projects for the context of his study, such as the proposed rue Montmartre widening and rue de Rivoli extension. Although there are no indications of the differences between proposed and existing building lines in this drawing, it can be assumed that where new building lines are indicated, a certain depth of each structure would have to be rebuilt in order to accomplish the task. This rebuilding would make the edges of Horeau's project in the analytic drawing (Figure 62) appear more like those in Baltard's final project (Figure 74).

Horeau's projected buildings, as in other contemporaneous proposals, stand free and are surrounded by a corridor of space which would seem to separate them from their existing neighboring buildings when this space is a through traffic street, such as the rue Montmartre extension. Through streets are also created in the middle of the project area, leading around Saint-Eustache. The exact treatment of the projected open triangular place would determine whether the new complex would operate continuously among its own parts. In this area south of Saint-Eustache, existing unaltered buildings form the frame into which the new buildings are inserted. The edges between new and existing built form are for the most part defined.
Figure 74. Analytic Drawing of Baltard's Final Plan.
across space, to form both joins and non-joins. The exception is the new plaza and street cut out of existing buildings in front of Saint-Eustache, where the edge is defined as a join in built form.

The representation of Baltard's project includes both his market pavilions and the new street alignments proposed by the city (Figure 73). All of Baltard's three projects, proposed in 1844, 1851, and 1853, were inscribed within the area designated by Municipal Council due to previous studies, such as that of Lahure. This project area has as much if not more relationship to the city of Paris as a whole than it does to the site of the market pavilions. The building of the Halles Centrales was not an isolated improvement, but was part of a larger plan for improvement of the city. This comprehensive approach on the scale of the entire city had originated with Verniquet's plan for Louis XVI, was further developed by the Plan des Artistes and was realized in the works of Napoleon III and Haussmann. Baltard was not responsible for the entire ordering of the new changes that were to be effected; he was only responsible for designing the pavilion structures. In each of his three projects, the structures are parallel to the new street edges the Administration has laid out, even when that configuration caused the shapes of the buildings to be irregular. He was merely following the strict guidelines set out by the Administration. He in effect had no control over the configuration of the edge conditions of his project, nor even the precise physical definition of the facades of the buildings. The iron pavilions resulted from specific directives from Haussmann.

The edge conditions we are analyzing are therefore not the ones proposed by Baltard, but rather those demanded by the Administration of the city. In this quarter of the city, they made two types of junctions
between new and existing parts of the urban structure. One condition was
a join in built form, but this could not be experienced in the public
space of the city. The other condition was that of a join across space,
which appears as the gray corridor of new spatial definition around the
new market pavilions in the analytic drawing. This street space is
actually ambiguous and could either act as a join or a non-join between
the pavilions and their surroundings, although the mostly open perimeter
of the pavilions suggests the former. Since the buildings around the
Halles Centrales were also used for commercial purposes, mostly of an
alimentary nature, and because activity was so intense here, a join was
effected (Figure 5).

The achievement of this complete physical reorganization of les Halles
halted the proposal of alternative plans for the site for almost seventy
years, but in 1922 Le Corbusier chose it to be part of the site for his Plan
Voisin (Figure 75). This plan dealt with much more than the pure physical
reordering of the site; it proposed an entire social revolution as well.166
His social theories, as well as his site plans, involved the Halles Centrales:

The domestic crisis is an inevitable social event which
requires the organization of common services. The
'Immeubles-Villas' (Villa apartments), through methods of
cooperative provisioning, even propose the solution of the
Halles Centrales of the large cities. This solution is
simply the suppression of les Halles, and the installation
of a central exchange of food supplies; les Halles are
replaced by refrigerator organizations of alimentary
concentration and dispersion, in view of the organization
by villas; the alimentary supplies arrive directly from
the province to the place of consumption. And thus could
disappear finally the truly shameful paradox of the Halles
Centrales of the great cities.167
Figure 75. Sketch view of Plan Voisin, Le Corbusier, 1925. (Archives de la Fondation Le Corbusier)
Corbusier's view of the social order of the scheme affects his physical ordering of the plan. He describes the organized communal services which would be included within each large dwelling structure:

The extensions of the dwellings are of two types: first strictly material: provisioning, domestic service, sanitary service, maintenance and physical betterment of the body. On the more specifically spiritual side then: the nursery, the kindergarten, primary school, the workshop for young people.168

This new social order, so different from that in the existing city of Paris, would require a different form, too. The insertion of this new form into Paris poses the interesting problem of the meeting of an abstract idea scheme and a densely built existing urban structure. It must be realized that the plan cannot be taken literally in every detail it proposes because it is an abstract scheme and not a drawing of a final building proposal. Such details as the rude chopping off of a corner of the Hôpital Saint-Louis (Figure 76), which he carefully notes as something to be preserved in later studies of Paris, indicate the rough state of the Plan Voisin which was presented in 1925.169

The majority of the site which Le Corbusier develops is surrounded by broad roadways which separate his structures from the neighboring blocks (Figures 77 and 78). On the southern edge of the project area, however, Corbusier has indicated the immediate juxtaposition of existing building blocks and his proposed structures (Figure 79). This area includes the site of les Halles and has been analyzed in Figure 80. The cross-shaped buildings are towers of dwelling units. The narrow paired structures around them are covered parking strips. The lower buildings on either side of the rue de Rivoli are apparently meant for business purposes.
Figure 76. Detail of Corbusier's 1925 Plan Voisin: northeast corner of the project area, with the Hôpital Saint-Jacques in the upper right corner. (Archives de la Fondation Le Corbusier)
Figure 77. Detail of the Plan Voisin, 1925: juxtaposition of new tower complex and existing neighborhood. (Archives de la Fondation Le Corbusier)
Figure 78. Detail of the Plan Voisin, 1925: the meeting of new and existing structures across a street. (Archives de la Fondation Le Corbusier)
Figure 79. Detail of the Plan Voisin, 1925: the junction between the new organizational scheme and the structures to be preserved along the banks of the Seine. (Archives de la Fondation Le Corbusier)
Figure 80. Analytic drawing of a section of Le Corbusier's 1925 Plan Voisin.
Although I have indicated the open space of his plan as the gray tone which means spatial relationships which are continuous with existing public space, in fact the large size of Corbusier's project area, extending from the Seine almost to the Gare du Nord and from the Rond-Point des Champs-Élysées to the Marais, means that all the space but the edges should be white, indicating open space completely defined by new buildings. This representation would not have emphasized the new building pattern he proposed, however, which is at a different scale than the existing city. In this case a monotone shading to indicate public space is not sufficient for an analysis of that space since Corbusier proposed many functions which would take place there, as well as landscaping which would change the space configuration.

Le Corbusier's Plan Voisin and its later developments were proposed to emphasize his ideas about urban structure and life. In the recent deluge of proposals for the actual urban renewal of the les Halles site, many more idea schemes have been proposed.

As was the case in the middle of the nineteenth century, recent project proposals have happily not been limited to those entered through official channels, but the "Halles affair" has attracted wide attention and a number of proposals. Twelve of these privately initiated proposals have been published, along with the six official ones, in a special issue of Architecture d'Aujourd'hui. Figures 81-93 illustrate a selection of these projects. Once again we have the setting for a long confrontation between the "official" and the "unofficial" projects, between the citizens and government, and between idealistic schemes and fiscal reality. The battle for preservation of much of the existing surroundings was won in 1968, so that the context of the project is one of a recognized historic
Figure 81. Official project of Arretche, 1967. (Architecture d'Aujourd'hui, 1968)
Figure 82. Official project, A.U.A., 1967. (Architecture d'Aujourd'hui, 1968)
Figure 83. Official project, Claude Charpentier, 1967. (Architecture d'Aujourd'hui, 1967)
Figure 84. Official project, de Marien, 1967. (Architecte d'Aujourd'hui, 1967)
Figure 85. Official project, Faugeron, 1967. (Architecture d'Aujourd'hui, 1967)
Figure 86. Official project, Marot and Tremblot, 1967. (Architecture d’Aujourd’hui, 1968)
Figure 87. Analytic drawing, plan of Marot and Tremblot.
Figure 88. "Platform of the twentieth century", project by Facheux. 
(Architecture d'Aujourd'hui, 1968)
Figure 89. Bossu's project proposal. (Architecture d'Aujourd'hui, 1968)
Figure 90. Bossu's project proposal: edge between new and existing structures along the rue de Rivoli (view looking east). (Architecture d'Aujourd'hui, 1968)
Le projet Listowski :
une proposition équilibrée conservant les pavillons de Baltard
et en faisant un centre de rayonnement culturel.
(Document Listowski.)

Figure 91. The Listowskis' proposed new structuring of the quarter. (Architecture d'Aujourd'hui, 1968)
Figure 92. Project by Bourbonnais. (Architecture d'Aujourd'hui, 1968)
urban configuration.

The majority of the projects presented in 1967 use the official site (Facheux 1967, Bossu, Grumbach, Listowski, Bourbonnais and Giraudy, Laprade and Brasilier 1962, one of the earliest, Goudot et al., Granval, Gecus, Grillo, and of course the six official projects by Arretche, A.U.A., Charpentier, Faugeron, de Marien, Marot and Tremblot, presented in 1967). Bichet proposed to work instead on an area between the Louvre and Hotel de Ville and the rue de Rivoli and the Seine, to deal with the fundamental operations of the city on a city, regional, national and international scale; while Shadrach Woods recommended renovation of les Halles, without going into specifics, and total demolition and reconstruction of the quarter Bonne Nouvelle north of les Halles, between the rue Etienne Marcel and the Boulevard Bonne Nouvelle. Of those accepting the site, Grumbach's proposal is concerned totally with the process that the renovation takes in order to keep the district alive. Listowski and Charpentier argued for preservation. Much exploitation of the area underground, sometimes rationalized to save the historic buildings of the ground while still providing required or inspired new facilities, is shown in the projects of Facheux; Laprade and Brasilier; Goudot et al.; Granval; and g.e.c.u.s.; and among the official projects, Arretche, and Marot and Tremblot.

Figure 87 shows a graphic analysis of the project by Marot and Tremblot. As in all the other projects, the majority of the existing blocks of houses are not touched. In those blocks where some of the buildings have been removed, the existing ones are left isolated and open on all sides. New buildings are never used to complete these
existing urban patterns but are always separated from them by a corridor of open space. This spatial insulation takes on different dimensions and shapes around the perimeter, but most of it is quite wide, and the large intersection at the Pointe Saint-Eustache is definitely too large to form any sort of connection between the new buildings and the church. The large areas in the interior of the project would be much more varied than this diagram can describe, and in fact the entire scheme is proposed as a diagram. It is still evident from the organization of the ensemble, however, than an entire new set of relationships between buildings and space is being set down in the middle of an existing urban structure without respecting that structure. This approach is indicated by the totally white area of the projected complex, ringed by a border of gray which does not interact with it, which is in turn surrounded by the dark gray of the existing city. Even the gray space to the east of the Bourse de Commerce should probably be designated as space defined by new buildings and therefore be white.

In effect, the city is now presented with the possibility of repairing some of the damage done to the city fabric by the forceful intrusion of the pavilions into the quarter over a century ago. The situation is somewhat the reverse: in the nineteenth century, when the commitment was finally made to materially reorganize and improve les Halles on the same site, it was a question of changing the physical pattern and maintaining the same activities. Today the possibility of the exact reversal of this situation, to keep the physical structure and change its function, has vanished since the demolition of the six eastern pavilions. Now the total physical, functional, cultural and
economic life of the quarter is in question.

Now the decision can be made to return to an integrated situation, where something new would blend in with the physical and social and commercial activity patterns of the quarter gradually. The A.P.U.R. has closely examined the former, but not the latter. But the best of intentions are only as effective as their realizations. Their proposals for renovation, not a scheme or plan but verbal and sketched outlines, in fact show a complete physical break with the surrounds (Figures 94-96). Huge efforts have been made to correct some of the division created by the network of large traffic-bearing streets between the 1830's and 1890's by creating an underground forum, thirteen metres below present grade, and careful thought has been given to tie the area into all the transportation, circulation, commercial, and tourist networks, creating a three-dimensional urbanisme which could be very exciting. On the other hand, it seems to destroy the urban fabric by the very care it takes not to hurt it; it augments the problem by avoiding it (Figure 94). Will new activity underground serve to activate the area on top, or to cause desertion of the latter?

Many questions still seem to be unanswered concerning the exact role this new project will play in the everyday drama of les Halles. The citizens groups and the government each have their own opinion. However, all parties seem to be stressing the quality of continuity between the existing urban fabric, much of it ancient, and the new construction. It would be good if the definition of this continuity could be described in physical terms on the plans and not only in words. It is possible; it only requires the realization that the "edge" can be "dangerous".
Figure 94. A.P.U.R. official study, published in *Paris Projet*, no. 1.
Figure 95. A.P.U.R. project. (Herbert)
Figure 96. Sketch of A.P.U.R. project, looking north. (Paris Projet, no. 1)
V. CONCLUSION

The analysis of "the dangerous edge" has been undertaken in order to gain a better understanding of the possible methods of integrating new building complexes into an existing urban structure. Chapter Two set out the various ways in which physical built definition can be manipulated by a designer or builder in order to create joins or non-joins between existing and new parts of the city. Built form can be handled to form joins or non-joins at two levels: 1) that of the definition itself, such as ground form, screen, wall, or pavilion, for example; and 2) that of the configuration of these definitions in plan and section. Chapter Four examined certain examples of the insertion of new built form into an existing urban environment in plan configuration only. Although these analyses made clear certain differences among methods of treatment of the edge that either join or fail to join new and existing, the analytic drawings are not yet clear enough to describe join or non-join without complete verbal interpretation. In order to make this method of graphic analysis useful as a practical tool for urban design, the analytic drawings must make the conditions of join and non-join clear through an objective coding system. The conclusion of this thesis will therefore review the criteria for join and suggest possible methods of explaining these conditions graphically.

There are two basic conditions which must be recognized and coded in order to make clear the conditions of join in plan and section drawings: 1) the definition of that which is existing and that which is to be added, that is, the junction line; and 2) the architectural treatment of this physical junction. The existing and new built form can
be combined in various ways. The old form can be retained completely and
rehabilitated; the old form can be changed or added to; new form can copy
the old form patterns; or entirely new form can be inserted into the
fabric. Joins or non-joins can occur in all of these cases, depending on
how the junction is treated.

The first case of retention of existing built form can be considered
to make a join only if that join pre-existed. It is possible that the
original state of the configuration or a previous alteration created a
rupture in the urban fabric. When existing form is changed or added to,
the conditions set out in Chapter Two apply (Figure 3): unless a dividing
physical definition such as a wall separates the two parts, a join will
result. There is also the possibility here for the edge to be defined in
both built form and in space, which in most cases joins new and existing.
When new form copies the old form patterns, it is the same case as
retention of existing form. When free-standing new form is inserted, the
conditions of an edge in space apply, and may form a join depending on
the several factors discussed in Chapter Two.

These conditions of the junction line only apply for gross analysis.
Other characteristics to look for at this scale in order to test
continuity include the maintenance of old movement paths, or the
continuity between new and existing path systems. It is also important to
note whether existing form has been maintained by facades or facade lines,
by individual buildings, or by entire building blocks. In each case,
however, it is not so much what is preserved that determines join or
non-join, but rather how the junction is built, as described above and in
Chapter Two.

The finer analysis of the prerequisites for join are found in the
architectural treatment of this junction. Continuity between existing and new urban form can be achieved by continuing or repeating existing facades in the same style, with the same materials, or at the same height. The way in which new building parts are added to old, such as the addition of an arcade which makes a three-dimensional join, must also be considered. Form definitions such as doors which allow access and cross-use along streets also indicate join or non-join. Both scales must be considered, the planning scale of streets and building blocks, and the architectural scale of physical definitions that help determine how a place can be used by the populace. Where information of this latter type is available, drawings at the scale of 1:2000 should help to clarify the use of these physical definitions and supplement the 1:5000 drawings used in this thesis.

Cases where joining new and existing parts of the city is especially important are indicated by vast scale changes between new building projects and the surrounding urban fabric. The problem of creating a join between new and existing is critical in this situation, and deserves special attention. Changes on the scale of those proposed by Moreau and Dussausoy are much less likely to disrupt the urban fabric than are larger projects, although even small-scale projects can be disruptive. Continuity of scale at the interface between new and existing is a prerequisite for joining the existing fabric with the new one. Changes in size can then occur within the new complex.

Entirely new form configurations can be added to the city without breaking continuity by creating joins around the edges of a new project area and allowing changes to occur within the new built complex. In this situation the designer has all the physical means of establishing
continuity under his control so that the formal and use transitions between two different configurations can be smooth ones. Examples of this method are maintenance of existing facade heights along the boundary streets and a transition to higher forms within the new building. Similarly, an existing street pattern might be maintained or extended around a project area and a new street system (such as elevated streets, underground streets, or different sizes and organizations of street patterns) established within the new complex and connected to the old one. Along a street that leads into a new project area, the existing road width, sidewalk configuration, building heights, materials and style could be maintained for a certain distance and each factor changed sequentially until the desired new configuration is achieved. Numerous variations on this theme are possible. When new form configurations are necessary or desired in a city, continuity among the parts of the city can still be maintained; it simply requires proper design.

The analytic drawings presented in Chapter Four revealed several sets of requirements for join between new building projects and their existing environment. A review of these traits will help establish a set of objective criteria and a graphic system to emphasize them so that they may be recognized immediately. Since the intent of this study is to elucidate the congruence between physical form and joining edge conditions, the following discussion will purposefully ignore the innumerable subtleties of use and activity patterns.

Six characteristics which identify joins and non-joins between new and existing parts of the city at the planning scale emerge from the analyses in Chapter Four. 1) Maintenance of existing streets as connecting links marks a join between new and existing parts. The
network need not be exactly the same, but if it is entirely changed in size, major directions, or the hierarchy of through and neighborhood streets, the existing fabric will be essentially destroyed. In the examples analyzed, setting Corbusier aside due to the unique nature of his project, Boffrand, Camus de Mézières, Dussausoy, and Moreau maintained the existing street network; Barbier, Horeau, Baltard, and Marot and Tremblot ignored it.

2) Maintenance of establishment of street spaces that operate in the manner of existing streets to join new and existing is a second factor to be considered. This characteristic is separate from the path system of streets, which concerns circulation in a city, in that it deals with each street as a single entity. The size and configuration of the street, as well as types and number of access points to buildings on either side of the street, are determining physical factors here. New building projects which are encircled by street spaces which operate in harmony with both new and old fabrics can be tied into the surrounding city; those that are encircled by over-extended street spaces or highways for fast traffic can be cut off from the rest of the city. The distinction between streets for cars and streets for people is an important one and is influenced by size, configuration, and to a large extent, use. Boffrand, Camus de Mézières, Dussausoy, Moreau, Lahure, and Horeau all established some street spaces that would seem to operate to mimic existing streets and thereby to join the new and existing parts.

3) The third characteristic of join is the creation of public open spaces at the boundary which are in scale with the surroundings. This category is a difficult one to qualify, but there are discernible differences between the planned, enclosed plaza in front of Saint-
Eustache proposed by Moreau and the seemingly left-over spaces surrounding the edges of the plan by Marot and Tremblot. The former, enclosed and directed to the church, seems to fit the scale of the surrounding closed and open spaces (Figure 8). The spaces at the boundary of the latter project seem to result from the difficult match between two urban fabrics of different scale and intent. Camus de Mézières, Dussausoy, and Moreau use public open spaces at the edges of their projects that seem to be in scale with their surroundings. Open spaces in other projects seem to be overextended or non-responsive to their environment.

4) The extension of the physical form and scale of the existing urban fabric beyond the boundary into the new construction area is the fourth characteristic that acts as a join. The reverse situation also marks a join, that is, the extension of new buildings into the existing fabric. When this occurs, a building can act to absorb the differences between the new and existing forms on its various sides. Boffrand, Camus de Mezieres, and Moreau all used buildings to buffer these differences and to bond new and existing together. Although Barbier, Dussausoy, Lahure, Horeau, and Baltard changed facade lines of old buildings, these changes seem to respond more to the new organization than the old in every case, and do not act as joins. New buildings or building complexes that are generated and organized entirely abstractly with no reference to their surroundings usually divide the new project from the existing fabric, even if one protrudes into the other. Examples of successful integrations are Boffrand's and Camus de Mézières' projects, which have different organizations than their surroundings, but the designers buffer this difference through the buildings at the edges of their project areas.

Barbier, Lahure, Horeau, Baltard, and Marot and Tremblot, on the other
hand, juxtapose new and old organizations directly.

5) The fifth category of join is the result of a combination of the third and fourth categories, open space and built form. Both built form and space can be manipulated together at the boundaries of project areas in order to join new and existing parts of the city, as explained in Chapter Two and in Figures 2 and 3. Boffrand, Camus de Mézières, Dussausoy, and Moreau all employ such combined configurations to bond the edges of their project areas to the surroundings.

6) When a large area of existing urban fabric is to be destroyed in order to allow new construction, the retention of certain isolated monuments, buildings, blocks or even larger sections of the urban environment can allow the new to be bonded to the existing at these various places, retaining or strengthening the meaning that this environment has had in the city. This situation provides the reverse of the usual urban renewal situation where a hole is made in the urban fabric and the existing city surrounds the new project. In this case, the new project surrounds extant remains of the city at an earlier period. The manner in which the isolated part is treated can of course vary, but its presence affects the organization of the new construction. In this case, the mere fact of retaining part of the urban fabric marks a join without any further exploration of how the boundary is treated. Corbusier's retention of churches, monuments, hospitals, and public and government buildings in his Plan Voisin gave him a framework within which to work. These isolated monuments would have been a meager tie to the previous urban fabric, but they still would have been a tie.

Each of these six different characteristics of join between existing and new parts of the urban environment figure differently in each
particular design. These six objective criteria for evaluating join and non-join in terms of physical definition of open space and built form serve to illuminate differences among the various projects in terms of treatment of edge conditions. Each analyzed project exhibits a different combination of the characteristics of join or non-join. In the projects proposed by Boffrand, Camus de Mézières, Dussausoy, and Moreau, all the edge conditions are joining ones. The majority of the edge conditions are non-joining in the projects by Barbier, Lahure, Horeau, Baltard, and Marot and Tremblot. The Plan Voisin is such a special case that it can not be compared fairly with the other projects, and has not been. In no case, however, were all the edge conditions non-joining. Boffrand's design offers the best example of a new formal configuration inserted into the urban fabric and yet woven into that fabric at its edges to join the two parts.

The perfection of the graphic technique for use as a design tool should proceed along two paths. First, a completely objective coding which notes the retention of built and open space, the change of built form and spatial configurations, and the change from built form to open space and vice versa, should clarify exactly what parts the designer has manipulated. Secondly, an analytic coding, based on the six characteristics of join outlined above, should be able to pinpoint conditions of join and non-join around a project perimeter. For instance, existing buildings could be left white in the drawing; new buildings and open spaces which effect a join according to the above criteria could be coded in various gray patterns; and non-joining formations could be coded in dark patterns. A gray and white drawing would then indicate joining edge conditions; a black and white drawing would indicate non-joining edge conditions.
This study has been tied together by its focus on a particular site, les Halles, in Paris. The study would greatly profit, however, from a broadening of the investigation in order to include examples from other places and a broader time range. The basic requirements for choosing sites as pertinent to this study would be a change in physical form over time and an accompanying set of proposed projects which were not built. A broad range of examples from several cultures would greatly increase the scope of the study of "edge" treatments in terms of urbanistic concerns.

The ultimate aim of this type of study must be the improvement of our means of dealing with the problem studied, in this case the integration of new building projects into an existing urban environment. In order to realize this goal, the method of analysis must be made simple enough that designers will be prompted to use it to evaluate and develop their own projects, by learning from examples by others and cases in other cultures and time periods, and by applying these objective tests of join to design projects throughout developing stages of the work. Further work in this direction should concentrate on development and testing of the graphic system in order to enable it to apply to all possible circumstances and be quickly and easily read and interpreted. Another result of this process of study and analysis should be an increased awareness, on the part of those responsible for the new forms cities are taking, of the importance of the integration of new and existing parts of these cities, and an understanding of how this joining can actually be accomplished.
APPENDIX A

I. EDGE IN SPACE

II. EDGE IN BUILT FORM

III. JUXTAPOSITIONS IN PLAN

IV. SUPERIMPOSITIONS IN SECTION
### I. EDGE IN SPACE

**SECTION DIAGRAMS**

Figure 97.
II. EDGE IN BUILT FORM
SECTION DIAGRAMS

Figure 98.
III. JUXTAPOSITIONS IN PLAN

Plan diagrams (applicable for all physical form definitions included in I. and II.)

Figure 99.
IV. SUPERIMPOSITIONS IN SECTION

SECTION DIAGRAMS

Figure 100.
APPENDIX B

Actual Physical Changes to les Halles area, 1543-1972*

1543-1572  Walls surrounding the main market hall were pierced to allow circulation through the market. The Halle aux draps and Halle aux toiles were rebuilt, probably under Henri II (1547-1559). The buildings perpendicular to the main market hall at the south of it were also removed to ease cross circulation. A new Halle au cordouan was erected on its previous site. The market buildings that stretched along the walls of the Cimetière des Saints-Innocents were razed. The Halle au blé was reconstructed on the same site. The perimeter, the Piliers, stayed the same.

c.a. 1572-1614  New Halle du poisson d'eau douce (fresh-water fish) erected on the rue de la Cossonnerie.

1600-1700  Fragmentary changes, not well documented.

1669  Erection of the still-existing building block on the rue de la Ferronnerie, next to the Cimetière des Saints-Innocents, by the chapter of Saint Germain l'Auxerrois.

1748-1749  Buildings of the Hôtel de Soissons demolished.

*1762-1767  Design and construction of the new Halle au blé.

1780-1789  Closing of the Cimetière des Saints-Innocents, demolition of the charnel houses and chapel, and installation of a fruit and vegetable market. The Fountain des Innocents was moved to the center of the site from its previous position on the rue Saint-Denis at the corner of the cemetery.

1783  Wooden roof, designed by Legrand and Molinos, added to the new Halle au blé to cover the central area.

1784  Halle aux cuirs built in the rue Mauconseil.

1785 or later  Construction of the Cité des Halles.

1785-1790  Reconstruction of the Halle aux draps on the same site.

1786  Removal of the pillory.

* Building projects which have been analyzed graphically are marked with an asterisk.
Construction for a new Halle à la Marée et à la saline (salt-water fish), designed by Dumas, started on the site of the Cour des Miracles, off the rue Réaumur. In 1800 it was completed as an ironworks.

Construction of Cour Batave, designed by Jean Nicolas Sobre, on the east side of the rue Saint-Denis opposite the rue de la Cossonnerie.

Roofing over of the Marché du Légal (between the Halle aux draps and the Cité des Halles; used as a butter market).

Wooden shelters built in the Marché des Innocents.

Iron roof, designed by Bellanger, replaced the wooden one, burned in 1802, on the Halle au blé.

Marché des Prouvaires (butchers) built on the area east of the new Halle au blé which had been cleared as a result of Napoleon I's orders for a new market.

Light pavilions built inside the old Halle au blé.

New Halle aux poissons built by the Administration of the Hospitals.

Halle au beurre built by the Administration of the Hospitals.

Baltard's first pavilion erected. Napoleon I halted construction in 1853, and it was used as a wholesale meat market until 1857 when it was demolished to allow construction of the four western pavilions of Baltard's third project.

Construction of the six eastern pavilions designed by Baltard.

Construction of the western set of Baltard's pavilions.

Halle aux draps demolished (it had burned in 1855).

The Bourse de Commerce (Chamber of Commerce) was completed. It was erected on the site of the new Halle au blé, which had been demolished between 1885 and 1887. It had burned in 1854.

Demolitions for and construction of the two western pavilions encircling the Bourse.

Demolition of the eastern set of six pavilions.
Unrealized Building Projects for les Halles area, 1628-1972* 171

1628-1636 Halle au blé, by le Barbier.

1639 Halle aux draps, by Le Clerc. Plan reconstituted by Chastel.


1672 Halle aux draps, anonymous, no drawings.

c. 1740 Halle au blé, anonymous, no drawings.

1740-1762 Project for renewal of les Halles and the site of the Hôtel de Soissons, including street improvements and a plaza in front of Saint-Eustache, anonymous.

c. 1744 Halle au blé, anonymous, no drawings.

*1748 Project for a Place pour le Roi, Halle au blé, and Halle aux légumes, by Germain Boffrand for the competition for a plaza to honor Louis XV.

1750 Reconstruction of the Hôtel de Soissons, anonymous.

1752 Façade and plaza in front of Saint-Eustache, by Jean Hardouin-Mansart de Jouey.

*1765 Renewal of les Halles, by Barbier.

*1767 Renewal of les Halles, by Dussausoy.

c. 1767-1784 Halle au poisson, anonymous.

*1769 Plaza in front of Saint-Eustache, Louis-Pierre Moreau.

1778 Decentralization of the market, by Jean-Baptiste Renou, called Jaillot, plan reconstituted.

1780 Renewal of les Halles, by Loret, plan reconstituted.

c. 1780 Market on the site of the Cimetière des Saints-Innocents, by Loret.

ca. 1781-1782 New market hall to replace the old Halle au blé, anonymous, no drawings.

* Building projects which have been analyzed graphically are marked with an asterisk.
1784 Renovation and rearrangement of the old Halle au blé, by Doré, no drawings.
ca. 1784 Renewal of les Halles and the Cimetière des Saints-Innocents, anonymous.
by 1787 Market on the site of the Cimetière des Saints-Innocents, by Poyet.
1793-1797 Renewal of les Halles, Commission des Artistes.
1794 Halle à la marée, by Poyet and Chéron, no drawings.
1801 Market buildings for the Marché des Innocents, by Loret, plan reconstituted.
ca. 1804 Renewal of les Halles, by Lequeu, plan reconstituted.
1809 Three projects by Louis-Pierre Baltard for renewal of les Halles, no drawings.
1811 Imperial plan, drawn by Fontaine showing the site chosen by Napoleon I.
1811 Renewal of the market area from the new Halle au blé to the rue Saint-Denis, by Bellanger.
after 1811 Reorganization of les Halles on the same site, anonymous, plan reconstituted.
1837 January 3: Halles Centrales, drawn for Prefect Rambuteau by Lahure, no drawings.
ca. 1840 Decentralization of the markets, drawn for Councillor Lanquetin by Grisart, no drawings.
*1842 July 5: Lahure's second project for Halles Centrales, drawn for Rambuteau.
1842 July 6: Halles Centrales, drawn for Rambuteau by Daniel.
1843 Halles Centrales, presented by Magne to the Annual Architectural Exposition at the Louvre. No drawings.
1844 July 15: Halles Centrales by Victor Baltard following the directions of Delessert, Prefect of Police. This plan was attached to the Boutron report (February 28, 1845) adopted by the Municipal Council in 1847.
1845  Halles Centrales on a site stretching from the Marché des Innocents to the Seine, by Hector Horeau.

1848  Transfer of the market to the Île Louviers, by Magne and Thibault.

*1849  Second project by Hector Horeau, including open plaza and residential buildings on old site of les Halles.

1850  Halles Centrales along the Seine between the Quai de la Mégisserie and the rue de Rivoli, and public squares and new buildings on the old site of les Halles, by Pigeory.

1850  Decentralization of the markets, and public plaza on old site of les Halles, by L. Marie, no drawings.

1851  April 15: Circular Halles Centrales, by Charles Duval.

1851  Renovation of the quarter from Saint-Eustache to the Pont Neuf, by J.B. Dédéban, no drawings.

1851  Baltard's second project approved by the Municipal Council, one pavilion of which was built.

1853  Third project by Hector Horeau, using his same site.

1853  Second project by Duval, using the official site.

1853  Halles Centrales, by Storez, official site.

1853  Halles Centrales on the Île de la Cite, and a new residential quarter on the old site of les Halles, by Roze.

1853  Halles Centrales on the official site, by Schmitz.

1853  Halles Centrales on the official site, by Armand.

1853  Halles Centrales on the official site, by Flachat.

1853  Halles Centrales stretching between the Hôtel de Ville and the Louvre, by Nicolle.

*1853  Baltard's third project accepted by Napoleon III.

1922  First sketch for Plan Voisin by Le Corbusier included in the Ville Contemporaine exhibition at the Salon d'Automne.

1925 Decentralization of the market, by Bechmann, no drawings.

1925 Halles Centrales on the bed of the Seine between the Pont de Bercy and the Pont National, by Haour, no drawings.

1925 Halles Centrales on the site of the Halle aux vins in the Fifth Arrondissement, by the Society of Research and Industrial Perfection and the Municipal Council, no drawings.

1937 Further development of the Plan Voisin by Le Corbusier.

1938 Presentation of the Plan Voisin to C.I.A.M. by Le Corbusier.

1954 Comprehensive scheme for Paris, including les Halles site, by Raymond Lopez.


1960 Plan d'Aménagement et d'Urbanisme de la Region Parisienne, approved.

1962 Project by Laprade and Brasilier for renewal of les Halles.

1962 First studies by the Listowskis for renovation and rehabilitation of les Halles area.


1967 Official project by Charpentier, stressing rehabilitation and shrinking of the boundaries of the renewal area.

1967 Official project by Faugeron.

1967 Official project by de Marien.

1967 Official project by Marot and Tremblot.

*1967 "Platform of the Twentieth Century", project by Facheux on the official site.
by 1968  Project by Bossu, extending beyond the official site.
by 1968  Proposal for sequential renovation of the official site by Grumbach.
by 1968  Rehabilitation and renovation of the official site, by the Listowskis.
by 1968  "Study towards an urban fabric", by Bourbonnais and Giraudy, project for the official site.
by 1968  Project for the official site by Goudot et al.
by 1968  Project for the official site by Granval.
by 1968  Project for underground urbanism by G.E.C.U.S.
by 1968  Project for an alternative development along the Seine between the Louvre and the Hôtel de Ville by Bichet.
by 1968  Project by Grillo for the official site.
by 1968  Project by Shadrach Woods for rehabilitation of les Halles and a new residential sector in the quarter Bonne Nouvelle.
1969    Official proposal by A.P.U.R. (Atelier Parisien d'Urbanisme) for renewal of the now decreased official project area.
FOOTNOTES

1. Lynch, Kevin, *The Image of the City*, p.47
2. Ibid., p.70
3. Examples in Cambridge are several of José Luis Sert's building projects, such as Harvard's Holyoke Center and Married Student Housing, where the street edges are built to the approximate height of the surrounding buildings, and the high-rise tower structures are then related to these buildings.
5. Mumford, Lewis, *The City in History*, p. 569
6. Halprin, Lawrence, *Cities*, p. 216
7. Rudofsky, Bernard, *Streets for People*, pp. 20-21
10. Sitte, Camillo, *City Planning According to Artistic Principles*, p. 149
11. Chastel, André, "Du Paris de Haussmann...", p. 15
15. The term "designer" is used instead of "architect" since ideas for civic improvements have not been and should not be limited to professionals, but rather emanate from all manner of concerned citizens with varying degrees of special expertise.
16. These four maps have been drawn by M. Blécon from original research by the Centre de Recherches sur l'Histoire de l'Architecture Moderne, whose study of this area, directed by Prof. André Chastel of the Sorbonne, is in press. They kindly allowed me to use these plans.
17. Martineau, Jean, *Les Halles de Paris des Origines à 1789*, p.3
18. Ibid., pp. 13-14
19. Ibid., p. 22, from Delaborde, "Oeuvres de Rigord et de Guillaume Le Breton", t. I, p. 33
20. Ibid., p. 26
21. Ibid., p. 25
22. Ibid., p. 25
23. Ibid., p. 32
24. Ibid., p. 26
25. Ibid., p. 36
26. Ibid., pp. 133-135
27. Ibid., p. 147, cited from Commission de 1368, Ordonnances, t. V, p. 148, and Lettres de 1408, Ordonnances, t. XX, p. 584
28. Ibid., pp. 144-152
29. Ibid., p. 153
30. Ibid., p. 155
31. Ibid., p. 5
32. Ibid., p. 165
33. Chastel, André, "L'Aménagement du marché central de Paris...", p. 14
34. Ibid., p. 69
35. Martineau, p. 168
36. Ibid., p. 168
37. Ibid., p. 169
38. de Sacy, J. S., Le Quartier des Halles, p. 83
39. Hautecoeur, Louis, Tome III, p. 320
40. Chastel, André, in press, which he kindly permitted me to read.
41. Chastel, André, "L'Aménagement du marché central de Paris...", p. 69
42. Babelon, Jean-Pierre, "Les Relevés d'architecture du quartier des Halles...", p. 31
43. Martineau, p. 169
44. Ibid., pp. 171-172
45. Ibid., p. 170
46. Ibid., p. 170
47. Ibid., p. 171
49. Martineau, p. 174
50. Bardet, p. 336
51. Ibid., pp. 357-364
52. Ibid., p. 355
53. Buisson, Sylvie, "Un Episode de l'histoire de l'urbanisme Parisien..." p. 11
54. Ibid., p. 12, cited from Procès-verbal de la séance de la Société Populaire et Républicaine des Arts du 6 floréal an II (25 April 1794).
55. Ibid., p. 17
56. Hugueney, Jeanne, "Les Halles Centrales de Paris...", p. 81
57. Ibid., p. 81
58. Ibid., pp. 81-82
59. Lavedan, Pierre, La Question du Déplacement de Paris..., p. 31
60. Hugueney, p. 84
61. Ibid., p. 84
62. Baurit, M., Les Halles de Paris des Romains à Nos Jours, p. 27
63. Hugueney, p. 85
63 bis. Baurit, p. 27; Chastel, "L'Aménagement du marché central de Paris...", p. 81; Babelon, p. 16.
64. Babelon, p. 15
65. Ibid., p. 15
66. Hautecoeur, Tome V, pp. 224-225
67. Lavedan, *La Question du Déplacement de Paris...*, p. 9

68. Ibid., p. 60

69. Ibid., p. 30

70. Ibid., p. 43

71. Ibid., pp. 91-92

72. Chapron, Lawrence, "Étude Historique et Critique...", p. 337

73. Lavedan, *La Question du Déplacement de Paris...*, pp. 94-95

74. Ibid., p. 110

75. Hugueney, pp. 111-113


77. Chastel, in press

78. Pinkney, David, *Napoleon III and the Rebuilding of Paris*, p. 39

79. Sutcliffe, pp. 43-77

80. Ibid., pp. 68-69

81. de Sacy, p. 138

82. Chastel, in press

83. *La Construction Moderne*, 1919; Gréber

84. Chastel, "L'Aménagement du marché central de Paris...", pp. 92-94

85. *Revue Générale de l'Architecture...*, 1842 and 1843

86. Lavedan, *La Question du Déplacement de Paris...*, p. 27, from *De la Décentralisation des Halles de Paris*.

87. I have not yet been able to consult a document at the Bibliothèque Historique de la Ville de Paris, "Memoire du Conseil Municipal. 31 décembre 1949", which lists all the project proposals for les Halles between 1925 and 1948. No drawings accompany the memo, however, so the main value of this information is the indication of interest in the renovation of the area during this period and the concepts behind the proposals, as to how the market and the quarter should function in relation to the rest of the city.

88. Chastel, in press
89. Legaret, Jean, *Rapport sur Les Halles...*, p. 15
90. *Ibid.*, p. 15
98. *Ibid.*, p. 82-91
100. Lopez and Holley, "Etude d'Aménagement Architectural du Centre de Paris"; and Sendzimir, Arri, unpublished paper.
101. Chastel, in press
102. *Paris Projet*, "Le Centre Beaubourg", pp. 6-61
103. Sendzimir, unpublished paper.
106. Sutcliffe, p. 332
108. Chastel, in press
109. Sendzimir, unpublished paper
110. Chastel, in press; and observations of the author during field research.
111. *Paris Projet*, no. 1; and *L'Architecture d'Aujourd'hui*, 1967 and 1968
112. no footnote
113. An underground railway linking les Halles with the railroad stations was foreseen in several of the projects presented in the mid-nineteenth century, notably that of Horeau, and this idea became part of the official project, but was never accomplished in its proposed form. Daly, César, "HallesCentrales de Paris", pp. 5-34.

114. Examples include the Listowskis' project: erecting new buildings in the boulevard de Sébastopol and sinking the road surface; Facheux's project; and A.P.U.R.'s plan.


116. Ibid., pp. 15-16, 24-25

117. Ibid., pp. 15, 25-26

118. Ibid., pp. 16-17

119. Patte, Pierre, Monumens érigés en France..., p. 120

120. Hautecoeur, Tome III, p. 477

121. Patte, p. 221


123. Patte, p. 195.

124. Ibid., p. 195

125. Hautecoeur, III, p. 320

126. de Sacy, pp. 92-93

127. Piton, Camille, Histoire de Paris: Le Quartier des Halles, p. 128

128. Ibid., pp. 203-204.

129. Martineau, p. 168

130. Journal Oeconomique, "Lettre de M. a M. sur un nouveau plan...", p. 393

131. Ibid., p. 393

132. Ibid., p. 393

133. Ibid., p. 393
134. Ibid., p. 394
135. Chastel, "L'Aménagement du marché central de Paris...", p. 88
136. Journal Oeconomique, p. 392
137. Chastel, "L'Aménagement du marché central de Paris...", p. 88
138. Ibid., p. 90
139. Ibid., p. 90
140. Dussausoy, Maille, Le Citoyen Désintéressé..., p. 69
141. Ibid., p. 70
142. Ibid., p. 77
143. Ibid., p. 71
144. Ibid., p. 88; This approach will appear again in a project by Lequeu around 1804, Chastel, "L'Aménagement du marché...", p. 102
145. Ibid., p. 82
146. Also known as Moreau-Desproux
147. Bardet, pp. 295-296
148. Ibid., p. 295
149. Bardet, Fig. 36, p. 314, Bibliothèque nationale, Cabinet des estampes, Ve, 36
151. I have not been able to examine the original book to ascertain whether Chastel's reconstitution is likely to be correct or whether Jaillot intended a "circular plaza" as indicated in Bardet's account of Jaillot's Recherches sur la Ville de Paris, Bardet, p. 281
152. Chastel, "L'Aménagement du marché central de Paris...", pp. 73, 98
153. Chastel has published an analytic drawing of the project without a photograph of the original drawing, see Chastel, Ibid., pp. 105-106; and Lavedan's reference to an article by him with a plan for Napoleon's "Imperial" market may indicate this plan, but he seems to have referred to an unpublished volume, see Lavedan, La Question du Déplacement de Paris..., p. 30
154. Hugueney, pp. 111-113
155. Lavedan, *La Question du Déplacement...*, plate III
156. Hugueney, figure 8, pp. 96-102
158. Hugueney, pp. 81-130
159. Lavedan, *La Question du Déplacement...*, p. 31
162. Hugueney; I was not able to read Horeau's description of the project to clarify its exact intent.
163. Since many of the street alterations proposed on the official appropriation plan of 1854 (Fig. 73) were actually carried out in later years, it has been possible to indicate the location of these built edge connections more exactly.
164. Hugueney, p. 92
165. See Chapter III.
167. Text by Corbusier describing exposition at Salon d'Automne, 1922, "Une Ville Contemporaine", in which he uses Paris as an example and sketches his first plan for the renovation of the city center; Jeanneret-Gris, *Le Corbusier*, 1910-1929, pp. 41-42 for quote, pp. 34-44 exhibition.
169. These observations are the result of research in the archives of the Fondation Le Corbusier, whose staff kindly allowed me to study and photograph these original drawings.
170. *Architecture d'Aujourd'hui*, June-July 1968
171. Unless otherwise noted, these projects are documented by original drawings.
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