PUBLIC SQUARES

AN ANALYSIS OF AN URBAN SPACE FORM AND ITS FUNCTIONAL DETERMINANTS

by

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We accept this thesis as conforming to the required standard.

THE UNIVERSITY OF BRITISH COLUMBIA

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ABSTRACT

Historically the "public square" has been an important element in the physical design of cities drawing its functions from the political, religious, commercial and leisure life of the community. Research of literature has lead the author to conclude that historically the pedestrian usage of public squares was determined by factors of form, internal development, adjoining land and building uses, and the relationship of the square to the urban structure. The analysis of these factors in an historical survey and in an investigation, by field, research of eighteen contemporary squares, is the subject of the thesis.

Squares were classified according to form and function. Paul Zucker's spatial analysis was used for the classification by form. This identifies: 1) the closed square; 2) the dominated square; 3) the nuclear square; 4) grouped squares; and 5) the amorphous square. The author's analysis of functional types identifies four categories. These are: 1) the internal function square - its use is independent of its surroundings; 2) the associated function square - its use is closely affiliated with the land and building uses that front onto the square; 3) the arterial node square - this is primarily an intersection within the urban communication system; 4) the multiple
function square - this combines in one urban space the functions of the former functional types.

Assume that the most useful type of public square in the central business district of a city is one which receives much continuous use by the community for both formal and casual activities. Then the study sets out to isolate the factors that determine the volumes of square usage by pedestrians and the ways that pedestrians will utilize this community facility.

It was observed that many functions which were historically associated with the city square have either been discontinued or are now removed to more specialized urban structures. Numerous other functions continue to be a very significant aspect of public squares. The most prevalent type of square usage observed was for functions of leisure. These include informal casual usage for social recreation, meetings, and the enjoyment of the urban environment, and formal or special usage for such functions as dramas and spectacles, musical concerts, festivals, some athletic events, and the display of art works. Some functions of political, religious and commercial origin continue in varying degrees in some squares.

The people who use squares come from a wide spectrum of age groups and occupations. Squares seem to have an appeal to the
community as a whole. Some groups tend to use squares at particular times of the day; others use squares throughout the day. The analysis of the data lead to the following conclusions.

**Form** - The form of a public square was not demonstrated to be a factor influencing the volume of pedestrian usage.

**Internal Development** - The usage of squares is likely to increase as does the availability of amenable elements of internal development such as pools, fountains, sculpture, seating, pavement, lavatories, refreshment sources. A limited amount of vehicular traffic in squares does not adversely affect usage. The presence of people and other animate objects (especially pigeons) are a positive influence on pedestrian volumes.

**Adjoining Land and Building Uses** - The squares with the broadest variety of adjoining uses and the greatest total number of adjoining uses tend to have the greatest usage. Land uses with the greatest continuous "turnover" of clients are beneficial generators of usage. Examples of adjoining land uses that correlate with heavy usage of squares are churches, museums, art galleries, libraries, tourist facilities, restaurants, bars, cafes, hotels, and certain retail shops. Low usage of squares was suggested, but not conclusively shown, to correlate with governmental and institutional uses, and theatres, cinemas, and auditoria. In some specific times, the
adjoining land uses have no effect on the volume of usage.

**Urban Structure** - Pedestrian usage tends to be greater when: the square is located in the approximate centre of the C. B. D. in an immediate area of high pedestrian levels; the availability of public open space in the vicinity is not abundant; the square is an arterial node in the urban transportation network with public transportation facilities available.

If the square is to be developed as a vital element within the urban structure it should be planned so as to optimize the influence of those factors which will increase its amenity, desirability and hence the degree of its use.
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PREFACE

In the summer of 1965 this study was first conceived by the author. Since that time devotion and labour on the work has flourished and waned several times. Its final completion brings relief to many and may restore optimism to some. The author hopes sincerely that the contents of this thesis will be useful to students of urbanism and beneficial to practitioners of city building and those for whom they plan.

The acknowledgement of assistance is greatly owed to a number of persons who have been instrumental in preparing the study. First and foremost, the author wishes to express his gratitude to Professor Brahm Wiesman, of the University of British Columbia School of Community and Regional Planning. His guidance, as advisor helped to bring together into a form a jungle of ideas and data, and then to prune much of the nonessential and irrelevant through the tedious work of editing. To Dr. H.P. Oberlander, the author is indebted for the inspiration of ideas, particularly regarding human needs in the planning of cities. For their time and aid in the collection of data thanks is due to Miss Sandra Wood, Messrs Kerry Egdell and Gordon Angue, and several now forgotten acquaintances who patiently enumerated people in European squares. Miss M. Dwyer of the U.B.C. library is
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CHAPTER I

FOCUS

The concept of the public square has been both idealized and criticized by numerous learned and experienced authors on urban form, history, and culture. Reference to their insights and thoughts on the matter gives evidence of the significance of the public square in particular and public open space generally in the "theory and practice" of city planning today.

Paul Zucker, an authority on the square as an urban art form, has written that:

...it is the square which is the central formative element in the town, which makes a community and not merely an aggregate of individuals - actually a psychological parking space in the civic landscape.¹

During the last decades city planners have been primarily concerned with such problems as the use of land, the improvement of traffic and general communication, zoning, the relationship between the residential and industrial areas, etc. The considerations have somewhat over-shadowed the importance of the square as a basic factor in town planning, as the very heart of the city. Only now does interest turn toward this central formative element.


Zucker's estimation of the city square as the dominant focus of civic identity seems justified if we consider the pride and civic history engendered by and associated with the "Piazza San Marco" in Venice, "Trafalgar Square" in London or "la Place de l'Étoile" in Paris. This pride and history is demonstrated by the very existence of these squares which would add new revenue to city treasuries if taxable buildings were erected on the sites; by the museums, churches, and monuments that are located about them; by the annual repetition of historic public ceremonies on them; by the spontaneous flocking of citizens to them in the great moments of civic history such as the ending of a war; and most important of all, in the author's opinion, the pride which a city has toward its great square is reflected in the casual everyday use of that square by great numbers of citizens.

Frederick Gutheim in his article "Urban Space and Urban Design" is equally concerned with the importance of maintaining and creating the finest of that elusive quality "urbanity" through the design of spaces. He writes:

Where is the center? What do you do when you get there? Popular urban design also involves urbanity, the quality the garden city forgot. It is found in plazas and squares, in corsos and boulevards, in the alameda and the promenade. It can be found in a railroad station, like "the street between two buildings" in Rome; in the 'gallerias' in Milan or Naples, or in a main street like the Kurfürstendamm. When you find it, never let it go. It is the hardest thing to create anew.³

The difficulty in creating and maintaining urban spaces as community assets rather than dull and sometimes dangerous problem areas is well recorded by the sharp pen of Jane Jacobs. In her remarkable study *The Death and Life of Great American Cities* she writes:

For every Rittenhouse Square in Philadelphia, or Rockefeller Plaza or Washington Square in New York, or Boston Common, or their loved equivalents in other cities, there are dozens of dispirited city vacuums called parks eaten around with decay, little used, unloved. As a woman in Indiana said when asked if she liked the town square, "Nobody there but dirty old men who spit tobacco juice and try to look up your skirt."  

The criteria which may more successfully predict the development of pleasant, active, and well used public squares has apparently not been communicated in all areas of today's Indiana (as noted in the latter quote), and other unused or empty squares of America even though approximately twenty-five hundred years of practical experience in the planning and building of squares is now and has been available for guidance! The technical and artistic skills of contemporary civic designers may cause widespread satisfaction and praise for their proposals of urban beautification through the development of public squares; the general body of citizens is quick to approve and hail new proposals for open space, in the crowded city centres, without critically asking if community needs will be satisfactorily met by such proposals. But the community planner must assure himself that even the finest architectural conceptions of urban open spaces will receive sufficient numbers of users to warrant the implement-

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However, if such urban open spaces as squares, do fulfill a genuine community need, and if this can be demonstrated, then the city planner may wholeheartedly support the effective development and preservation of such community facilities.

I. THE HYPOTHESIS

The goal of this study is: first, to examine the uses, to pedestrians, of the public square, in the past and present, in order to gain knowledge about this type of urban open space which will be helpful to city planners; and second, to examine several physical factors concerning public squares to determine the relationship of these factors to the ways in which people use squares, to the frequency of pedestrian usage, and to the period of that usage. Furthermore, the identified physical factors will be evaluated to reveal any correlation that may exist with use. It may then be possible to predict how certain physical factors are likely to influence the functioning of squares, and hence, apply this information in community planning.

The vehicle for reaching this goal is the hypothesis. The investigation of the hypothesis, both in its support and opposition, is intended to provide a basis for deriving conclusions and recommendations. This is the objective of the study.
The statement of the hypothesis is the chief guide, to the subjects discussed in the thesis, and to the framework of the research. The hypothesis has been formulated from readings into the historical forms and social functions of squares. From the bibliographical sources four dominant factors were noted. These were each drawn from the literature because they suggested patterns and associations, about squares and their place in the community, which seem to have had a strong influence on the functional and physical integration of the public square with the city.

Each of the four factors to be examined is a physical characteristic of squares within the scope of city planning. The problems which they pose, singly or in concert, are thus possible issues in the planning and development of squares. These four factors are discussed from the perspective of history, in Chapter II, where descriptions, examples, and analyses are presented in broad survey form. To more fully explain the hypothesis the factors are briefly stated below, (definitions of terms follow in Section II). The four factors for investigation are:

i) the form of the square; ii) the internal development of the square; iii) the land and building uses adjoining the square; iv) the relationship of the square to the surrounding urban area and the general physical structure of the community.
The research concentrates on the public square as an urban area intended for use by people on foot - the pedestrians. (Parts of a square may be set aside for buildings, parking lots, and vehicular traffic movement, but the dominant functions of squares will be shown to have been historically dedicated to pedestrians, and it is to their use that the hypothesis is directed.

The hypothesis is that:

THE PEDESTRIAN USAGE OF PUBLIC SQUARES IS A FUNCTION OF:

II. DEFINITIONS

To clarify the meaning of the hypothesis and to prevent its misinterpretation, the following terms are defined according to the way in which the author intends them:

Public Square

The most immediate term requiring definition is "public square," but any finite definition in verbal terms is likely to be inadequate because the public square is a concept expressed physically. A
satisfactory explanation and definition may be derived from a careful examination of the forms and social functions through which the idea has historically been realized. Chapter II is intended to provide a clear and descriptive analysis of both the forms and functions of "public squares." Such foreign words as the French "place," Spanish "plaza," and Italian "piazza" are used in the study to mean the same as "public square" or "square." But it must be noted that in general usage these terms have taken on special and often confusing meanings. The only meaning intended for each of these terms is that one expressed through the examples described, analysed, and summarized in Chapter II.

Pedestrian Usage

"Pedestrian usage" refers to each of: (1) the people who use squares, their origin and destination within the city, and any patterns among the users that may be identified such as age groups, or occupations; (2) the purposes for which the pedestrians have come into the square, such as to meet other persons, to participate in some activity occurring in the square, or to enjoy the amenity of the square; (3) the various ways that pedestrians once in a square use it (eg. talking, eating, sleeping, feeding pigeons, etc.); (4) the times of the day or night when pedestrians use squares and any peculiarities of types of uses, times of use, and duration of use.

Form

"Form" refers to the basic physical shape of the square - as if the square were an open container whose volume is defined by its bottom
(the ground); its sides (buildings, trees, a hill side, a river's bank etc.) and the open ceiling (the sky).

**Internal Development**

"Internal development" refers to those physical furnishings within the open space of a square that are distinct from the "form."
The internal development is the way in which such street furnishings as benches, grass, pavement, trees, flowers, fountains, and sculpture, have been utilized; internal development also refers to the ways in which a square may be divided into sectors for roadway, sidewalks, a park-like area, and open-air cafés.

**Adjoining Land and Building Uses**

"Adjoining land and building uses," refers to those land and building uses abutting directly onto the square and forming part of the defining elements of the form of the square. These adjoining uses have accessibility to the square without dependency on intermediary streets or buildings.

**Availability**

"Availability" of public open space refers to the condition when public land is readily utilizable for open space.

**Vicinity**

"Vicinity" is the indefinite area of a community surrounding the square; its general limits are within easy walking distance of the
square, (ie. ten minutes), although, a physical element may be strong enough to mark the perimeter of the "vicinity" of a square at a distance closer to the square than ten minutes walking distance, ie. a river, or steep hill which each create a barrier. "Vicinity" is meant as a physically defined area without functional connotations although a functionally delimited area may in fact correspond to the physical area here referred to as the "vicinity."

Other terms which the author uses in a special sense are explained in the text as they occur. Words used in the generally accepted or dictionary defined way are not defined in the text.

III. LIMITATIONS AND SCOPE

The thesis is limited to public squares which are in the central business district (C.B.D.) of a community. Each of the squares studied, that is presently in use and is part of the field research, is located in an urban area whose population exceeds one hundred thousand persons.

All of the squares studied are publicly owned and administered property (like a city street, or a city park). Other squares which are freely used by the general public, but that are privately owned and maintained were not included. This lead to the exclusion of such squares as Montreal's "Place Ville Marie," or New York's "Rockefeller Plaza."

The thesis is limited to squares which are entirely or partly
dedicated to use by pedestrians and have specific pedestrian areas in
addition to perimeter sidewalks. Squares which serve principally as
a parking lot or traffic interchanges without comparatively large
pedestrian sectors were excluded. Both the historical research and
the case studies were limited geographically to nations of western
Europe, the United States, and Canada. But this basis was broad enough
to suggest that the scope of the study and hence its application may be
useful to some extent in all areas where Western civilization is the cul-
tural and physical basis of urban life and form. Within the total group
of case studies there existed not only national differences, but also
several cultural groupings, i.e. Anglo-Saxon, Mediterranean, North
West European. The study did not research cultural factors which influence
usage of squares, but sought, instead, to identify patterns of usage, and
factors of usage which cut across cultural barriers and form common
links among different cities of western civilization.

IV. SOURCES

The historical section of the thesis is based on an investigation
of literature and in some cases a field study. All available information
in the literature which was written in English or French, and was
relevant to community planning and squares was used as a possible
source. (Other literary sources which are about squares but are
concerned solely with design and landscape were reviewed, but it was
concluded that they are beyond the scope of this study because they deal
with the design of squares in isolation from the broader aspects of the square in relation to the city and activities of urban life.)

Only two books were found whose prime subject is public squares. The first of these 'City Planning According to Artistic Principles' by Camillo Sitte was published in 1889 and is today a classic in planning literature. G. R. Collins, the translator of this work, writes in his preface,

He extracted from the particulars that he observed in old towns certain universal statements that not only have since been accepted as truths, but have conditioned even to this day the judgments which all of us make about what is good or bad in our architectural environment.  

The other work is Paul Zucker's Town and Square; this is a detailed historical study of the forms, origins, and development of the plaza as an art form in urban design. The book in survey form is the principle single source of historical data on squares. In scope it includes the total geographical breadth of western civilization from the earliest urban settlements up to the beginning of the nineteenth century. The remaining major sources of historical data are Lewis Mumford's The City in History, Frederick Hiorn's Town Building in History, and Sigfried Giedion's Space Time and Architecture. A limited number of literary sources which became known to the author in Italian and Greek, were used when English sources did not provide equally extensive information.

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Literature with relevant information about the contemporary usage of squares was quite limited. Many authors deal with plazas from the perspective of landscape and design. These were not included in the bibliography although many were reviewed to insure that the probability of omitting important factors was minimized. From the planning perspective many authors have written about the success or failures of contemporary squares and some of the activities that occur in them, but the empirical basis for their conclusions are frequently not recorded in their literature (e.g. "Discussion on Italian Piazzas" in The Heart of the City) 6 Useful insights of such authors as G.E. Kidder-Smith, Kevin Lynch, and Jane Jacobs provided information about the contemporary usage of squares for a number of locations that were not part of the author's case studies. These were useful both as a comparison of findings and as a "hint" of what to look for.

V. METHODS AND PROCEDURE

The thesis is organized into five chapters of individual lengths, and unequal importance.

The task of the initial chapter is: to introduce the reader to

the subject of plazas, and to comment on their relevance as a community planning topic; state the goal and objective of the study; set out the hypothesis and define its terms; outline the scope of the research and its limitations; describe the sources of bibliographical information and the original research; and summarize the methods of research and the procedures followed.

Chapter II is an essay in history. Using the survey method, it describes and analyzes the physical forms and social functions of the public square from its first known appearance through its development in western culture. This chapter has three purposes:

i) First, the chapter is a definition, by example, of what is meant by the term "square," or "public square," and the counterparts in other languages such as "place" (French), "platz" (German), "plaza" (Spanish) "platea" (Greek). It defines the square as a physical form which is classified into types from the perspective of spatial volumes which are applicable throughout the history of the squares as an urban open space.

ii) Tracing the development of public squares through the major historical periods of its evolution, this chapter establishes a pattern of physical characteristics pertaining to the square both as a distinct entity, and as an integral part of the community (physically and functionally). This is a pattern of physical form, internal development, adjoining land uses, and a relationship to the urban area in the vicinity of the square;
(in the smaller cities the whole of the city may be the vicinity structurally related to the square). The description of these patterns is an explanation of the hypothesis, and demonstrates its very strong dependency upon historical precedents. This is the second purpose of Chapter II.

iii) Finally, the chapter serves to describe and relate the foregoing physical characteristics to the numerous social functions that the square fulfilled through time. This is then, also, a definition by example of the square according to its functions in the community, and is the foundation for later comparison of the social function which the public square plays in the community of our own time.

Chapter III, titled "The Transposition and Maintenance of Functions" has two purposes. The first is to outline activities now housed in specialized buildings, but which were associated with the public square in different times, at different places in the past. Under the topics of government, religion, commerce, and leisure, the chapter is intended to show that indoor spaces are more adequately able to meet the particular needs of numerous urban activities than is the public square. This leads to the necessity of discovering what special functions are left today for the square, and what special forms, internal development, adjoining land uses, and structural relationship to the city, are most able to optimize the functions.
The second purpose of the chapter is to outline traditional functions that are found to continue in the squares of contemporary cities. This is a consideration of the special events that occur in public squares. Unlike the day to day casual activities that were analyzed in the following chapter, the subject here is those occurrences that are not part of the daily, regular function of the square; irregular, but formally organized activities of the political, religious, commercial, athletic, and cultural life of cities are found to continue as a significant social function of squares. These are commented upon in relation to the hypothesis. Data is drawn not only from the case studies but from literary sources as well.

The results and findings of the studies of squares in use today are reported in Chapter IV. The data was collected in the field in case studies of seventeen squares which are listed in Table I.

A standard survey which is included in the appendix made provision for the recording and collection of information concerning each of:

i) the form of the square and its approximate area;

ii) details of the internal development of the square;

iii) mapping of adjoining land uses;

iv) the general relationship of the square to the surrounding area of the city;
v) the collection of historical data relevant to the thesis;
vi) the enumeration of square users;
vii) the description of the activities of square users;
viii) other comments.

The completion of item number six above was extremely limited by a shortage of manpower, technical equipment, and time. It was not possible to maintain a twenty-four hour per day observation of activities and pedestrian count. Using three different "spot checks" estimates of the volume of users were made. Figures used were from days of normal use with pleasant seasonal weather and conditions. The degree of numerical error due to simple counting methods is believed (by the author) to be consistent for each of the case studies, and of a type which does not adversely affect the findings and conclusions.

Pedestrian interviews were conducted with fifteen persons in each of the below listed squares:

**Centennial Square, Victoria**
Civic Square, San Francisco
Union Square, San Francisco
Victory Square, Vancouver

From the interviews the following data was collected:

i) date, time, and weather;
ii) residence, occupation, origin and destination;
iii) purpose for coming to square;
iv) activity while in the square;
v) approximate duration of visit to square;
vi) additional comments of interviewee about the square.

Time and language difficulties did not permit the undertaking of the pedestrian interviews for all of the squares studied. This short coming of the procedure causes limitations of scope to be put upon the findings of these interviews. Evidence from the standard survey and check list form was able to fill much of this gap where information was recorded from knowledgeable persons who related detailed descriptions of the pedestrian usage.

From the survey data, patterns were identified with the aid of tables. These relate the volume of pedestrian usage of any given square with each of: form, internal development, adjoining land and building uses, and characteristics of the vicinity. Conclusions about the determinants of pedestrian usage were than made and summarized at the end of this chapter.

In the final chapter (Chapter V), the conclusions from each chapter were combined and evaluated; these were analyzed and the hypothesis re-formulated in accord with the new evidence. Conclusions were then drawn from the study and recommendations for the planning of squares was proposed.
An appendix following the main body of the thesis includes sample survey forms.
CHAPTER II

THEME AND VARIATIONS

An Analysis of the Historical Forms and Functions of Public Squares

urban spaces have intrinsic qualities which must be understood before they can be protected, enhanced and reproduced.

The "public square" is a special type of public open urban space. In western civilization it is a recurring theme with archetypes in the early cities of Aegean cultures; it is a theme with unnumbered variations of form and function in the past and present of urban life.

The physical form of a square may be described by reference to its limits. These are the defining elements of the open space and also the negative form of the space contained within such limits. The bounds may be obvious and tactile such as the ground pavement or a building's façade; the bounds of a square may be the pierced screen-like wall created by a row of trees through which masses and space are perceived exterior to the
volumetric limits of the square; a square's bounds may be suggested by a road's curb or a trimmed hedge, a river bank or a row of columns. The upper limit of this open space is only implied by roof lines or the sky; the gestalt process of the mind is needed here to identify, unify and comprehend mentally the spatial confines of the earthbound area beneath.

I. THE SPATIAL CLASSIFICATION

In order to understand more easily the physical forms of the square it is useful to establish a general classification of types which may be broadly applicable. The identification of such general types allows considerable freedom depending upon the particular aspect which is to be the basis of the classification. Public squares could thus be classified by geometric ground plan, by size, by location, by function, or any number of other aspects related to form in some degree.

Paul Zucker has chosen the aspect of space and how it is aesthetically unified as a basis for classification. As the square is a spatial concept and because the square may be historically researched as a spatial form the author has chosen to accept the terminology established by Zucker. Although not without certain complexities of multiple classification for particular squares, the types as identified are clear and fundamental. Furthermore, (as is demonstrated in succeeding pages of this chapter) a functional classification of a square has the disadvantage of requiring reclassification as the uses of a square may change through
time: a civic center may become a slum; a market square may become a parking lot. The spatial form tends to continue in spite of the changes of use within and about the square. The form is as permanent as those elements that create it; usually these elements are buildings and so remain for many years. Public squares may then be classified as follows using Zucker's categories:

1. The closed square  
2. The dominated square  
3. The nuclear square  
4. Grouped squares  
5. The amorphous square

A. The Closed Square

A simple geometric figure such as the square, circle, triangle, or quadrangle is the shape in plan of the closed square; it is a simple closed geometric form. Its walls are usually defined by a repeated architectural facade of a single building or many structures. The abutting buildings are thus designed both for their individual use, and in conformity with a spatial concept which the buildings themselves make concrete and visible. The only significant openings in the closed square are the streets that lead into it and the sky. The interior ground space may be developed in numerous ways and may include such street furniture as decorative sculpture, fountains, pavement, planted areas, trees, or grass and also roadways. These developments are incidental.

to the basic form, and in the case of a closed square they are few and restricted to a small size and importance relative to the architectural concept of the square.

"Plaza Mayor" in Madrid (Figure 1.) is a single piece of architecture with an open central square with an equestrian statue as a point of interest. Access to the rectangular space is gained through any of eight two-storey portals that lead to the surrounding streets.

This simplest form of public square is closely related in design to the architectural concept of the "atrium" of a Roman house, the college quadrangle, or the palace courtyard; but unlike these the closed square is a public open space dedicated to public functions. In western culture the closed square
first appeared in the planned towns of fifth century B.C. in Greek civilization. Numerous examples of them may be found in each of the western cultural periods since then (e.g. Hellenistic, Roman, Medieval, Renaissance.)

B. The Dominated Square

The "Dominated Square" directs the view to a single building or group of buildings or some other physical thing such as a large sculpture, or perhaps a spectacular view; in a dominated square the dominating element visually controls the space of the square before it. The dominant feature may be a church, a palace, a city hall, or an open vista which acts like a magnet to attract the perspectives of the square, creating a motion and tension between the open space and the dominating element, hence a resulting aesthetic cohesion. The Dominated Square thus contains specific elements which visually outweigh the other limiting features. This visual preponderance may be the result of the size of the dominating element or perhaps its location or design relationship to the other elements of the square. The "parvis", originally an enclosed open space before the medieval church was often such a Dominated Square. The photograph of "Notre Dame Cathedral and Parvis" (Figure II), depicts this space with its limited perspective concentrated on the cathedral façade.
The spatial unity of public squares is not necessarily dependent upon their architectural or natural boundaries. Indeed any element which is visually strong and large enough in size to form a focus within the space of the square by acting as a nucleus to the square, may result in an artistic wholeness in direct contrast to the apparent non-co-ordination of the surroundings. London's Trafalgar Square is an example of this type of nuclear square. (Figure III).
Here the Nelson monument produces a sense of order and integration amidst unequal sized buildings, uneven street widths, an irregular ground plan of open space and buildings and a visually confusing meeting of streets on the south side. Without the column Trafalgar Square breaks down as an organized spatial volume.

In contrast to "Nelson's Column," the "Arch of Triumph" in Paris is so overwhelming in relation to the surrounding elements of the Place de l'Etoile that it creates not only a nuclear square of this geometrically circular open space but also a dominated square. A pedestrian in the square is only conscious of the buildings and trees,
arranged in concentric circles about the radiating streets, as a minor aspect of the square's total design. (Figure IV). But a nuclear square is not created with each statue, obelisk, or fountain placed in a square. These focal interests may only contribute to the furnishing of the square while the spatial classification of the square is determined by other elements. This is the case with the Plaza Mayor, (Figure I), which is a "closed square" even though it contains a centrally located equestrian statue.
D. Grouped Squares

The Chinese developed a type of landscape painting on scrolls which was designed to be observed in a continuous motion. Many individual scenes were complete in themselves and yet logically moved to a different perspective and location as they unrolled. In the field of music, a sonata may have four quite different movements which are interrelated and yet also are separated as single entities, parts of a whole. So too in the designing of cities very pleasing results have often been obtained when urban squares were developed in spatial relationship to each other. Dynamic contrasts of successive spaces may be ordered to create a planned sequence of crescendo and diminuendo in the drama of the urban space.

The Grouped Squares were axially oriented in numerous Roman and Baroque examples. A less formal non-axial relationship in the Medieval and Renaissance grouped squares was obtained by the opening of a common side and the intersection at right angles of the axes. A third category of grouped squares results when three or more squares are ranged about a common dominant building such as a palace or cathedral as in Salzburg. Lastly squares may be grouped without direct physical contact through the use of some linking device such as a street, a church steeple, or an arcaded passageway. The specific method may vary but the goal is to create mentally a relationship between the physically separated units. There are many means to achieve aesthetic unity between one square and another. The space of a group of squares may be arranged
through civic design just as a sculptor molds separate figures into a group sculpture. The plan above (Figure V), indicates the ancient Roman concept of 'Grouped Squares'. Here five 'fora' are directly related to axes and common sides, yet they maintain their individuality through porticoes and walls which provide inter-connecting passageways. In each case, the size and proportion of the separate fora vary.

E. The Amorphous Square

The fifth spatial classification adopted from Zucker is the "Amorphous Square"; this is the term used to describe and classify all those so called squares which are, from an aesthetic point of view,
Scollay Square, from Lynch's Image of the City.

FIGURE VI

formless. Yet, in order to clarify the meaning of the term "square" as used in this study this variation must be mentioned to indicate that many open spaces formally bear the title of "square" even though they are but a crossroads such as New York's "Times Square," Boston's "Scollay Square" (Figure VI)*, and Vancouver's Pioneer Place.

Each square may not be easily categorized as closed, dominated, nuclear, or grouped; this question is often more complex and requires what may be termed as "multiple classification." Consider the case of the Piazza San Pietro. The etching by Piranesi (Figure VII) shows how the Piazza may reasonably be classified as each of: closed, nuclear, dominated, and grouped. Looking into the square from the major entrance point it is a closed square bounded by lateral colonades and the

*As part of the redevelopment of Boston, Scollay Square and parts of the surrounding area have been cleared. This amorphous square no longer exists.
basilica’s façade. The tall obelisk erected in the centre, and emphasized by the pavement’s pattern, is a strong nuclear element. The monumental front of San Pietro backed by cupola are the greatest aesthetic weights of the piazza and so create what is essentially a dominated square. The "piazza retta," the rhomboidal area that forms a parvis before the church façade, and the "piazza obliqua," the elliptical area of the space, so named by the square’s designer Giovanni Lorenzo Bernini, form two inter-related units both in plan and three dimensional observation. The raised area of the piazza retta is about four yards higher than the average level and the piazza obliqua sinks about two yards towards the obelisk;
separate axes which are perpendicular to each other also create grouped squares of the Piazza di San Pietro. The possibility of multiple classification of squares is in part a result of different values being attributed to different design factors by the person or persons who are viewing the square.

The classification of squares according to the spatial form is hence a method of comprehending the way in which a particular space is made into an artistic whole, that it is articulated by a combination of physically delimiting elements. Zucker says, "the above outlined scheme of principal and basic categories should be taken rather as a starting point for aesthetic and historical analysis than as a rigid and dogmatic system."9

II. A FUNCTIONAL CLASSIFICATION

Every square has a number of purposes; in many squares the number of functions may be very complex. These social functions of a square in its community are its "raison d'être" — the justification to the community for being. The social functions of squares relate to the very ethos of community touching upon such a broad aspect of urban life as to include: politics, religion,

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9 Ibid., p. 9.
economics, defense, urban traffic circulation, agriculture, aesthetics, and leisure. Because the social function of the square extends to such a comprehensive range of urban activity, it may be termed the first community centre.

A functional classification has been devised by the author to analytically describe the social function of squares. This classification establishes three types which are called the "internal function" square, the "associated function" square, the "arterial node function," and the "multiple function" square.

A. The internal function square is the most rudimentary of the three types. The activities for which it has evolved, or been established take place entirely upon the open space of the square without this activity having a dependence upon the land or building uses that adjoin the square. Its function, relative to the other types outlined below, is independent and self-centered. This is the earliest type of square. It is the site for a single, or combination of activities; these include:

i) a meeting place for a formal assembly of members of the community -- acting as legislators, administrators or judiciary;

ii) a public gathering place for the performance of religious rites, ceremonies, and affiliated dramatic, athletic, and commemorative events;

iii) a market place for the exchange or selling of goods;

iv) a fountain place for the public well or fountain which supplies the daily water needs of a community or its parts;
v) a place for the militia to drill and parade;
vii) a place for the grazing and storage of domestic animals;
vii) an ornamental or decorative place whose sole purpose is beautification.
viii) a "park" for the use and enjoyment of surrounding property owners (if private), or for the general public.

The most common example of the internal function square is the market place which is still very important in many areas of western culture as well as areas beyond. Figure VIII shows the old fish market in Tetuan, Morroco. This small closed square in the very densely built up old Arab quarter of the city is now used as a cloth and pottery market. The sellers here do not own or rent space in buildings of the vicinity,

![The Hot El Kadim Socco (Ancient Fish Market), Tetuan, Morroco](image_url)
but instead, they set up their display of merchandise each day, on a table or cart. People come to the square for a specific purpose -- the buying and selling of goods. This dominant function is fully accomplished internally, without a direct dependency upon surrounding structures. In a similar way, each of the seven categories of internal functions listed is at the time of its performance, independent of the surrounding building and land uses.

B. The associated function square is one whose purpose is directly related and dependent upon a land or building use that adjoins the square. It is dependent to the extent that if the adjoining uses with which it is associated change, then the function of the square would also change, (but not necessarily the form). The associated function square is most easily recognized due to some dominant building or landscape feature. Several sub-categories within this functional classification type are:

i) The civic square which provides an open public space before the city hall or other governmental buildings and may be used for official civic ceremonies, receptions, and celebrations, (e.g. Nathan Phillips Sq., Toronto).

ii) The church square is an aesthetic space before the church. It was originally an open courtyard or "parvis" for the gathering of the non-baptized. It came to be used for religious ceremonies, processions, and drama which the church was inadequate to house. An outstanding example
of the associated function church square is Piazza San Marco of Venice. Figure IX is a reproduction of Gentile Belline's painting of the Procession of the Holy Cross in Piazza San Marco. Clerics, lay officials, and the general body of citizens gathered for the annual pageant that is climaxed in the piazza.
iii) The palace square is the great open yard before the entrance to a palace. Its principle function is architectural but with important military uses in time of civil strife or national emergency. (e.g. Red Square, Moscow.)

Numerous other variations of the associated function square include: the square at the entrance to a city (e.g. Piazza del Popolo, Rome), the square before a public auditorium or theatre (e.g. Queen Elizabeth Plaza, Vancouver) the square with a panoramic view (e.g. Piazzale Michelangiolo, Florence) the square in a city park (e.g. Zapiou Sq., Athens). In each case the square is functionally associated with a contiguous land or building use.

C. The arterial node function square is a crossroads. It is developed not only as the intersection of streets, but also as a public square. It is functionally dependent upon the circulation routes that meet there and may also include large pedestrian areas. A most striking example is the Place de l'Etoile (Figure IV). This nuclear square, with the Arch of Triumph commemorative of Napoleon's victories, is the hub of twelve radiating streets.

The multiple function square is the most complex, the most comprehensive, and the most elusive to define. It comprises the qualities
of the internal function square, and the associated function square; and
the arterial node square, but it symbolizes much more. Its internal
functions are not the regular formalized activity of a market place, but:
the irregular special functions, the regular informal functions of casual
gatherings, a site of spontaneous activity, a place of civic consciousness,
a symbol of the community. It is a general purpose public open space in
the heart and core of the community. This is the functional type to which
this thesis is predominantly directed; it is perhaps more easily defined
by example. Syntagma (Constitution) Square in Athens is a multiple
function square designed in the 1830's as a principle focus of the
baroque plan for the modern city. It was initially a palace square with
the palace situated on a rise on the east side; the palace is now the seat
of the Greek parliament. But Syntagma is more than a forecourt for this
governmental edifice. It contains the guarded tomb of the unknown
soldier where the Royal Guard are ceremoniously changed each day;
the square is thus in part a national shrine and a commemorative
associated square. Eight streets, of which four are arterial traffic
routes, converge at the square making it a "carrefour"; one half of
the central area is a small park (the Garden of the Muses), the remainder
is an open air cafe operated by four hotels on the perimeter of the square.
This is a very heavily used square, in an urban area of high pedestrian
levels; it is a meeting centre, a place of leisure for Athenians and
tourists from morning until late night. For modern Athens, Syntagma
is the principle focus of civic life as the Agora was in the ancient period.
Like the Agora it is a general purpose public open space in the urban core -- a multiple function square.

Other examples of the multiple function square are: Il Campo in Seina; Trafalgar Square, London; Union Square, San Francisco; and Piazza del Duomo, Milan, and the ancient Roman Forum and Athenian Agora.

III. AGORA

A. Origins

The public* square is not an urban form characteristic to all cities, nor is it found in every civilization or culture. Archaeologists have unearthed the ruins of Mohenjo-Daro, Babylon, and Kahun, in India, Mesopotamia and Egypt respectively, and these very ancient urban sites reveal streets, houses, temples and palaces, but not one open space which may be acclaimed 'a square.' Even towns in these cultures laid out in a grid pattern did not set aside land for such public use as a market place distinct from the architectural complex of the palace or temple precincts, and yet situated within the settlement confines. The earliest squares reported in a search of literature are found in Aegean culture, as regards the squares development in western culture.

* owned and maintained by a governmental body or agency for free use by the community.
Zucker writes:

Only after 500 B.C. did genuine squares develop in Greece. City planning as such, conscious collective and integrated action beyond mere construction of individual houses, existed already in India and Egypt in the third millennium B.C., but never the impulse to shape a void within the town into a three-dimensional area which we call a "square." This may be explained sociologically: only within a civilization where the anonymous human being had become a "citizen," where democracy had unfolded to some extent, could the gathering place become important enough to take on a specific shape. This sociological development was paralleled by an aesthetic phenomenon: only when a full consciousness of space evolved and at least a certain sensitive perception of spatial expansion began to spread -- one may compare the essentially frontal sculpture of Egypt and Mesopotamia with the roundness of Greek classical sculpture -- only then could the void before, around, and within a structure become more than a mere counterpart to articulated volume.  

Zucker sees the square as a form of Greek origin after 500 B.C. and he suggests a connection between this origin and the democratic political system and the development of a three dimensional aesthetic awareness. But examining these three points leads to conflicting opinions of other writers and a limitation on the conclusiveness of his findings.

First, with regards to the Greek origin and date, aesthetically organized and developed squares existed in Minoan culture much earlier than 500 B.C. according to both Robert Scranton the archaeologist, and historians Frederick Hiorns and R.H. Wycherley. The example

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10 Ibid., p.19
Palace of Minos, Crete from Scully Temple Earth and Gods.

FIGURE X

of this is from Knossos in Crete. The map of the Palace of Minos (Figure X), shows a central court of approximately twenty thousand square feet. A palace court yard is not a public square; but in the case of this particular central court, it was not always a palace court yard.
The Palace of Minos was originally an entire townsite. The central court was the public square for this small community. It was a closed square surrounding by buildings of varying heights. At a later period of Minoan civilization, the townsite was consolidated into a single architectural complex used as the royal household and governmental administration centre — in this way a public square in a small community became a court yard in a palace. Scranton and Hiorns attest to this; Wycherley sites other Minoan examples; other writers have not contradicted it, and Zucker seems unaware of this proto-type. The Minoan city of Knossos came to an abrupt and mysterious end at approximately 1450 B.C. The central court was the public square even earlier than this. So the square as an urban-form existed at least 1000 years before Zucker notes, and it originated in the Minoan civilization which predated the invasion of the Aegean area by the Hellenes.

As regards the relationship of democracy and the origin of the square, Knossos was ruled by a King; democracy was not yet developed. Furthermore, in Zucker's own book *Town and Square*, he refers to temple plazas in Mayan cities of Chichen Itza and Tulum in Yucatan in the fourth and fifth centuries B.C. In the pre-columbian empire of the Incas in Peru, Zucker admits cities with "streets laid out in a rectangular pattern centered around a plaza." Neither the Mayans nor the Incas

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11 Ibid., p.138
12 Ibid., p.139
had a democratic form of government, yet each of them developed public squares. In view of this evidence, the origin of the public square is neither Greek nor dependent upon a democratic governing system. But it is true, that for western culture, the public square derived from its development as an element of city planning from sixth century B.C. in Greece.

King Cyrus of Persia is quoted by Herodotus as having said, "I never yet feared the kind of men who have a place set apart in the middle of the city in which they get together and tell one another lies under oath." Later events showed his lack of fear mistaken. But R. E. Wycherley writes; "Like other despots he had a misplaced contempt for freer institutions; but at least he had sufficient insight into Greek life to regard the agora as particularly characteristic of the people."

The Agora was the early commercial and political center of the Greek 'polis'.* It developed from its simple origins in the archaic period (700-500) as a broadening of a main street as in Thera into a planned open space of the ancient Greek and Roman cities. The Agora was owned by the community -- the polis for public functions -- formal and informal. In numerous cities it underwent considerable physical

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*For an explanation of the term "polis" see page 48.
change in an evolution that may have taken centuries. New buildings were set up in the Agora to replace old, statues were raised and torn down, fountains flowed and dried. The space itself came to be an artistically organized unit only after 500 B.C. Until then, public buildings were scattered about it with little apparent inter-relationship of location, temporary stalls were erected between these.

The Agora was a multiple function square. It was an official meeting place for assemblies or committees; religious gatherings at festivals could use the Agora; it served as a market place; it was the site of civic government buildings, of religious shrines, of market buildings. The principle buildings usually found in the Agora of Greek cities were:

i) The "prytaneum," the home of the chief or head men of the city -- a vestige of the palace during the monarchial periods of government.

ii) The "bouleuterion,* the home of the Council, a limited body of men was appointed by the people to carry out day to day work of city rule and organization in the "bouleuterion."  15

iii) A fountain house -- not a merely decorative fountain -- was often an important element."  16

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16 Wycherley, *op. cit.*, p. 53
*"bouleuterion", sometimes spelled "boulouterion", or "bouleuterium".*
iv) Stoas, used as exchanges, food stores, and protection against the weather. "17

Commenting on the general function of the Agora R. E. Wycherley writes:

One may doubt whether the public places of any other cities have ever seen such an intense and sustained concentration of varied activities. The Agora was in fact no mere public place but the central zone of the city, its living heart. In spite of an inevitable diffusion and specialization of functions, it retained a real share of all its old miscellaneous functions. It remained essentially a single whole, or at least strongly resisted division. It was the constant resort of all citizens, and it did not spring to life on special occasions. 18

B. Athenian Agora - the old type

Wycherley says that the archaic Agora began to develop on the site northwest of the Acropolis at the end of the seventh century in an area which was known as the Kerameikos, or potters' quarters. A marker of the sixth century with the inscription, "I am the boundary of the Agora" indicates that the site was officially protected. The Persian Wars which saw the destruction of the existing temples and public buildings of the archaic Agora led to the development on the same site of the classical Agora from the mid fifth century onward. Its most complete development occurred in the Roman period when all its major buildings had been erected. 19 The plan of the Agora of Athens as it appeared in the 200 A.D. (Figure X) shows a fairly large central open space of approximately six acres. The Panathenaic Way led

17 Ibid.
18 Ibid., p. 55
19 Ibid., pp. 55-58.
through the square to the Acropolis; other major streets also came
together at this core of the city. The area about the Agora was
developed extremely densely. The streets were irregular, narrow,
and dirty. Only such public open space as the Agora, Acropolis, and
the "gymnasia", gave relief from the crowded quarters of Athens.
This tended to increase the necessity and hence the value of the Agora
as a pedestrian precinct in full open air. The result was a very strong
relationship of the Agora to the physical structure of Athens. A large
auditorium — the Odeon, built by Agrippa in the first century A. D.,
and the Temple of Ares (rebuilt circa 100 A. D. in the position on the
plan) broke the space up to make the Athenian Agora a grouped square.
Before the erection of this temple and the Odeon, the Agora surrounded
by the Stoai of Attalos, Poikile, Hermes, and Zeus Eleutherios, plus
the Tholos, Metroan, Bouleterion, and the Middle Stoa, formed a
closed quadrangle with four major streets entering at the corners. A
continuous view through the Agora was not possible due to groves of
trees, and the erection of these internal buildings, beginning with the
Middle Stoa (circa 150 B.C.). The Athenian Agora evolved slowly
without a preconceived plan. Its continuous change permitted a liberal
adaptation to alterations of function. Hence at any given period the
form and internal development of the Agora was a reflection of its social
function.
Lewis Mumford says of the Agora that "Its oldest and most persistent function was that of a communal meeting place." He goes on to relate a Homeric description to this meeting place function. In an image from Achille's shield in *The Iliad* Homer speaks of a "place of assembly" where the inhabitants of a town have gathered to hold a public trial. This governmental utilization of the Agora seems to have preceded any functions of commerce, religion or even leisure. In his book *The Nature of Cities*, Hilberseimer not only affirms the political aspect of the Greek Square, he also emphatically excludes the commercial aspect. He writes:

It was believed that the Agora was also a market place. This is not true. There were markets in Greek cities, but not on the Agora. The Agora was a political meeting place for the discussion of public affairs and a gathering place for the free men of the city. From it, Aristotle remarks, "all trade should be excluded and no mechanic, husbandman, or any such person allowed to enter unless he be summoned by the magistrates."

But Hilberseimer's opinion is not supported by most historians or archaeologist. (i.e. Hackett, Zucker, Mumford, Hamlin, Hiorns).

The Agora was a strong symbol of the political life of the "polis" and it gained a special distinction among the citizens, this would in part

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account for Aristotle's advocating the exclusion of manual labourers and the lower classes from being present. This semi-religious sanctity of the Agora was connected with the idea of the "polis" as a
form of community. Hilberseimer describes this connection:

So far as we know, the Polis was the result of the process of synoecism; the condensation of a clan into a city. In its territory no other independent community was allowed to exist. Synoecism involved a corporate decision to live together politically which had as its corollary the abolition of local governments in favor of one. The seat of the new unified government might be at a place selected from among those already in existence; or it might be newly founded as the center for the government which had just come into being. Here was the Agora, the government offices, the gymnasia, the theater, the fountain with flowing water. People might still be allowed to live in their old villages, but their rights and obligations now had to be exercised in the Polis.  

The Agora as a symbol of the "polis" was further reinforced by the common practice of consecrating the "prytaneum" or city hall as it may be called to Hestia whose sacred fire represented the home of the "polis."  

The formal gathering of the popular assembly occurred in this prime open space not on the nearby Athenian Acropolis where the mundane transaction of civic affairs was below the dignity of this religious site. (The acropolis of Greek cities was the fortified hill which had been a royal place with temples and palace). The business of legislation, jurisprudence, administration, and other formal civic

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23 Ibid.,

functions were proper functions for the Agora. The numerous magistrates of the city had a working area in the south-west of the Agora called 'the offices'; an important court the Heleaeae met here; the Areopagus, the highest Athenian law court met in the Royal Stoa of the Agora. These courts were closely allied to the political life of the city. The political activities and all the informal discussion, lobbying and electioneering connected with secular democratic government focused on the open areas, council building, and "city hall" of the Agora.

In the fresh air of the summer heat or the warming sun of the winter, citizens gathered daily for talk with friends and acquaintances as well as strangers to the city. This common person to person social communication should not be underrated, for, in a civilization without technological advantages to speed the news of world and community, direct contact was necessary for by far the greater proportion of communication. Lewis Mumford writes of the ancient Greek Agora:

The Agora was above all a place for palaver; and there is probably no urban market place where the interchange of news and opinions did not, at least in the part, play almost as important a part as the interchange of goods.

As the trade and commerce between cities and colonies expanded the commercial function of the Agora as an open air market place also grew. All manner of agricultural produce and manufactured articles were sold

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25 Wycherley, op. cit. p. 65.
26 Mumford, op. cit., p. 149.
from temporary stalls set up in the Agora from at least the fifth
century B.C. Officials called 'agoronomoi' supervised the selling
to ensure fair dealing; there were also inspectors of grain, weights
and measures. They called 'agoronomoi' supervised the selling
to ensure fair dealing; there were also inspectors of grain, weights
and measures. 27 Many craftsmen were located in simple buildings
along streets which specialized in the production of certain goods but
people with merchandise for sale on a less frequent basis without the
need of a permanent shop could be accommodated within the Agora or
one of the "stoai" bordering it. The largest and most important of
these was the Stoa of Attalos, named after King Attalos of Pergamon
(159-138 B.C.) who contributed the cost of its construction. The two
floored structure contained twenty-one shops but the greatest amount
of its floor space was for promenading; it afforded a good view of
processions. 28 Kimon, an Athenian statesman, (circa 450 B.C.),
had adorned the Agora with groves of plane trees, which provided good
cover from the summer sun for men who gathered to talk of philosophy
and such matters, but it was the stoa which gave its name to the
philosophic school of Zeno who taught under the colonnades as did
Socrates and other early philosophers. 29 For both consumer and vendor
the "stoai" were a more pleasant location than the overcrowded maze
of narrow irregular streets which lacked the advantage of air and sun

27 Wycherley, op. cit., p. 66.
28 Homer A. Thompson, "The Agora at Athens and the Greek
Market Place," Journal of the Society of Architectural Historians,
29 Ibid., pp. 9-11.
to cleanse the constant cooking odors and other smells and the threat of disease from improper sanitation.

Before more specialized locations were established athletic and dramatic presentations centered on the Agora; but this was before the great period of fifth century Athens and held little significance to the functions of the Agora from that time onward.

This great open square, the heart of classical Greek cities combined in one location the political, religious, and commercial character of a city, and the ethos of a nation. It was itself no architectural triumph, even though the glory of the Periclean Acropolis was in nearby view as an example of aesthetic genius. More important, it was a successful urban open space for the daily social interactions of Athenians involved in a great variety of community affairs. The physical development, of this Agora, like others in old cities of the time such as Corinth, Aesos, and Elia, is a Greek proto-type of square. It evolved slowly without a preconceived plan. The placement of each new building further enclosed its form along an irregular geometric ground plan. Its multiple functions were accommodated within a non-specialized community area.

C. Miletian Agora -- the 'new' type

The Hippodamic grid system of streets that originated in Ionia became the dominant "new town" pattern from the fifth century B.C. on
through to the Roman period. Hippodamus,* best known city planner of his time, formalized the Agora by setting aside specific areas for it in the rectangular blocks of land created by the new system. The following development of the Agora was hence regularized as an easily classified geometric open space which is the "new" type of Agora explained below in the example of the Ionian city of Miletus.**

The form of the Miletian Agora is that of a grouped square with a north and south section which are linked by the "bouleuterion," a theatre and a colonnaded walk. The northern section was developed first with the erection of a long stoa facing the harbour. It served the maritime needs of this port city and concentrated mercantile activity in this section. This stoa was the first architecturally important structure

*The most famous personality in Greek town planning, Hippodamus, was a Milesian.... We can be sure that he planned Peiraeus for the Athenians towards the middle of the fifth century. As a young man he had experience at the rebuilding of his own city before he brought the new ideas to Athens. We cannot doubt that he used the rectangular plan; ... it is reasonable to suppose that the methods which seem to have been normal in his own time and the fourth century were those of the most notable exponent of Greek town-planning. Not that he invented them or was the first to use them in Greece -- more probably he developed them and made them more widely known.... Reference to his 'allocation' of ground may point to the fact that he showed real ingenuity in arranging his cities and allotting sections for different purposes. (R.W. Wycherley How the Greeks Built Cities. London, MacMillan and Co. Ltd., 1962, p.17-18.

**Miletus was destroyed by the Persians in 494 B.C., and was refounded in 479 after the Greek defeat of the Persians. This rebuilding followed the Hippodamic system. ( R.H. Wycherley. How the Greeks Built Cities. London, MacMillan & Co. Ltd., 1962, second edition, page 18.
Miletus and its Agora from Hiorns, *Town Building in History.*

**FIGURE XII**
adjoining the Agora; Wycherley dates it at the end of the fourth century. A structure, built on a two block site, which was probably the prytaneum formed the western side of the north Agora. A temple and a horseshoe shaped colonnade were added later to complete the northern enclosure.

The north section of the Agora is made from a rectangular open central area bounded by three open colonnaded stoas; two of these are L shaped, all conform to the rectilinear pattern of the street system. This section was for recreation, general purposes, and commercial activity not directly associated with marine activity.

The square is regular, and formal, but it does not have axial symmetry; this was a development to come later, in the Hellenistic and Roman periods.

The functions of this Agora were like those in Athens and other Greek communities. It is worth noting that here again, four aspects of the community are brought together in one location in a cross-section of the social life of the city; these are the religion, the politics, the economics, and the leisure activities.

From Figure XII the place of the square relative to the physical structure of Miletus is observed. It is in a central position "comparatively low-lying and flat" with numerous streets of the grid leading to it.

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Ibid., p. 70.
It was not only in the urban core, it was the urban core and hence was the point of greatest concentration of pedestrian activity. Of the developed land of Miletus, this was the largest public open space. In contrast to the streets of the city it represented a very great expansion of the volume of space. It is not known whether or not the actual development adhered to a preconceived plan; the area was set aside from the initial period of redevelopment and was then preserved until needed; also, each succeeding architect, who erected a building as part of the Agora complex, was careful to orient the new structure to the rectilinear checkerboard system. The colonnades, temples, and civic government buildings were in the Greek classical tradition of aesthetics—moderation, simplicity, dignity, and clarity of form. The Hippodamic plan and hence its closed square spread wherever Hellenistic civilization was the conqueror. It received common expression in the continuous open arcade which was especially prevalent in the Hellenistic era. Here perspective became a featured note in civic design, set off by the wider streets now axially aligned with the Agora. The wider streets and larger spaces were in part an answer to the greater scale of buildings which by this time, (circa third century B.C.) were commonly two or three stories in height. But the continuous façade of equal height and repeated columns gained in grandeur at the price of dullness.

31 Ibid., p. 19.
In western culture, the public square is of Greek or Minoan invention. Its earliest function was as a public meeting place. This expanded to include casual social gatherings, formal political meetings such as councils, committees, courts of law, and civic administration, a centre for certain religious buildings, processions and ceremonies, a market place, a site for organized sports activity, a centre for theatrical production, for artistic display, for commemorative monuments. Homer Thompson writes:

The public buildings . . . combined with monuments that eventually stood in groves within the square, made of the Agora a national art gallery freely open to all men at all times.\(^{32}\)

The public squares of Ancient Greece may be divided into two classes: those which were conceived and constructed as a planned formal architectural space such as in Miletus, and those which formed slowly about a conserved open space without a consistent or simple geometric enclosed space. These two types will be found repeatedly in the history of squares.

Within the context of the total urban pattern the Agora was located within the core and was in fact the focus of urban life. It was originally the only developed open space of significant size (other than the acropolis) within the man-made cityscape. In proportion to the roads which gave access to it and through the surrounding built up area,

\(^{32}\)Thompson, op. cit. p. 9.
the Agora was a great volumetric expansion of space. It adapted well to the Mediterranean climate by providing a space for sunshine in the winter months and space for circulation of cooling breezes from the sea in the heat of summer. As the general physical working conditions and living spaces of the streets were far from amenable, the Agora served as an outdoor casual social center for the city. The principle Agora of a Greek city was a closed square in form; it was a multiple function square with special emphasis on government, religion, commerce, and leisure.

IV. FORUM

W. S. Davis, the historian, wrote that the Roman Forum had "become the common center and crucible for everything good and bad in the huge, teeming Mediterranean World." The now hackneyed phrase "all roads lead to Rome" could be amended to read, "all roads lead to the Forum Romanum — the principle square of the ancient city. The convergence at this point of the traffic routes of the Empire is recorded on a gilded stone pillar called the "Golden Milestone" which is set up in the Forum. On it was inscribed the names of the main highways leaving Rome and the distances from the Forum to the chief points along

the way. The Forum was considered "Mile O" for the Roman World; it was the hub.

The territorial expansion of Rome from the beginning of the Punic Wars in 264 B.C., through the period of the Empire, (proclaimed by Augustus in 27 B.C.) lead to the establishment of Rome as the political, economic, military, and cultural centre of a vast Mediterranean based society. The city came to expect and to receive physical embellishment to match and contribute to its prestige. The Forum Romanum and later adjacent fora were prime foci within the city of this international prestige. Their integration with the total sphere of urban and state activities was an extension in spatial organization, in architectural styles, and in social function, of the idea of the public square, initiated in the Aegean.

The discussion here of the Forum Romanum, and the Imperial Fora, is taken from the period 117 A.D. to 138 A.D. in the reign of Hadrian, during the "Pax Romana" when the development of the squares was essentially complete.

A. The Forum Romanum

Rome is traditionally reported to have been founded by the union of several tribes in the eighth century B.C. This union was symbolized by the establishment of a common market place and assembly
which was sanctified with a temple. Thus from its very beginning Rome was constituted about its main square, the Forum Romanum with institutions of government, religion, and commerce.

In imperial times this was an irregularly shaped closed square with approximate dimensions of one hundred and fifty feet by three hundred feet. The site was an area of drained swampland (which had been used as a burial ground) between the Capitoline, Esquiline, and Palatine hills. These hills and the buildings on them emphasized the enclosed character of the square. Although the ends of the Forum presented a confused architectural wall due to the non-aligned building fronts and heights, the sides of the Forum, (along its length) had a strong simple rhythm of almost matching arched façades of two basilicas approximately forty feet high. The Forum Romanum contained certain sites which were sacred and could not be altered or built upon. These considerations strongly affected the layout of the square and the evolution of its development. A longitudinal axis did develop between the Rostra and the Templum Divi Julii, (Figure XIII).

The land uses adjoining the Forum are indicated on the map of its ground plan. These are: the Basilica Aemilia, a court house dating from as early as 179 B.C.; the "Curia," the Senate house; the Basilica Julia, another court house, six temples, Carcer Tullianum, a prison;  

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Mumford, op.cit., p. 221
FIGURE XIII

the Tabularium, the public record office; and entering streets of which the principle one is the "Angiletum" between the Curia and Basilica Aemilia. The basilicas were much more than court houses, and the temples were more than religious buildings. The way in which these generated activity is discussed as a social function of the Forum.

The internal development of the Forum included sculpture, triumphal arches, a speakers platform, altars, and a paved surface of Travertine. There were no tree shaded, or planted areas.
The Forum was a popular site for the erection of commemorative monuments to deities and national heroes. (The number of these became so great that as early as 158 B.C. the censors ordered the removal of all statues not put up by the government.\(^\text{35}\)) The most prominent sculptures were the eight columns, each mounted with a figure, which ran parallel to the Basilica Julia. Triumphal arches marked the military victories of Severus, (not erected until 211 A.D. but noted here for clarification), Augustus, and Tiberius. Davis wrote:

> At every turn one sees these triumphs of bronze and marble, Apollos, Minervas, Victories, Winged Mercuries, Centaurs, Homeric Heroes, and all the legendary host of Graeco-Roman mythology. . . . Interspersed with these gods are the honorary statues of the worthies of Rome.

> . . . A mere walk about the fora with an explanation of their portrait statues becomes therefore a detailed lesson in Roman history.\(^\text{36}\)

The sculpture had an educational function in addition to its more obvious decorative purpose.

The sculptured altar located near the centre of the Forum was dedicated to a Roman youth Lacus Curtius of disputed fame but commonly revered.\(^\text{37}\) This altar was a very strong visual element among the


\(^\text{36}\) Davis, *op. cit.*, p.259

\(^\text{37}\) Ibid., p. 272
internal furnishings.

The speakers platform and funeral pyre situated at the north west end of the square was known as the "Rostra" after the custom of setting up the prows of captured ships here.* A marble balustrade with bronze statues of such famous Romans as Sulla and Pompeius fronts the elaborate platform. 38

The relationship of the Forum Romanum to the city and the vicinity is especially important. The vicinity of the Forum was the central business district of the city. The street leading into it were crowded with a variety of commercial enterprises. The district was in addition the financial, religious, judicial, legislative and principle informal leisure centre for the city.

Rome was very densely populated. Davis has computed the population at 134 A.D. to be approximately 1,500,000 persons, other estimations go as high as 2,000,000. 39 The city was congested in living and working areas; in this context the Forum was an oasis of open space, crowded only with people. Several authors describe the general physical character of the streets of Rome. Ludwig Friedlander, in his work Roman Life and Manners notes building frontage heights of

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38 Ibid., p. 269.
39 Ibid., p. 4.

*"Rostrum": beak, part of the prow of ancient ships. The "Rostra" of the Forum became associated with its location at the speakers platform; the English usage is derived from this association.
seventy feet in Augustan times, with a street width of only thirteen and one half feet on the fashionable Vicus Tuscus. Davis notes that balconies were permitted to stretch over the street so much that "neighbours can sometimes touch hands." Mercury Street (which Davis uses as a typical example) is fifteen feet wide from house to house and is comparatively dark due to houses rising thirty or forty feet over this narrow expanse. No space was provided between buildings and alleys were only a few feet wide. The streets were so crowded in the day with every type of commercial and light manufacturing activity that passage of vehicles was not possible and the use of horses and wagons was largely prohibited in hours of daylight. This omnipresent condition of narrow, crowded, and dark streets, greatly enhanced the value of the bright, broad expanse of public open space of theatres, arenas, gardens, and for casual everyday use - the Forum. Until the time of Julius Caesar, the Forum was the only great square within the city to meet this need.

The physical need for an open space, the numerous facilities of the Forum, and the surrounding major commercial area resulted in a

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41 Davis, *op. cit.*, p. 18
42 Ibid., p. 18.
43 Ibid., p. 4.
large and regular volume of people to make use of the square.

The Forum Romanum was a physical expression of the law, justice, conquest, power, peace, and ideals of the Empire. It was a multiple function public square whose plastic beauty, and spatial grandeur obscured the prevalent character of the city. Mumford writes:

Here, then, the new Rome of aggressive fact and reality, the Rome of looting soldiers cringing slaves, and crass land speculators was concealed beneath the toga of the traditional Rome of patriotic aspiration and Stoic dream. Who could doubt here the reality of that ideal Rome, under whose en-folding law and peace, order was order, justice was justice, efficiency was efficiency . . . . In the Forum, one might remember, without ironic reserves, indeed with honest admiration, the moral meditations and the duty bound activities of a Cicero or a Marcus Aurelius. Here, too one might easily forget the stinking pits of the carnarium or the orgy of torture that daily took place in the nearby arenas. 44

Mumford's choice of words powerfully creates an image of depravity and decay that may be overzealous even though effective. The uses of the Forum that contribute to the ideal and the fact are discussed below.

The Forum began as a public assembly and market place. On the area of the "Forum" known as the "comitium" the popular assembly held its meetings. When the assembly grew too large to meet here Julius Caesar established a new assembly area on the "Campus Martius." This made way for the construction at the Comitium site of

44 Mumford, op. cit., p. 223.
a new senate house the "Curia Julia." Roman Senators went to the Curia almost daily. It was the custom that they be accompanied to the Forum by a retinue of "clients" who greeted their patron at his house each morning, received their dole, and instructions, and aided the Senator in the difficult journey to the Forum. With the elite citizens, the senators, came the knights, the plebians, the freed men and the slaves. Concerning this daily journey Davis writes:

... if the great men do this, all the lesser fry and above all the genteel idlers must do the same. The women frequent the fora almost as much as the men do.

... all the fora are allowed to be overrun with idlers. Ragged boys are scampering between the columns fronting the most sacred temples, and on the steps of the same adult idlers from morn 'till eve are playing "Robbers" . . . (a game) . . . or rattling dice. . . . The foul and the elegant are often in amazing juxtaposition.

"Going to the Forum" means visiting any place in this crowded swarming district, where every public and private interest seems to have its stronghold, and where litters of Senators go past so frequently that nobody stops to count them. 45

But it was not just to catch the reflection of the upper classes that the people flocked here. The court houses -- the Basilica Aemilia, and the Basilica Julia were important business centers as well as being law courts. Their open colonnaded interiors provided ample lounging space in bad weather. Municipal officials and clerks had their offices here.

45 Davis, op cit., p. 223.
They were pleasant meeting places. The temples of the Forum were not only religious buildings; the Temple of Castor was a storage place where money and jewels etc., could be safely stored for a small fee. Next to the Temple of Castor, the House of Vesta was sacrosanct and an important place for the safekeeping of important documents.  

From the Rostra orators try to sway public opinion, and the Emperors occasionally addressed the people. Formal public functions occurred at this point. The Forum was a necessary place for anyone to visit who wished to learn the latest news. Official and private notices called "albums" were set up. The "Acta Diurna" were notices and news items reported on boards placed about columns. People gathered about the boards to recopy the news and read it. New notices of local, foreign, and private events were continuously put out. Copies of the news were sent to cities throughout the Empire. Davis writes, "whether you wish to know the price of grain or the day set for a lawsuit; whether Syphax the Moor will race his four in the next circus, or Epaphroditus the Athenian will lecture tomorrow on the nature of the soul, the Forum placards will tell you everything." The Forum thus served the function of a communication center -- the daily newspaper.

As a market for meat and vegetables the Forum eventually proved inadequate and in 318 B.C. this function was moved to other nearby

46 Ibid., p. 231.
47 Ibid., pp. 268-269.
locations. This provided space for the establishment of facilities in
the Forum for bankers and moneychangers.

With the transfer of power from the people and senate to the
emperors the Forum declined as a focus of actual political strength
though impressive edifices continued to embellish the site. Figure XIV
below is an artists conception of the Forum in Imperial times.

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The combination of government buildings, religious institutions, and financial offices created a concentration of varied activities. The common man came to basque in the amenity of the great open space; men of finance and government came for their day to day business; all citizens came to watch and be part of the festivities of military triumphs; six temples in the Forum were a spiritual focus; visitors from the Empire and beyond would seek out (as tourists still do) this heart of empire; and the curious interest seeking of all groups would hear the news and gossip, and "rub shoulders" with their counterparts.

The Forum Romanum was a small square relative to its significance to the city. The information available about it from the literature of the day and from numerous secondary sources suggests that it was a magnificent symbol of a civilization; it was a junction for numerous influences on the life of a state and its people; the casual affairs of each day found this a suitable activity centre; the lavish spectacles of a world empire were acted out in this open air theatre-in-the-round.

B. Imperial Fora

The Imperial Fora of Rome were built north east of the Forum Romanum between the Capitoline, Quirinal, and Esquiline Hills. Each one has its own form, but considered as a unit they are grouped squares and include: The Forum of Caesar, Forum of Augustus, Forum
of Nerva (also called Forum Transitorium). Forum of Peace, and the Forum of Trajan. Each of these squares was built according to a plan. Peter H. von Blanckenhagen notes in his article "The Imperial Fora" that the construction of each succeeding Forum took into account the plan of the others and was then related to them. 49 This is especially evident on examining the plan of the Imperial Fora (Figure V.) Each square has axial symmetry, and the axis of each one is either parallel or perpendicular to the other. These fora are dominated by a temple, excepting the Forum of Trajan which is dominated a basilica. The Imperial Fora are, taken individually, closed, regular geometric squares. 

The "Forum Julium Caesaris" was built in 48 B.C. and is dedicated to Venus. Unlike the earlier Greek squares of the Hippodamic system, it is a long rectangle and the temple facade forms one end; a portico of double columns forms the sides. Davis says that Julius Caesar paid out 100,000,000 sesterces for the land, that it was sometimes used for Senate meetings, and that "the shops under the porticoes around are among the finest in Rome." 50

50 Davis, op. cit. p. 277.
Caesar built his forum as the result of a vow at the battle of Pharsalus; similarly several years before in 42 B.C. Augustus (then Octavius) had promised a temple to Mars the Avenger. The result was a temple with the Forum of Augustus before it. This square had a colonnade at each side before an apse. There were no shops in the colonnades but van Blanckenhagen states that recitals and lectures took place in these apses, and in the central area of the square important ceremonies took place, (i.e. magistrates received new offices; the "toga virilis" was bestowed upon princes of the imperial family; and the senate voted on matters of war and peace); works of art decorated the plaza.  

The Forum of Peace, known after the fourth century as the Forum of Vespasian, was internally developed as a formal garden; (this is the first instance in the history of squares that the author has noted this to occur). This forum contained libraries; was a kind of museum; had no known political or official functions; and was dedicated to Peace. Its form was a closed colonnaded square; in plan this forum is sometimes shown as rectangular, and sometimes as square.

The Forum of Nerva was a great mall. It was built in the first century A.D.; and includes a temple to Minerva. It not only acts as a link to the Forum of Augustus and Forum of Peace, but provides a grand entrance to the Forum Romanum through the Angiletum.

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51 Ibid., p. 22.
52 Ibid.,
The Forum of Trajan is the latest and most complex of the Imperial Fora. It is itself a grouped square of three parts, each aesthetically united by a single longitudinal axis, and the Column of Trajan which towers 128 feet. In the centre of the first of this grouped series is an equestrian statue of Trajan; beyond this is the Basilica Ulpia, the last great law court of the city. On either side of Trajan's column are the "Bibliothecae," public libraries: one for Greek works, the other for Latin. At the extreme end of the Forum is the Temple of Trajan. Behind the Forum were colonnaded streets on a hill slope; this area was the Mercati Troiani.

The Imperial Fora demonstrate characteristics of Roman squares that are typical of Roman civic design. There is a strong preference for axial symmetry, the squares are each a closed geometric shape, usually a long rectangle in plan. A colonnade along each side and a temple at the one end was common. Although closed in form, these squares are each dominated and oriented to a temple. The Imperial Fora are not multiple function squares; they are either internal function (e.g. Forum of Peace) or associated function (e.g. Forum of Nerva). There is no question that in social function, the Forum Romanum had a greater relationship to the city than the Imperial Fora. Their somewhat sterile design, lacks the spontaneity of the Forum. Certainly the scale, and spatial control within the Fora exemplified the precision and grandeur of this Roman

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53 Ibid., p. 23.
conception, but there seems to be non-concern for a "human" scale.

C. The Forum in Towns

Applied to cities and towns throughout the Empire the forum proved an adequate civic center of government and religious institutions. They could be built according to varying degrees of size of space needed according to the urban population to be served and the combination of functions intended. A formula for this is prescribed by the Augustan architect and author Marcus Vitruvius Pollio, whose *Ten Books on Architecture* is the one surviving treatise on classical architecture, and has made him the best known, though certainly not the best, of ancient Roman builders. On the subject of squares, Vitruvius had the following comments:

The Greeks lay out their forums in the form of a square surrounded by very spacious double colonnades, adorn them with columns set very closely together, and with entablatures of stone or marble, and construct walks above in the upper story. But in the cities of Italy the same method cannot be followed, for the reason that it is a custom handed down from our ancestors that gladiatorial shows should be given in the forum. Therefore let the intercolumniations around the place be pretty wide; round about in the colonnades put the bankers' offices; and have balconies on the upper floor properly arranged so as to be convenient, and to bring in some revenue.

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55 Ibid., p.131
The size of a forum should be proportionate to the number of inhabitants, so that it may not be too small a space to be useful, nor look like a desert waste for lack of population. . . . To determine its breadth, divide its length into three parts and assign two of them to the breadth. Its shape will then be oblong, and its ground plan conveniently suited to the conditions of shows. 56

Vitruvius's guide to builders of squares, is far from being comprehensive, but it is a useful insight to Roman concern for form, land use, and a dependency of the square upon the community it serves.

The "Forum of Pompeii" (Figure XV), is typical in layout and style of the public squares found throughout the provinces and Empire. The inner open space is surrounded by a colonnade; monuments decorate the paved open space; the temple of Jupiter raised above ground level is the dominating structure, while other temples and basilicae are located at the sides and at the opposite end; a public market place is found just off the square; and municipal offices are provided in the surrounding buildings, and the major roads of the city provide access to the principle public open space. Municipal government, state religion commerce, and public life are thus given a special site where they may combine in one open space to form a whole of numerous community aspects and interests.

56 Ibid., p.132
Forum of Pompeii from Sitte,

City Planning According to Artistic Principles

FIGURE XV
V. PARVIS AND GRANDE PLACE

The period in European civilization when cities and towns rise again from the "dark-ages," circa 900 A.D., until the "High Renaissance" (which, taken for the purpose of this study begins circa 1500), may be termed the Medievo-Renaissance. This five hundred years of the retrenchment of urbanism can only be sketched very lightly in this study. In this section, it is discussed under the sub-topics of: the origins of towns in the middle ages; the general physical character of the cities; the types of public squares in the medievo-renaissance community; and a general discussion of one major square of the time.

A. Origins of Towns

The location, the form, and the uses of adjoining lands, and the functions of squares in the medievo-renaissance period is influenced, by the origin of any given community. Zucker outlines four categories which are described below: 57

1. Towns developed "from existing Roman cities, preserving the old plan in the scheme of their reconstructed streets." 58

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58 Ibid., p. 67.
communities the Roman gridiron pattern of streets may remain intact, but the forum no longer exists, having lost its function in centuries of disuse; it is usually built over, providing ground space for a whole new block of structures -- very often a church. As a square, the ancient forum is no longer recognizable in medieval cities. Examples are found throughout the Roman world in such cities as Florence, Turin, Nantes, Mainz and Winchester.  

2. Towns developed "around existing castles, monastries, or independent church structures, their local immunity areas becoming the nucleus of later expansion." Communities which grew around the established location of a church, a monastery, or a castle, on account of the sanctuary of the place, or the safety behind the walls, usually had an irregular market square on secular ground alongside the eclesiastical site, or beside a castle. As these towns expanded the castle, or religious complex continued to dominate the structure of the settlement. The square in these cases is always beyond the immunity area of the church, or outside the stronghold. This is the basis of a characteristic medieval development -- two different and separate major squares in a community. The one a parvis, always in direct conjunction with the church, and so reflecting the spiritual world of man; the other, a market square, a short

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59 Ibid., pp. 67-68.
60 Ibid., pp. 67.
distance away from the church, the home of commerce, of secular man.

This type of settlement was not planned; the layout was irregular, and non-geometric. The market place was often a widening in the major street which lead to the visually dominating element of the community -- the church, or castle. Examples of towns of this type of origin were common from 800-1000 A.D. in France, Germany, England, and Low Countries, i.e. St. Denis, St. Gall, Lübeck, and Mont St. Michel.

3. Towns developed out of favourably located trading posts at crossroads, or at a river ford, a harbour, or a bay, etc. The nobility and bishops granted privileges for the establishment, government, constitution, and expansion of secular settlements at important trade points. The economic impetus for urban growth was especially strong in the twelfth and thirteenth centuries when commercial groups such as the Hanseatic League were prominent in town development. Towns of this transportation function origin usually had a market develop at an expansion of the main street, which was in these cases usually a major traffic route along which the settlement had grown. Towns of this type of origin include Heidelberg and Main.

4. Towns developed "as newly founded and organized communities." The "bastides" and "villes neuves" of France and Great Britain, and the

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61 Ibid., pp. 69-71.
62 Ibid., p. 66.
63 Ibid., p. 67.
German fortress towns of the Teutonic Knights represent a new planned settlement type, whose prime development motive was related to politics, defense, or missions. A formal rectilinear street pattern, with right-angled intersections was the common feature. The street system focused on a central square; sometimes there were two squares. The "bastides" were strongly fortified with walls and towers, while the civil defence of the "ville neuve" usually was dependent upon a fortified church, or a castle, each within the town site. Examples of these medieval "new-towns" of the frontiers are Monpazier, Carcassone, Marienburg, and Carnarvon. Frederick Hiorns says that the bastides represent a "reform movement in planning. A determined effort was being made in both France and England, to follow classical precedent in so far as it was understood."

B. General Physical Character of Towns

The single most striking characteristic of towns and cities in the middle ages of western civilization; (and often enduring up to modern times), is the wall. Within it the community was sheltered, and limited by this most obvious and physical settlement boundary. Beyond the wall, and in sharp contrast to the area within, lay the agricultural lands, the forests, and the undeveloped and unprotected countryside. Ramps, moats, and high towers impressed the image of the wall on the community --

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creating a sanctuary for commerce and industry, for the arts, for the church, for homelife, indeed for all aspects of "community."

The wall determined the size of a town, being extended only two or perhaps three times over a course of several centuries. When changes in the size of a town did occur, through the extension of a wall, it was, Hiorns writes, "always deliberately arranged for in accord with a reasoned method," and it was the general practice to create new towns rather than increase the size of the existing settlements. * This caused a fairly constant population in most settlements.

The internal structure of the walled town was a development from three critical factors. First, entrance to the community was gained through a few gates in the wall; second, the approximate geographical centre of a town was usually a square; third, the network of principal streets lead like spokes, in a fairly direct manner, from the town gates to the central square. This is shown in Guicciardini's map of Medieval Brussels, where the Grand 'Place is the focal point of the city. (Figure XVI). Also shown in the map is the general tendency to create a radial-concentric layout where the blocks of land and the resultant street pattern are curvilinear rather than rectilinear. Furthermore, the street pattern tended to be very rationally adapted to the contour of the site, as was the general shape of the settlement. Concerning this aspect of medieval planning, Hiorns writes:

*Ibid., p. 83.*
It was a major contribution of the middle ages to the modern world, the example of elasticity of arrangement that, without setting aside the traditional essentials of disposition, based town design upon the problems to be solved and the merits of the case. . . . Generally, . . . the logic of contouring and the advantageous use of existing physical features determined the outline of towns, as is especially noticeable on hillsides. 66

FIGURE XVI

MEDIEVAL BRUSSELS
From Ludovico Guicciardini's "Tutti i Paesi Bassi" (1581)

from Hiorns
Town-Building In History

66 Ibid., pp. 88-89.
Streets in the Medievo-Renaissance community had a different function and form from the post-renaissance conception. They were communication routes for pedestrians and were narrow, often irregular, usually with numerous sharp turns, and frequently leading to a "dead-end." In this pedestrian age, vehicular traffic was slight, and that was mainly carts. This was the great difference from urban design of later dates when streets were conceived predominately as routes for vehicular traffic. In northern cities, the narrow winding streets broke the force of cold winter winds; in the south, the narrow streets created shade from the burning summer sun. The streets were communication systems; the buildings and the square were the activity centres.

The place of the church (that is the physical structure) may not be omitted as the great centre of medieval life. It was a regular, and continuous magnet for travellers and townspeople and was much more than a place of worship. Mumford writes:

One must think of the church, indeed as one would think of a 'community center': not too holy to serve as a dining hall for a great festival, as a theatre for a religious play, as a forum where the scholars in church schools might stage oratorical contests and learned disputes on a holiday, or even, in the early days, as a safe-deposit vault, behind whose high altar deeds or treasures might be deposited, safe from all but the incorrigibly wicked. ⁶⁷

Other buildings of special note in the medieval community were the Town Hall, and the guild halls. These were commonly adjoining the 'great square', but the guild halls may be dispersed throughout the trade areas.

In less regular communities, these trade areas are observed, by Mumford, to be self-contained quarters or islands of groups of trades, without relationship to the street system. 69 This was a kind of zoning and neighbourhood structure where working and living quarters, and daily needs were met in an urban precinct which was devoted to a particular trade, or industry. This was especially the situation in Venice where small islands in the lagoon exaggerated and facilitated functional zones. Mumford writes:

Venetians no doubt inadvertently invented a new type of city, based on the differentiation and zoning of urban functions, separated by traffic ways and open spaces. This was zoning on the grandest scale, practiced in a rational manner, which recognized the integrity of neighbourhoods and which minimized the wasteful "journey to work." 70

Separate churches and market squares served each of the districts or quarters while functions relating to the whole community were met in the civic centre complex about the Piazza and Piazzetta of San Marco. 71

The medieval community's physical structure was then characterized by circumvallation, by narrow irregular streets leading to a generally central square located near a principle church, and town hall. The church and its parvis were for spiritual focus; the market square, town hall and guild halls were for the secular needs of corporate life.

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69 Ibid., p. 308
70 Ibid., p. 323
71 In Venice, another focus for the whole city is at the Rialto Bridge where important ceremonies have traditionally been held. (Discussion with Dr. A. Rogatnick; at Vancouver, May 1968)
C. General types of squares

There were several general types of squares of the middle ages which may be mentioned. These are:

1. The "parvis," the small square before a church,
2. The square at the gate of a town, usually an amorphous space, triangular in plan,
3. The broadening of a main street,
4. The market square,
5. Grouped squares,
6. The central multiple function square, often called 'piazza grande,' 'piazza maggiore' or 'grande place.'

The forms of squares in this period are broad and often combine in one square, several of the classifications described in Section 1. of this chapter. Squares that are in towns of a slow, elastic, evolutionary development tend to be irregular in ground plan with several obtuse and acute angles. Squares were usually flat, paved, and contained a fountain or statue as a nuclear element. Often a church or city hall dominated the space. The complete architectural surrounding of the space excepting irregularly positioned access routes created informal enclosed squares. In numerous instances, especially in the northern countries, a church or town hall was built in the centre of an open space that was developed as a square; this created a grouping of squares about a dominant central element. Examples of these are shown below in
Fig. 26. Parma. I. Piazza della Stecata.—
II. Piazza Grande (Garibaldi).—a. Palazzo Comunale (del Governatore).—b. Madonna della Stecata.—c. Palazzo della Podestà (del Municipio)

Grouped squares, also closed and dominated.

Fig. 23. Pistoia: Piazza del Duomo.
 —e. Palazzo del Podesta

Irregular ground plan.

Fig. 69. Hanover. I. Market place.—a. Rathaus.—b. Bourse.
 —c. Cathedral (Marienkirche)

Square with a central church.

A variety of forms of the Mediveo-Renaissance. from Sitte’s City Planning According to Artistic Principles

FIGURE XVII
Figure XVII. The variety is representative of the freedom to solve particular problems in different ways according to local site conditions.

In communities of a more regular pattern, the squares were correspondingly formal in their ground plan. The diagram of Sauveterre-de-Guienne, a "bastide", shows an equilateral, closed square, which in this case is bordered by the Town Hall (Hotel de Ville) and a church.
D. Social Functions of the Medievo-Renaissance Square

The social use of a community's multiple function square, in the medievo-renaissance was a re-establishment, on a lesser scale, of the ancient agora-forum function.

The square was the communal assembly area where citizens exercised their political rights and responsibilities, acting as a parliament or a committee, often of several hundred persons. Administrative and executive offices hence came to be located about the square, in the town hall, or the mayor's residence.

Religious processions and pageants, which were so prominent in the times, lead to the church square -- the parvis; but on many occasions this was too small and so major religious ceremonies, pageants, dramas, and festivals often culminated in the great square.

Temporary market stalls were an every day site on the square fulfilling the market function, but in larger towns and cities there were special market squares for meats, vegetables, dry goods, and hardware etc. 72

Before the establishment of theatre buildings, theatrical productions took place in the square. These were often extremely elaborate, mechanized, spectacles; they were usually under the sponsor-

72 Ibid., p. 307.
ship of a guild, and in celebration of a holiday.

The execution of both religious and secular justice was a community event, attended by the public in the square. This was the site, of the public stocks, of hanging and beheading, of the burning of heretics.

Sporting events ranging from ball games, to horse races and tournaments of feudal origin were performed in the square. The teams usually represented different guilds, or districts of the community.

The main square had a fountain. It is difficult to state that this served in the larger centres as an actual source of water, certainly in small communities, and in district squares it did. But it seems to have become a purely decorative embellishment.

Apart from all of the formal uses of the square, a most significant aspect of it was the casual meeting of people and of travellers to exchange news in casual conversation. Then as now, the tourists, in larger communities, and in many particular smaller ones, were a common source of interest — this was the great age of pilgrimages in Christendom. The occasional troubador would tell his stories and sing, the preaching monks would sermonize; the town crier would spread the news; the townspeople would participate actively or simply by their presence.
The medievo-renaissance square was a functional space for the performance of communal activities which relate to the government, religion, commerce, recreation and leisure of the day. Specific examples are outlined below to give a fuller and more detailed account using particular incidences.

E. Piazza della Signoria, Florence

The most elevated political thought and the most varied forms of human development are found united in the history of Florence, which in this sense deserves the name of the first modern state in the world. Here the whole people are busied with what in the despotic cities is the affairs of a single family. That wondrous Florentine spirit, at once keenly critical and artistically creative, was incessantly transforming the social and political condition of the state, and incessantly describing and judging the change.\textsuperscript{73}

So Jacob Burckhardt in his monumental work on the Renaissance, introduces Florence, the home of Leonardo, Michelangelo, Duccio, Donatello, Machiavelli, the Medici, Brunelleschi, Botticelli, and countless other great minds of the Renaissance. Rising to the highest position of Italian city-states from its banking and other commercial activities, the City of Florence, and its great square the Piazza della Signoria, are a fitting example to speak for an age.

In the late thirteenth century the Signoria (council) of Florence expelled the Uberti family for their activities against the city government. This was only one of a number of such incidents common in the strife

between monarchists, nobility and the people, but it is significant here because the decree of exile also brought about the razing of the Uberti palace and the order that the site should never again be built upon; on this condemned site the Piazza della Signoria was developed. Other palaces and small churches were razed to expand the square in 1319, and 1355.

The form of the Piazza is a closed square, whose limits are defined by several stone faced buildings of a fairly constant height of five or six floors. The Palazzo Vecchio (the city hall) and its towering campanile dominate the space of this L shaped square. The diagram below (Figure XIX) and the photograph, (Figure XX), give an inadequate illustration of this urban space. The three dimensional quality is quite

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**FIGURE XIX**

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75 Zucker, op. cit., p. 115.

* Figure XX, page 94.
lost as are the grand, yet human proportions of the surroundings and enclosure. The diagram illustrates a major concept of the medievo-renaissance square which Camillo Sitte places such importance on. He writes:

Each of the three or four corner streets enters the plaza at a different angle. This remarkable feature occurs so often, and with such range of variations, that it, too, must be considered to be one of the major conscious or subconscious principles of old city planning. . . . The rule in question is present, although somewhat more hidden, in the layout of the Piazza della Signoria. . . . The broad main streets conform to the principle, while the intermediate alleys narrow down to only a yard's width (next to the Loggia dei Lanzi), and are scarcely noticeable — much less in actuality than on our plan.  

The ground area of the Piazza is a flat paved area, the only significant change in elevation being the platform along the front of the Palazzo Vecchio.

The internal development is remarkably simple. The ground pavement has been mentioned. The only furnishings are a fountain and sculpture. The large sculptured fountain of Neptune by Bartolomeo Ammanati dates from 1557 and ties together the two arms of the square. Next to the Neptune, and on the Signoria platform is the Marzocco, the emblematical lion of Florence. On either side of the entrance to the Palazzo Vecchio were monumental statues, including Michelangelo's David placed in 1504, Bandinelli's Hercules and Cacus, placed in 1534.

and Donatello's Judith. A statue of Cosimo de Medici by Giovanni da
Bologna marks off the square into two rectangular areas. Concerning the
relevance of these internal sculptural placements Zucker writes:

The angular form of that area, into which streets from all
sides and in different directions cut, was not alien to
medieval feelings, but it was completely contrary to every­
thing in which the Renaissance believed. During the sixteenth
century, therefore, sculptural furnishings turned the multi­
lateral and unbalanced area of the medieval square into two
separate rectangular spatial units whose small irregularities
then became aesthetically irrelevant.*

Hence the Renaissance desire to logically organize and
rationalize the space is implemented at Florence with the aid of statues.

The internal development, being composed only of a fountain,
and a few statues, made it an easy matter to construct temporary stages,
buildings, stands, and stalls for numerous functions.

The building uses around the Piazza included a loge, private
residences, and public buildings.

The principle structure was the Palazzo Vecchio (which may
also be called the Palazzo della Signoria). This was the administrative
centre for city government, and was begun in 1298. Besides this and
dominating the south side is the Loggia dei Lanzi, begun in 1376 and
named after the German lancers, (i.e. lanzi), of Duke Cosimo, who
were stationed here for a short time. This building is open on two
sides with three very tall arches facing the Piazza. It was the location

*Zucker, op. cit., pp. 115-116
for magistrates and priors to exercise public functions, and it was a special viewing stand for important public figures on the occasion of public ceremonies. Antique statues were set up here for public viewing and works of Renaissance sculptors were later added. (This includes the famous Perseus of Benvenuto Cellini). Along the Via Condi (on the north side of the Palazzo Vecchio) was the customs house, the Bargello—a residence for a public servant, and the Serraglio, which was a den for lions, the city's symbol. Other private residences, usually palazzi, were the remaining adjoining buildings. The Uffizi Palace on the street leading to the Arno River from the square is from the late 16th century. None of the literary sources researched indicate whether or not shops were located on the ground floors of the palazzi adjoining the square but it may be safe to assume they were if we compare these with palazzi of modern Florence which have been preserved in their original state.

The Piazza della Signoria is in the oldest part of Florence; this is the ancient Roman section and is recognized on a map by its grid pattern. The surrounding streets are extremely narrow, usually only twenty feet wide, with alleys as small as three feet. In comparison the Piazza is a vast expanse of open public space even though its total area is only approximately 1 1/2 acres. A main road, the Via dei Calzaiuoli, leads directly to the Piazza del Duomo, which is only about one thousand feet from the Piazza della Signoria. Maps of the city do not show clearly in this case that the streets follow a radial-concentric
pattern because of the grid pattern of the old part of Florence which includes both the Signoria and Duomo squares. But if we consider the whole of this Roman section as the hub (and it is quite small) then the remainder of the city's traffic routes do show a tendency for the radial-concentric pattern. The Piazza is at the approximate centre of the city, including those parts on the southern side of the Arno. Other squares in the city were "parves" and market squares; for the whole city this square, not the Duomo square, seems to have fulfilled the role of the urban core.

The Piazza della Signoria was a multiple function square. As an assembly place it was used during periods of democratic rule as the site of parliament. The ringing of the bell on the Palazzo Vecchio called the citizens to the parliament. The square was also the military parade ground where companies of armed men gathered to practise military skills and procedures. The platform before the Signoria, called the Ringhiera, acted somewhat like the rostrum of the Forum Romanum. From here public officials addressed the assembled body of citizens; officers were installed; military leaders received their baton of command; important visiting dignitaries were greeted, and popular demonstrations were lead against the controlling political faction. From the Loggia dei Lanzi other civic officials conducted public business. In the open space of the central area marketing took place. For popular entertainment the square was used for games and tournaments. Annually in May, since 1529, a magnificent football spectacle called the "Calcio"
The Calcio, Piazza della Signoria, Florence.

FIGURE XX

Ediz. Giusti di S. Becocci, Firenze
has been celebrated in the Piazza. This event celebrates a football game which the people of Florence played in the square to show their defiance of Pope Clement VII and the Emperor, Charles V, who had laid siege to the city. As a site of spectacles the piazza was quite sufficient and the people went to great lengths in these pursuits, even having wild animal exhibitions. Edmund Gardner writes:

On June 25, 1514, there was a 'caccia' of a specially magnificent kind; a sort of glorified bull fight, in which a fountain surrounded by green woods was constructed in the middle of the Piazza, and two lions, with bears and leopards, bulls, buffaloes, stags, horses, and the like were driven into the arena. Enormous prices were paid for seats; foreigners came from all countries, and four Roman cardinals were conspicuous.... Several people were killed by the beasts. It was always a sore point with the Florentines that their lions were such unsatisfactory brutes and never distinguished themselves on these occasions; they were no match for the Spanish bull, at a time when, in politics, the bull's master had yoked all Italy to his triumphal car. 77

Religious pageants most commonly occurred in the church squares, which are numerous in Florence, but many were held in the Piazza della Signoria. These were no mere procession. They were grand productions directed by specialists who travelled from city to city to design and arrange the event. Not only people, flags, banners, and triumphal cars, but also great mechanical devices whose breakdowns were as entertaining as success. Burckhardt writes:

The artificial means by which figures were made to rise and float in the air -- one of the chief delights of the representations -- were probably much better understood

in Italy than elsewhere; and at Florence in the fourteenth century the hitches in these performances were a stock subject of ridicule. 78

The biography of the Dominican monk Savonarola * includes several uses of the Piazza della Signoria that we may assume from the literature, were accepted though no usual functions of the square in the middle ages. As part of his religious reform he led the city in a "burning of the vanities" - books, pictures, sculpture, jewellery etc., of a type which he considered immoral. The burnings took place in the squares, especially the Piazza della Signoria; 79 all this done to the ringing of bells, chanting of the "Te Deum," and playing of drums and trumpets. 80 In 1498, Savonarola was to be tried in the Piazza by the ordeal of fire. Great crowds gathered; the Loggia was filled with Franciscans and Dominicans. Confusion broke out, and eventually all went home when disappointed that the test had not been taken. It was, however, illustrative of the broad scope of usage in such squares at this time.

78 Burckhardt, op. cit., p. 212

79 Gardner, op. cit., p. 122

80 Ibid., p. 156

* Fra Girolamo Savonarola was a Dominican monk who in the late fifteenth century lead a religious political reform movement in Florence. He was head of the monastery of San Marco in Florence and was a puritanical leader, prophet, and preacher. He was martyred by burning May 23, 1498.
Finally Savonarola was to painfully demonstrate the function of the square as a place of public execution when he was burned at the stake in May of 1498.  

81 So the square was not always a pleasant, beautiful space, it could be cruel, and gruesome, reflecting the social conditions of the time.

From other squares of Italy, especially the Piazza San Marco in Venice, or the Campo of Siena, fascinating accounts of the activities can be drawn from numerous sources. Similarly the great squares of France, Germany, the Lowlands, and England have interesting stories of the public square, its form, its adjoining uses, its internal development, and its very vital relationship to the community — both physically and socially.

Because Frederick Hiorns provides such useful information on the towns and squares of this medievo-renaissance period, it is fitting to summarize this section in quoting from his writing:

The piazza, the 'place', the square, was . . . the life-centre of the city, continuing to serve, in a somewhat changed and lessened degree, the functions of the agora-forum area of antiquity. The civic centre was still the principal spatial point of the built up area, the common meeting-ground of citizens; for which reason the buildings concerned with government and administration, with commercial and cultural activities, with mart and shopping, and with the religious and ceremonial side of communal living were there located. It not only provided for the public and personal needs of citizens, but in architectural and structural attractions its spatial and mass composition summed up the traditional pride of man in the pageant of cities.  

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81 Ibid., pp.135-136
82 Hiorns, op. cit., p. 111
VI. RENAISSANCE TO THE NINETEENTH CENTURY

A. Introduction

Antonio di Piero Averlino, called Filarete, a Florentine sculptor, architect and planner, wrote a treatise on architecture, between 1461 and 1464, in which he proposed a comprehensive plan for the construction of an 'ideal' city, "Sforzinda" and its port, "Plusiapolis." Like other "ideal" city planners of the Renaissance, such as Alberti; Scamozzi, Palladio, and Cataneo, he was drawn up by the revival of ancient Greek and Roman forms and styles. This new intensity of interest in the antique had numerous causes extraneous to the present study, but the inspiration of Vitruvius, about whose work a cult developed, must be mentioned. Though mediocre by Roman standards, Vitruvius' ten books were the best literary source available on ancient architecture and planning in this new age of discovery.

In many respects, Filarete is indebted to Vitruvius whose books were an influential model. But, Filarete is important in this work, as a bridge between the medieval squares, and the new developments of city planning that emerge from the Renaissance. His lengthy description of Sforzinda goes far beyond the mere presentation of a ground plan. In

addition he proposes a functional distribution of land and building uses, circulation systems, and architectural details. His discussion of the squares of Sforzinda is a culmination of the medieval city; but it is rationalized according to Renaissance thinking; idealized by way of formal design; decorated with the architectural application of the classical orders; and finally, made obsolete by the political, social, and technological changes which were in progress. He designed an ideal, medieval, multiple function; grouped square, when the medieval age was passing from the scene. The excerpts below, from his treatise present part of his concept:

The streets will run from the gates to the center and here will be the piazza. . . . At its head will be the cathedral and its subsidiary buildings. At the other end will be the court, that is the princely palace, and the other subsidiary palaces (such) as those of the Podesta and the Capitano. . . at each corner of the piazza I will make two other piazzas, one for the merchants and the other for the selling of domestic things. . . behind the piazza we will leave a stadio of space to make a market for animals. 84

. . . opposite it the law courts. . . on the northern part I will make the municipal prison. . . On the eastern part . . . the mint where money is made and stored, and near it the customshouse. . . on the other side of the the butcher, chicken, and fish shops, the latter in season. Behind this piazza toward the south will be the bordellos, the public baths, and inns or taverns. . . . Because we have plenty of water nearby, I intend to bring it into the city in several places, but especially into the piazza. At its center I want to make a reservoir arranged in such a way that when you want to wash the streets you have only to open certain spouts. Enough water will come gushing out to wash all the streets and piazzas. . . since the Indo and Averlo rivers are so close and useful, I

84 Ibid., pp. 26-27.
have thought of arranging for the water to go down all the main streets. In this way one could (come in) by boat and could go all around the piazza on water.  

... the butcher shops and also those chosen to sell fish will be situated along the canals that surround the piazza... so they will be over the water of the canal. This will be done so that no putrefaction can be generated in them or give bad air to the city. I placed the hall of civic justice in the middle of the piazza... it is completely on piers. I do this so the merchants can carry on merchandising and other business here.

This verbal description and the diagrams of Figure XXI contain a statement of principles already established in ancient and medieval squares, that is, the concentration at the public square of functions of government, religion, and commerce. But in Filarete's plan the government is not a city council representing the people, but it is the new ruler of the Renaissance, the autocrat, the prince. Indeed, Filarete's proposal is addressed to Piero de Medici.

The square had previously focused governmental structures about it as a natural extension of the public assembly function; but the continuation of political functions within the main square was not a corollary to autocratic political forms. The replacement of the "palazzo pubblico," the signoria, or the town hall by the residence of a prince, or tyrant created a "chain reaction," which, coupled with factors of technology, and of social life, created new criteria for the physical and social aspects of the square. Hence Filarete's plan recognized a political change,

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85 Ibid., pp. 74-75.
86 Ibid., p. 123.
Filarete's Plan for Sforzinda from John R. Spencer's Filarete's Treatise on Architecture.

TABLE XXI
(by the location of the prince's palace on the main square), but this had been imposed on an old functional grouping -- the graft did not take.

Brian Hackett indicates this new development when he writes:

In the Renaissance the autocrat dominated the community, and, as his way of life was essentially urban, the focal centre remained in the town, but its emphasis was now directed towards the person and purposes of the autocrat. The palace of the prince occupied the most commanding site in the town, and the buildings of the court circle were distributed among the other important sites. . . . The purpose of the "place" had changed from the communal meeting ground to a grand architectural setting for a particular building. 87

The major technological change to effect cities in this renaissance is the improvement of the wheel from a solid object to one built of separate spokes, rim, and hub. Mumford notes that carts and wagons come into general use within cities in the sixteenth century, and carriages also became popular at about the same time for the upper classes. The city street systems from the medieval era were no more able to handle this onslaught than the cities of this century can efficiently meet the explosive demands of automobile traffic.

Changes in warfare methods also affected the structural form of cities and the ensuing relationship of the public square. Previous safety behind massive walls and gates is now threatened by increasingly efficient iron cannon balls. A whole new science of defense fortification

87 Hackett, op. cit., p. 187
changes the orientation of city planning from the artist-architect to the engineer. This is climaxed in the works of the seventeenth century Frenchman Sebastian Vauban. The new system requires large armies to be stationed in the major cities. They had special housing needs and exaggerated the value of the long straight street, both for parading and for the rapid movement of troops and artillery. Mumford writes:

Turning out the guard, drilling, parading, became one of the great mass spectacles. . . the blare of the bugle, the tattoo of the drum, were as characteristic a sound for this new phase of urban life as the tolling of the bells had been for the medieval town. The laying out of the great "Viae Triumphales," avenues where a victorious army could march with the maximum effect upon the spectator, was an inevitable step in the replanning of the new capitals: notably Paris and Berlin. 88

With the armies reinforcing the power and authority of the absolute rulers, the power of city governments declines, and so the physical nature of the city is transformed into a hybrid, retaining the medieval in its older quarters, and seeking different forms, in the new sections of established settlements as well as in the entirely new towns. These reflect the political, military, and technological innovations.

Within the area of aesthetics, a revolution occurs which makes its way from the artistic theory of the painters to architect-planners. In the first quarter of the fifteenth century, Brunelleschi demonstrated as a painter the principles of linear perspective. These were soon to become

88 Mumford, op. cit., p. 362.
a dominant law of design in painting architecture and, by the sixteenth
century, in civic design. Here, linear perspective was the aesthetic
influence leading to the creation of streets designed as an architectural
unit. The means was the long, broad, and straight street, usually with a
fairly constant roof line, and a repetitive pattern on building façades.
This meant that a new type of urban public open space would be treated
as an artistic unit where formerly the public square had stood unchallenged.
The design of streets according to this method occurs first in Galeazzo
Alessi's "Strada Nuova" in Genoa; Hackett notes that this street, though
only 20 feet wide, and 250 yards long was "something quite new and
even in Alessi's own day was regarded as the finest street in Italy;"
it was lined by buildings of a standard height of seventy feet, each with a
crowning cornice. 89 This was a sharp contrast to the generally short,
and winding medieval street in which the relationship between structures
was not aesthetically controlled either in height, or decoration. The
influence of linear perspective continues into the contemporary city, but
probably reached its zenith as a conscious and dominant design principle
in the streets of nineteenth century Paris, as they were developed by Baron
Haussmann. Figure XXII illustrates the linear perspective principle
in the Champs Élysées of Paris.

The social factor to effect the new structure of cities concerns
the aristocracy. They came more and more to reside in the city near

89 Hacket, _op. cit._, p. 143
the seat of government. A court life of promenades, and carriage rides required a suitable urban setting, and the aristocracy were influential enough to realize changes to this end. The form of the city evolves from a structure designed to meet the needs of the whole community, to a city, expanded, structured, and embellished for the leisurely life of the upper class. The attention of the city planner is turned towards the urban areas frequented by the nobility and the paths of movement which their carriages take.

From the Renaissance until the industrial age the critical factors of urbanism to affect change in the city squares are those outlined above: the rise of autocratic governments; the great increase of
vehicular traffic in cities; the new requirements of urban and national
defense; the introduction of linear perspective into urban design and the
consequent treatment of streets as architectural units; and the dominance
of the aristocracy's life style over the general urban population in matters
affecting urban physical growth and development. Within this context,
the great public squares which were built from approximately 1500 to the
industrial era, (that is our own time), are discussed in the remaining
portion of this section.

B. Form

The major squares of the post-fifteenth century are architecturally
designed and articulated urban spaces. Their form is usually the result
of a formally layed out combination of magnificent buildings, constructed
in the 'grand manner' of the age. The spatial organization is reasoned,
grand, and formal. Its classification is often a combination of closed,
nuclear, dominated, and grouped. This combining of unifying design
determinates strengthens the immediate impact and aesthetic response
to such squares. In an autocratic age this form mirrors and magnifies
the royal house or the bishop's palace. The kings of Europe, and lesser
rulers built palaces and government offices displayed by great organized
open spaces to show what became known as "the power...and the glory"
of the baroque phase of the Renaissance.
The first city to respond to the new factors of the age was Rome. The political and religious center of Catholicism, now reacting to the Protestant movement, was the experimenting city of urban design.

In 1538 Pope Paul III commissioned Michelangelo to create a new grouping of buildings, a civic square on the Capitoline Hill of Rome. Two palaces already marked the site. After approximately 150 years Michelangelo's conception was completed. The Piazza di Campidoglio has three principle structures, the Palazzo dei Conservatori, the Palazzo dei Senatori, (the ancient Tabularium of the Forum Romanum) and the Capitoline Museum. The Campidoglio is a small space that appears grand through the careful use of devices of scale. The plan of the piazza (Figure XXIII), shows a control of perspective through building arrangement to exaggerate the size. The elliptical pavement design is a characteristic which will later become common in the baroque style. A longitudinal axis leads from the stepped ramp to the elaborately decorated entrance to the Palazzo dei Senatori. Axial symmetry within the space and surrounding structures is countered by diverging façades and the elliptical pattern of the paving. The equestrian statue of Marcus Aurelius is the nuclear focus of the space. The Campidoglio represents a transition from the simple, quiet, quality of the medievo-renaissance squares, to the "dynamic motion" of the baroque.₉₀

The stairs to the left leading to Aracoeli date back to 1543. The monument was placed by Michelangelo in 1564. The carrying out of his plans for the buildings took until 1588, thirty-four years after Michelangelo's death. (From Letarouilly.)

Piazza del Campidoglio
Rome

from Hegeman & Peets
Civic Art.

FIGURE XXIII
Next in significance is the Piazza San Pietro, (Figure XXIV), by Giovanni Lorenzo Bernini. The form of this was outlined earlier in the chapter and should be referred to again by the reader, (i.e. pp. 29-31) G. E. Kidder Smith says that this square marks the apogee of the integration of architecture and planning. Its scale and magnificence surpasses the Imperial Fora of ancient Rome.

The forms and the new styles conceived first in Italy are developed within the broad character of the period throughout western

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91 George Evrard Kidder Smith, Italy Builds (New York: Reinhold, 1955), p. 84.
Europe, Great Britain, and colonial America. Louis XIV's palace city of Versaille sets a standard to be imitated in Karlsruhe, St. Petersburg, Mannheim, Berlin, etc., Hackett writes that "as a direct and perceptible influence upon urban environment, the palace-town of Versailles was the most important single creation of the Renaissance in France."92

Regular, closed squares, with the repeated architectural pattern became common, in France, in a number of 'places royales" such as, the Place des Vosges, Place Dauphine, and the Place Vendôme, each in Paris; in the Plaza Mayor in Madrid; and in numerous squares of London (e.g. Grosvenor, St. James', Covent Garden, etc.); and in other centers of western culture.

More relevant than the form of these squares is their internal development and their relationship to the urban structure.

C. Internal Development

From the baroque period onward the internal ground space of squares tends to continue the tradition of fountains and statues on a paved open area. But the centrally located equestrian statue, and the tall obelisk are found as particularly common expressions of the sculptural theme used as a focus, (e.g. Piazza San Pietro, Rome; Piazza Navona, Rome, Place Vendôme, Paris; Plaza Mayor, Madrid; Place de la Concorde, Paris; Grosvenor Square, London; Amalienborg
Such squares when located before the great palaces do not seem to have had temporary stalls for a marketing function, for none of the literary sources studied give reference to this; the space was rather left visibly clear to emphasize and enhance the architecture.

The important change in the internal development of public squares of baroque period occurs in the residential squares, that is those squares surrounded by private dwelling places. Here the open paved area had served initially as a parking space for carriages. But this came in the eighteenth century to be developed into two distinct functional zones.
In the center was a small garden, or park which was often fenced and even locked for the private use of the residents. The central park area was surrounded by a roadway for vehicular traffic, which was in turn bordered by sidewalks. This type of internal development is noted in Paris's Place Royale in 1737, but was especially important in the residential squares of London, such as in Grosvenor Square, (Figure XXV), Soho Square, and Leicester Square. It became so prevalent in England that an 1887 Dictionary of Architecture defines the square in the following manner: "The square is a piece of land in which is an enclosed garden, surrounded by a public roadway, giving access to the houses on each side of it." This park area within the residential square came to be applied within squares in the central business district and so becomes relevant to this study. There was precedent for this development in the groves of plane trees in the Athenian Agora, in the courtyards of monasteries, and in the college quadrangle such as is found at Oxford. This park development of squares would restrict its ability to be a general purpose meeting place and would tend instead to emphasize informal functions of leisure.

95 Ibid., p. 620.
D. Adjoining Land Uses

The relationship of the land and buildings uses adjoining public squares is a most obvious reminder of the societal influences that act upon the new urban developments in this period of political absolutism. The general pattern is exemplified in the "Place de la Concorde" of Paris.

This square was built in 1763-1772 on a marshy site of Paris near the Tuilleries and bordering the Seine River. It was originally called Place Louis XV; with the French Revolution it became "Place de la Revolution," and was given its present name by the Directory in 1795.  

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This very large square, which measures approximately 1150 feet by 700 feet had only four adjoining land uses. To one side was the River Seine; to one flanking side was the great avenue of the Champs Élysées; opposite this was the entrance to the Tuilleries Gardens that lead directly to the Royal Palace; and on the remaining side were two matching buildings. Jacque-Ange Gabriel, the designer of the square, originally built these to house foreign ambassadors and visiting royalty. The axis of the square runs through the street, (the Rue Royale) which was left between the two buildings. Thus the only buildings directly adjoining the square were the residences and offices of diplomats, hence the day to day use of these structures was quite divorced from the life of the Parisian people. Likewise, the royal gardens, the Tuilleries, (now public) served only the aristocratic upper class that is admitted to the palace grounds. Furthermore, the square was on the fringe of the urban area of dense building development, not central to it. The adjoining uses with the formal garden development of a rural or country view is quite open, in spite of the dominating building façade. How different this is from the tight crowding of buildings about the squares of ancient and medieval origin. The combination of Palace, square, boulevard and formal gardens is found in numerous examples from the Renaissance to modern times, in such distant places as Athens, Madrid and London. Sometimes the gardens do not adjoin the square but are separated by the palace, as is the case in Versaille. The direct spatial relationship of palace, and park to the square is a tendency which decreases the variety and number of uses of the square, but
at the same time, it greatly increases the architectural splendour and beauty of both square and, most particularly, the adjoining palace. This was a goal in the examples referred to.
E. The Square and the Urban Structure

As a public open space within the city, the squares built from the Renaissance to the industrial age may be placed into one of three urban structural relationship classifications.

1. The structurally isolated square. The square built as a spatial entity, within, but independent from the existing urban structure may be termed "structurally isolated." This occurred when a single project was carved out of the already established street system and the physical relationship of the resulting square, especially as regards accessibility, tends to minimize the integration of the new space with the existing order. Figure XXVII above shows the Place Royale in Paris; here the square is like an island, separate, and distinct from the surrounding area. Of course there are streets leading to the "outside" but they are consciously hidden lest they disturb the idealized form of the geometric square.

Other "structurally isolated" examples are the Plaza Mayor, of Madrid, the Grand'Place of Brussels, and the Campidoglio and Piazza Navona of Rome.

2. The locally integrated square. The square built as part of a development or redevelopment of an urban area which follows a scheme of which a square, or a number of squares, and streets are included, may be termed a "locally integrated" square. This was the structural relationship

*Place Royale, also called Place des Vosges
Axis from the Louvre to Place de l'Étoile, Paris.

FIGURE XXVIII

which was most common in this period. The 'Place de la Concorde', and the Place de l'Étoile are examples of this type of development; they are built along the axis from the Louvre through the Champs-Elysee. (Figure XXVIII). In London the residential areas of Bloomsbury, Covent Garden, St. James, Grosvenor, and Berkley Squares, are examples of the locally integrated squares.

3. The traffic node square. The square built as part of an intraurban transportation system in which the junction of major routes is developed as a square, or the major routes are aligned so as to focus upon a square, may be termed 'traffic node' squares. These may, or may not include specific areas for pedestrian or vehicular traffic. The first great example of this type of structural integration of squares with the new
renaissance street system takes place in Rome. Pope Sixtus V and his advisor Domenico Fontana laid out long straight streets connecting the seven principle holy places of the city in the year 1589. Obelisks were set up to mark the junctions, and squares were built to suitably mark the sites.

In Sir Christopher Wren's plan of 1666 for London, squares form important nodes in the communication system which was a composite of grid-iron, and radial-concentric street patterns. It is interesting that the main square focused about the Royal Stock Exchange.

The building of nineteenth century Paris adopted the 'traffic node' square, as did l'Enfant's plans for Washington, D.C. These plans of Wren and l'Enfant are illustrated in Figure XXIX.

It is important to distinguish the 'traffic node' square from the squares of the medieval period which were also traffic nodes. First, the medieval squares were for pedestrians, while the Baroque squares were built predominately for vehicles. Secondly, in the medieval city, the square is set aside and the important buildings are placed about it, and the principle streets lead from the wall to the square; in the renaissance traffic node the location of buildings is primary, these are linked by streets, and squares are built as an adornment; it is a reversal of medieval pattern. This is an effect of the vehicular traffic movement, from point to point, or square to square, along the generally tree lined boulevards.
Wren's Plan for London

From Zucker's Town & Square

L'Enfant's Plan for Washington

from Zucker's Town & Square

FIGURE XXIX
F. Social Functions

Literary sources yield great amounts of diverse evidence about social functions of public squares in other eras, but written material concerning the functions of squares in the years after 1500 is meagre. It is necessary to dig deeply in this area in order to piece together scant pieces of relevant data which, when viewed in concert, present a general description of the subject. It may be presumed that printed information is scattered throughout numerous scholarly works, but present methods, most common in indexing and bibliography do not readily release their knowledge within the limits of time and scale of this study.

The activities that are recorded relate both positively and negatively to politics, religion, commerce, and leisure. Concerning the functions of squares in the period in question, it must be noted that the squares of two eras converge, for not only are there new squares of Renaissance origin, but also, in many cities, the medieval squares continue to play their part in the social processes of urban life.

Regarding political matters, the public squares pass into disuse as a place for public meetings of legislative assemblies of the townspeople. This is a result of the common procedure of government by a "few" -- the small council, the appointee of the autocrat, or the autocrat himself. The use of the square for the military branch of government is expanded as the parading of "standing" armies becomes regular. As a place

97 Mumford, op. cit., p. 362.
of public execution the square saw such mass spectacles as the guillotining of "counter-revolutionaries" in Paris's Place de la Concorde; in 1792 this would include both Louis XVI and his Queen. The square beside the palace is not so much used for government as it is a symbol of the government, that is the palace government.

In religion, the square continues to be the site of religious processions and ceremonies on the great feast days when crowds overflow the church capacity, or when members of several parishes gather before a single church. But the secularization of the Church in this period of humanism introduces new uses to the parvis. In addition to the normal blessings, dramatic presentations, and procession, L. Collison-Morley writes of a 5 a.m. to 8 p.m. barbeque in Rome's Piazza S. Girolamo della Carità; this was part of the celebration in 1688, of the accession of a Catholic king to the throne of England. Such occurrences in church squares were probably unusual but nevertheless indicate the spirit of the times.

The traditional marketing in squares continues in the old squares, but the new aristocratic places are seldom so mundane. Literary sources reviewed do not refer to any commercial activity in the new squares of the day, but such market places as the Plaza Mayor in Madrid show that they were still being built.

Within the leisure aspect of social functions, the public squares

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become more significant. The great popular spectacles such as the Calcio of Florence take on more colour than before. In Siena's Campo a horse race called the Palio is an immensely popular event. Originally it was a race throughout the city, by contestants representing the "contrada" or divisions of Siena, but since the mid sixteenth century it has been held on the Campo and is now so bound up with the social character of the square that the whole Palio seems to represent the Campo at its culmination of artistic significance." The painting (Figure XXX) by an unknown artist, shows the race course fenced off about the circumference of the square, leaving ample room for large crowds to view the spectacle from temporary stands, balconies, windows and the pavement area in the centre which holds the majority of people.

Other athletic events took place in the squares and included tournaments of feudal origin, and such games as Pallone, the Italian ball game which Collison-Morley notes as being popular with the crowds in Venice's Piazza San Stefano. 100

The "cool young swingers" who are reported to have "pranced" and splashed under the water jets in the pool of Toronto's Nathan Phillips Square would have found an affinity for the activities of the Piazza Navona, in Rome, in the seventeenth century. 101 It was flooded on Saturday evenings and Sundays in August. The "fashionable world"

99 Titus Burckhardt, Siena: The City of the Virgin (London: Oxford University Press, 1960), p. 120.
100 Collison-Morley, op. cit., p. 229.
101 News item in the Vancouver Sun, July 24, 1967.
then drove about it in carriages, some were carried in litters, boys dove for pennies thrown into the water, spectators cheered from the sides, an occasional horse drowned, and the visiting dignitaries greatly admired the artificial lake. 

Piazza Navona was also a good market "where foreigners... would spend the afternoon picking up bargains among the dealers in medals, pictures, and antiques."

The function of squares after the fifteenth century follows a course of decline in the multiplicity of uses of many squares, especially

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102 Collison-Morley, _op. cit._, p. 196
103 Ibid., p. 195.
in the formal aspects of government and religion. Special purpose squares such as the markets continue to be a vital adjunct to town and city life. The great royal squares of the aristocracy are predominately an aesthetic space affiliated with buildings, vehicular traffic, and the style-of-life of the upper classes. Squares are throughout this period an important urban space for the performance of great spectacles of entertainment. In the day to day life they were commonly frequented in periods of leisure (for those who had any) as a casual meeting place. It cannot be said that the squares of this period are so closely related to the physical or social forms of cities and city life for the broad mass of citizens as was the case in the medieval age.
VII. SUMMARY OF THE HISTORICAL SURVEY

A. Form

The public square has existed as an artistically organized urban space since at least 1500 B.C. when the concept was part of some Minoan settlements. Its form may be classified as "closed," "dominated," "nuclear," "grouped," or a combination of these. In each, the square has form due to its boundaries or limits, which control the shape. In addition to the ground, and the open sky, the square is formed by its perimeter which is usually buildings, but may also be other physical elements such as trees, or a river. The size of a square is small enough to create an impression of a limited enclosure, and large enough to be an expansion of space relative to other open space in the vicinity.

The form of a square is developed by two methods. Either it is a preserved open area about which separate buildings are erected with minimal architectural co-ordination, or, it is a form developed as part of a comprehensive architectural concept including detailed design control of both the square and the surrounding structures. Both types of development are historically common. Squares may be developed as artistically organized space in a period of a few years, or the construction may be extended over a course of many years, perhaps

* Refers to Western culture.
centuries. The form of a given square tends to remain constant, but a change of form classification may result due to the alteration of limits, as may happen when a building is erected or razed. The three dimensional organization of squares as urban open spaces of artistic relevance precedes the artistic development of the street. It may then be considered as an archetype of urban space in western civilization.

A square is not an organization of building masses; it is not a street, or mall, or courtyard; it is not a "left-over" parcel of land. A square is an aesthetically organized open space within a human settlement; it is part of the intraurban communication structure; it is defined by delimiting elements as an outward expansion of a volume of space set within a development of volumes of mass which are usually buildings.

B. Internal Development

The degree of internal development varies greatly from squares of one cultural period to another, but the variety of internal elements or furnishings, which are found is quite restricted numerically.

The prevalent feature is that by far the greatest amount of ground space in squares tends to be free of permanent furnishings resulting in a visually open expanse which is usually paved or planted. Historically the fountain is a furnishing associated with the public square. Next are statues and columns, usually of a commemorative sort, placed
as focal interests. Temporary stalls of a comparatively small size are regularly found in those squares where a marketing function takes place. A raised area or a platform, of low height and small dimensions is frequently a permanent furnishing for public functions.

An internal development common from the seventeenth century is the physical separation of vehicular and pedestrian areas; in these cases a central pedestrian precinct is often developed as a park with trees, plantings, fences, and benches.

The internal development of a square is historically a result of the social functions of the square.

C. Adjoining Land and Building Uses

In Graeco-Roman, Medieval, and Renaissance periods a very strong, and recurring pattern of adjoining land and building uses is observed about the type of square on which this study concentrates. That is the principle or major square of a community; it is, in these periods, an important focus of urban activity, generally located in the central business district, in the urban core, and usually a multiple function square. The pattern observed adjoining these squares is the siting here of building of government, religion, and commerce; the government buildings are: the city hall, the court house, executive offices, legislative buildings, palace, archives, and occasionally a jail or prison. The
religious structures are, the temple, the church, the monastery, the
episcopal residence, and sometimes a baptistry, a chapel, a campanile,
or a church hospital. The most important commercial structures are
the numerous small shops often located in surrounding arcades. Other
commercial institutions are banks, guild halls, and coffee houses.

A fourth grouping of uses that is frequent in the larger and
culturally prominent cities in the Ancient and Renaissance periods is
the library, museum, and art gallery.

Land uses that seldom are found to adjoin the principle square
of a city are, the hotel or inn, the theatre, auditorium, gymnasium or
stadium. These are in the core area, and may be near the square, or in
its vicinity, but they are not commonly adjoining.

Residential uses occur in many squares of Medieval and
Renaissance origin, but in the major city square living units are usually
above the ground floor which is used for shops.

The building and land uses about the major square are used
therefore mainly by the whole community, and are representative of
functions of the whole community, or in some way significant or symbolic
to vital aspects of community life.

D. The Square in the Urban Structure

Public squares of different functional types are found in different
parts of the city. The comments below refer only to the major square of a community.

In the historical survey an evolution towards greater integration of the square with the physical structure of the community is observed from the proto-types, to the "ideal" cities of the Renaissance, and the metropolitan communities that develop towards the nineteenth century. These follow the pattern and order listed below:

1. First, the square is a preservation of open space fairly central to the community; the surrounding communication system of streets and pathways only slowly develop a tendency to focus upon the square.

2. The square is developed from a central rectilinear parcel of land within a community developed on a grid system.

3. In a grid system, the intersection of two principle streets, at a point central to the community, is the site of the square.

4. In a radial-concentric system, the square is built at the hub, or focus. All principle routes from the settlement's perimeter lead to it.

5. In a metropolitan community, there are many squares which are nodes in a complex hierarchial system of intra-urban communication. Several of these may be in the central area of the community, and no single one is necessarily the principle square.
In each of these cases, the square is part of the urban communication system. It is a point of confluence in the movement of the city. In all periods of its development as an urban space form the square is an opening or lateral expansion of space within the urban structure. Because of its central location, and the concentration of community activities in its vicinity, the square is historically located within the urban structure in the vicinity of highest levels of pedestrian activity, excepting in the late Renaissance (1650-1800), when it was often divorced from the mass of daily community activity and serves the upper class.

E. The Social Functions

Particular squares may be classified as "internal function," "associated function," and "multiple function." The classification of a square according to function may change through time. These functions, and changes of functions, are reflections of the culture, the society, the community, the vicinity, and other factors that create forms, and functions of urbanism. The principle square of a community may generally be classified as being a multiple function square, excepting the squares of the aristocracy that are more apt to be associated function squares.

Within the multiple function square four major aspects or functional divisions are observable; these are, political, religious, commercial, and leisure.
Activities related to each of these are:

1. **Political**, public assembly of the citizen body, of committees, or councils, for a legislative purpose; assembly of a political body for a judicial purpose, acting as a tribunal or court; assembly for the observation and execution of the decision of a court; public announcement or posting of laws, regulations or other news for the citizen body from its political organs; official civic ceremonies or state ceremonies of inauguration, and public welcome of visitors; celebration of important civic or state historical or current events; parading and drilling of civil defense units, either from the citizen body, or an army; and any other political functions requiring a large open space within the community and deemed by some official political body or person to be performed in the square.

2. **Religious**, the performance of ritual ceremony, including prayers, blessings and sacrifice; religious preaching, the celebration of religious festivals, and processions; the presentation of religious drama and spectacle.

3. **Commercial**, marketing of all manner of food, manufactured articles, and other items; banking; fairs; selling of services.

4. **Leisure**, casual informal gathering of people for no specific purpose but the amenity of the square; a rendezvous; presentation of dramas, and festivals, distinct from the religious or political events; athletic events such as tournaments, ball
games, and horse races; playground for children; and spectacles presented and arranged by private persons or groups.

In addition to these four functional divisions there is a group that is "abstract" as opposed to the tangible or concrete. This type is not easily discussed in quality or quantity but it is very likely of equal importance to any of the others. This is the symbolic function which the public squares fulfills to an individual, to a group, and to the community as a whole. The Agora was a symbol of the political union of clans into a new body -- the "polis," and as this political form was great in the lives of citizens of the "polis" so too was this physical form of the Agora. The Forum was a symbol of the majesty of the state, a union at one point of the political, the religious, the economic, and the leisure life of first a city, and second an empire. The Medieval and early Renaissance square was a symbol of the new vitality of town or city life rising from the rigid structure of a feudal system into a progressive and productive corporate life of urban society. The Baroque city and its squares before palaces with great vistas and boulevards was a symbol of the new government structure, under absolute monarchs with sweeping powers over their subordinates including the city and its citizens. These squares are a "grand" demonstration of power, and the glorification of individuals.
The history of the public square is thus the demonstration of the workings and functioning of a most dominant area of urban life, that is the core of the city. Historically the very real inter-relationship of the activities of the square with its form, its internal development, its adjoining land and building uses, and the structure of the community, affirm and provide the substance of the hypothesis of this study. The patterns of these factors, as traced through the many years of urban life, show a reasonable application of an urban space form to the needs of the community. Furthermore, this was not done in a haphazard or whimsical manner; it was a process of planning, sometimes through slow evolutionary methods, sometimes according to a pre-conceived idea, brought carefully to fruition. But the developments were consistent, meaningful, and relevant with the society and culture. The historical development of squares provides a vast source of data for examination and study which may be applied usefully to current problems of the development of public squares within the urban core; the information about squares and how they were used is a "cornucopia" for comparisons, contrasts, and predictions.
CHAPTER III

THE TRANSPOSITION AND MAINTENANCE OF FUNCTIONS

I PERSPECTIVE

The market-square in the city of Galt, Ontario, is the scene of a twice weekly public market from early spring until late fall. Farmers from the region sell their produce from stalls and trucks, on ground space rented for the day. This market is not unusual in the area; similar markets occur with equal regularity in the surrounding cities of Kitchener, Guelph, Brantford, Hamilton, and indeed, in cities and towns throughout Europe and America. Galt's market square is bounded on one side by the strong, simple architecture of the one hundred and twelve year old City Hall; another side looks to Wesley United Church, a structure of the late nineteenth century in the Gothic Revival style; the remaining two sides of the rectangular square are defined by an arcaded public market building and private retail shops. Here then in Canada, in 1968, is an example of a grouping of ancient origin about an urban space. The grouping represents three principle aspects of urban society — the politics, the religion, and the commerce; each represented
But a recollection of the historical role of public squares has little in common with the reality of the current use of such open public meeting places as Galt's market square. No political activities take place here in spite of the close proximity of the City Hall. The adjoining church serves only a small part of the community and confines its ceremony and preaching to the space within the church structure. The market building is an active retail centre for about ten hours of each week and is locked for the remainder. The principle function of this square is that of a metered parking lot for the continual daily traffic into the A & P supermarket which adjoins one side of the square.

Though the utility of this one particular square to its community seems to have declined, the public square continues in this age as a strong symbol of the community and is recreated again and again across this nation in such cities as Halifax, Toronto, Hamilton and Victoria. And, on particular occasions, squares are the gathering place for many thousands of persons. Examples of this are illustrated in cities throughout the world. In San Francisco, U.S.A. each Sunday afternoon hundreds of persons congregate to listen to would-be orators defend almost any cause; in Peking's great square, thousands of Red Guard parade in praise of Mao Tse-Tung and villify his opponents; in the Vatican's Piazza San Pietro, equal numbers of another faith gather to see the Pope and receive his blessing; and, in Chicago's new "Civic Square," thousands
of people recently assembled to witness the unveiling of a monumental sculpture by Picasso.

The development of the public square from ancient times until the industrial age as internal function, associated function, and multiple function spaces in the urban core has been demonstrated in the historical analysis and review of the previous chapter. But human progress means change. Many functions of the square have gradually been displaced or transposed; that is to say they have been relocated in different and more specialized forms of either open or closed spaces (i.e. buildings). This transposition of functions may be witnessed to some extent in every activity and purpose that has been attributed to the square as a form of public open space.

Likewise, in spite of the changes in culture, and society through all the influences of modern civilization, there continues to exist, in numerous squares of western Europe and North America, many examples of traditional functions of squares which are maintained even today. It would seem that some squares do continue to fulfill their traditional roles in the community; and in other cases, traditional functions of urban squares either do not exist any longer, or they now occur in some other place. These two functional aspects of decline and continuation are the subject of this chapter, the transposition and maintenance of functions.
All of the urban activities, that have been linked with the public square at some point of history, may be discussed under the four topics of politics, religion, commerce, and leisure. These categories were established in Chapter II and are the areas for analysis of this chapter. The approach is very general, drawing from all the literature and field study researched by the author. The objective is to determine which of the historical functions of squares, from any historical period, may be reasonably considered as a possible function to be planned for in the cities of the present.

This chapter is not intended to be a further expansion of the historical discussion; it does not detail places and dates but broadly summarizes in essay style the relevance of the historical role of squares to their current function.

II. POLITICAL FUNCTIONS

The term "political" is used here to include the system of government, both legislative, administrative, and judicial; the methods of selecting governments, and all aspects of governmental intervention into community affairs.

The earliest function of squares, that the author has noted, was that of a public meeting place. This was for a simple form of democratic government where each citizen, with voting rights, voted on each
public decision of the community. Hence the legislative branch of government met in the square; the executive branch came to be established in the square's precinct in special public buildings. Laws were passed and administered from squares; courts of law met here. Civic ceremonies were held in the square; political issues were debated here; the civil defense groups paraded and practiced here. The square was the symbol of the political life of the community, and on it or within the adjoining buildings, the great events in the political life of a community were enacted. But what is left of this past significance in this century?

The governmental function of the public square is now extant in only minor vestiges of contemporary urban life in western industrialized society, as will be outlined below. It has been brought to decline, first by new political systems which evolved from the Renaissance nation state, and second, by the development of more specialized buildings, which more adequately meet political needs, and finally by modern communications media.

The legislative processes of government are delegated to elected or appointed representatives in national, provincial, (or state), and municipal government. The total body of citizens has no need for a meeting place for legislative purposes. The small bodies who share the responsibility of legislation require the facility and convenience of enclosed space both for themselves and for their assistants. These reasonable demands are answered in the parliament buildings, state
houses, congresses, and city halls of our societies. When accommodation for several hundred or thousands of persons is needed architects have devised excellent auditoria. Comfortable seating, heating and air-conditioning, special lighting, the electrical magnification of sound, and the facilitated control of access in buildings, in total have produced a fair superior arrangement for the special function of public meetings. Similarly the stadium is the specialized open air architectural form which is available for huge political meetings. It may provide seating for more than a hundred thousand persons in the mammoth bowls constructed for spectacles.

The use of buildings for political functions is not restricted to cold climates; it is the practice in Spain, Greece, Italy, Mexico, and the southern United States as well. It is therefore not reasonable to assume that public squares will be called upon to serve as public assembly places for legislation.

Likewise, courts of law, in the western democracies, are held in buildings. Though these buildings are often fronted by a square, the actual court proceedings are inside the building.

Public corporal punishment and executions are not part of the "life" of the square. In certain revolutionary governments, these rather gruesome happenings do return to the piazza, but there is no question of this in Canada, or many other western nations. The guillotine
and gallows are, most likely, permanently removed from public squares.

In contrast to these departures, there is some evidence of a continuation of political life in the city square. This is in respect to civic ceremony and public debate.

In Toronto's Nathan Phillips Square, the Mayor and Council of the City have on several occasions, received honoured guests. From a temporary platform, speeches of welcome are given and received before the crowd of people that gathers. In the same square a military regiment has paraded and received its new colours before a very large crowd and an army band was presented with the symbolic "key" of the city. 104

Squares throughout the United States were, this past summer, (1967), the site for numerous public demonstrations concerning civil rights and the war in Vietnam, (e.g. Union Square, San Francisco, and Lafayette Square, Washington). In Athens, Kotzia Square before each election, the political parties rent offices in the adjoining buildings; from the second floor balconies the politicians address the crowds below and rebut the speeches of their adversaries. Cleveland's Public Square has been the scene of many presidential speeches. 105 These are organized political meetings to the extent that the time, the speaker, and the

104 Interview with Information Officer, City Hall, Toronto, Ontario. April, 1967.

subject for discussion is known in advance of the event. For this reason, a stage, special seating, an electrical sound system, and lighting may all be added to the square. Informal political meetings may also take place. This is the case in Union Square which is a forum for informal discussion of a wide range of topics each Sunday afternoon. Several hundred persons will sit on the grass, the stone planters, or just stand for one or perhaps two hours at this unorganized exercise of the rights of free speech.

Political discussions in public squares are thus seen as a most early function of the square which continues to a lesser degree today. But this is not accepted by all municipal governments. The City Council of Victoria, B. C. has a policy of not permitting political rallies in Centennial Square which adjoins the City Hall. They prefer that such gatherings use the "Speakers Corner" in Beacon Hill Park. *

* Minute of the Parks and Beautification Committee of the City of Victoria, February 15, 1966. The minute is quoted below:

**RALLY - CENTENNIAL SQUARE - PEACE ACTION LEAGUE**

A communication dated 1st February was received from the Organizer, Peace Action League (Victoria), seeking permission to hold a rally in Centennial Square on March 26th next. The rally is intended to be a demonstration, opposing U.S aggression in Vietnam, and it is expected to draw an attendance of approximately 200 people. The Municipal Manager pointed out that the City Council had set the policy that no gatherings of this nature be allowed in Centennial Square. However, he pointed out that City Council some time ago had made arrangements for such gatherings to use the "Speakers Corner" in Beacon Hill Park. Discussion followed on this matter at some length.

**ACTION:** The Committee directed that the Organization be advised of the City's existing policy in connection with the use of Centennial Square, and pointing out that the "Speakers Corner" in Beacon Hill Park was available for gatherings of this nature.
But removing such meetings from the urban core area diminishes their effectiveness as well as the attendance. This may be part of a broader tendency to develop aesthetically satisfying "civic squares" which have a minimal variety of functions, that is, they exist only to "look nice."

III. RELIGIOUS FUNCTIONS

In the classical religion of Graeco-Roman civilization numerous religious rites of a public nature took place in the open air. The temple was considered a home for the statue of the god, it was not a place for mass worship. The advent of Christianity as a state religion saw a transformation of the mode of mass worship. The regular rites of the Church were moved into the new temples. In the large medieval cities and towns the Gothic churches and their successors were able to contain the parishioners. Baptisms moved out of the open air into the Baptistry; weddings moved off the parvis and into the church. The passion plays which had taken place in front of the church evolved into a higher form of drama which again moved into the specialized enclosure of the theatre building. Furthermore, within the policy of separation of church and state, public squares will not easily be developed in conjunction with a church, unless that church is itself able to finance the building of the square, and support its maintenance. This is less of a problem in communities where a single religious sect dominates.
Some religious functions and related activities do occur in public squares. In Canadian cities the most common is the "Rememberance Day" ceremony of commemorating the war dead. At this event, all of the fallen war heroes of the entire community are honoured in a religious service which is designed to include all major religious groups. In this way the total citizen body is brought together as if in a unitary religious society. It is not a coincidence that such cenotaphs are usually in the principle city square; it is because an association of the square as a symbol of the community continues as a tradition in cities of western culture. The commemoration of the heroes of the city is thus, in the square, now, as it was in ancient Athens, or Rome, in Medieval Italy, in nineteenth century England, and in Vancouver of 1968.

Festivals of religious origin take place in many city squares. The celebrations that occur may have little or no resemblance to religious ceremony but are more akin to a pagan bacchannal; this is especially the case with the pre-lenten celebration of Carnival which includes parading in costume. In Milan's Piazza del Duomo, the celebration lasts for one week and is attended mainly by children under thirteen.* In this particular case, bands of costumed children, carrying plastic baseball bats, attacked pedestrians of all ages, with their almost harmless cudgels. It was a more interesting activity to observe from a safe distance. A judging of the "best costumes" towards the end of the festival week, took place on a stand set up in the centre of

* Observed by the author in February, 1967.
the square, where the competitors could be seen by the thousands of persons who were squeezed like "sardines" into the Piazza.

Parades and processions from and to church squares are common in Roman Catholic communities. The St. Patrick's Day parades in New Orleans traditionally end on Jackson Square which has an adjoining cathedral. 106

Trinity Square in Galt, Ontario is a short-cut across a block of land. In over twenty years of experience with this square, the author can recall no activity taking place in it in any way related to the Anglican Church located along its north side. This church is also the owner of the square. In the same city, Queen's Square contains a large central grass area, surrounded with elm trees and a hedge. In its centre stands the war memorial. This square is actively used by pedestrians on one day of each year, (i.e. November 11).

It may then be concluded that except for a few days each year, the public square is not a significant adjunct to the practise of religion in contemporary cities, although it may contribute to a religious institution's visual appearance.

106 Grady Clay, op. cit.
IV. COMMERCIAL FUNCTIONS

The marketing function of the public square has been transposed by modern methods of production and distribution of goods and services. The square was an adequate market place, for the primitive and traditional modes of selling. That is to say, it was adequate for farmers who occasionally had produce to sell and came into the city and set up their display, then returned to their home when everything had been sold. It was adequate for the travelling merchant who might come to a town or a city only once annually, or for the poor vendor whose low profits did not make possible the rental of a shop. (Figure XII, page 145)

![Image of a market scene]

Piazza del Mercato, Siena.

Ediz. S. A. F., Milan.

FIGURE XXXII

This type of selling is still common in Europe, especially for the marketing of fruit and vegetables. In Canada and the United States it is continued in the weekly or bi-weekly "farmer's market," such as the
ones previously mentioned at Galt, Kitchener, Brantford, and Hamilton. For the industrialized city of the twentieth century the public market is an antique.

The function of the square as a market place, has had the competition of shops in buildings located along streets for many centuries, and beginning in the Graeco-Roman era. In Canada and the United States, the commercial retailing of goods has traditionally been from permanent shops, dispersed throughout a community, and concentrated within a central business district. The farmers' market continued as a periodic selling place, even though the grocery store, the butcher's shop, the "general store," and emporium, etc., provided service six days per week.

The architectural solution to the mass selling, the crowds, and the wide variety, available in the larger market squares, is the department store.

The specialized food retailing square is replaced in contemporary industrialized western society by that American invention, the "super-market." This impersonal structure set up in a parking-lot now dots our cities as market squares once did in European communities. Cars, refrigerators, and mass production and distribution methods nourish this development. But the super-market and department store which often "join forces" in the "shopping centre" have not been entirely satis-

factory as a social meeting place. Attempts to correct this have resulted in landscaped malls and courtyards, with bands playing, water flowing, and even carousels and ferris-wheels.

The continuation of the market place is being challenged even by those farmers who still vend their produce. Again, architectural advancement is providing more satisfactory physical solutions to the problems of selling in a competitive market. The vegetable and fruit farmers and the flower vendors who until recently were content with the market square for their weekly or biweekly seasonal selling have moved inside. In the Ontario cities of Kitchener and Hamilton "parkades" have been constructed along side the market squares. These latterally open buildings still permit the farmer to sell directly from his truck when the parking building is temporarily transformed into a market. The rain or snow is not a hazard in this pseudo market place but the concrete roofs also keep out the light of the sun, and its warmth. The market in a parkade is perhaps more of a boon to downtown parking throughout the week, than to the occasional marketing of goods by farmers.

Special commercial functions of public squares are not well documented. Sidewalk cafes are well known and are considered by the author to be more important as a function of leisure, rather than of commerce. Selling flowers on a regular daily basis is a commercial activity that seems to have some continuing importance. This is a pleasant feature of Brussel's Grand 'Place, Madrid's Plaza Mayor, and
V. LEISURE FUNCTIONS

Within the functional category of leisure, the square has been demonstrated as historically used for:

i) casual social recreation including, general conversation, a place for "rendezvous," a place for merely observing the "hustle and bustle" of urban activity, and other informal leisurely, non-purposive activities;

ii) the presentation of dramas and spectacles;

iii) musical concerts;

iv) playing games, sporting competitions and tournaments;

v) festivals of a non-religious origin;

vi) partaking of refreshments, "snacks," and even dining;

Grady Clay, op. cit.
vi) display of works of art, for symbolic, historical, educational, and their own sake.

Each of these may be discussed in the above order, excepting number one i), which, for reasons which will become clear, is best left to the last.

Dramas and spectacles were a common function in the historical development of squares, especially in the medievo-renaissance period. But artistic advances of the theatre arose in both comedy and tragedy. Professional companies of actors performed in regularly scheduled performances (which were no longer tied to the religious calendar) and came to be housed in buildings constructed especially for dramatic purposes. Likewise, spectacles may be more adequately staged and viewed in auditoria or arenas. So the function of the square is transposed into a specialized building. Open air drama continues, but it has moved into parks which have special theatres. The author has found no evidence that dramatic events are held in city squares today. It is not unlikely that examples may be found, but they are certainly not common.

Musical concerts are a different matter. The major, and more serious concerts are held in concert halls or multipurpose theatres. These may be in buildings or in open-air theatres. But in many squares of America today, musical concerts are held during the summer months. In Nathan Phillips Square concerts are regularly organized by Toronto's
Parks Department. This included military tattoos, rock-and-roll bands, and symphony orchestras. Centennial Square in Victoria has band and symphony concerts. Syntagma Square in Athens has weekly summer concerts. The 1967 United Appeal Campaign in Vancouver, began with three days of band playing and singing in the Court House Square. During the Vancouver Festival of 1967, musical events were frequently held on the Queen Elizabeth Plaza. The music is not always "live." In Nathan Phillips Square, recorded music is played from about 10 a.m. until 10 p.m.

In each of these cases, it should be understood that the noise of the city, and in some cases, the natural acoustics of the square, lower the quality of the performance below that of most concert halls. Music in squares is more of an attempt to enliven the urban core for the community, than a desire to present good musical concerts.

Sporting events are not a continuing common function of squares. They too have moved to specialized structures. Exceptions to this rule are known to the author in only three squares that he has studied. The Palio, in Siena, has become a summer horse race spectacle; the Calcio, in Florence, another spectacle, but in this case focused on a football game. Toronto's Nathan Phillips Square held boxing matches each day for a week, in the summer of 1966. It has also seen exhibitions of judo. In a lighter vein, a basketball marathon was held as part of a Community Chest fund raising campaign by University of Toronto.
fraternities. Each winter, the pool in Nathan Phillips Square becomes an ice skating rink; this has proved extremely popular and draws large crowds of skaters and onlookers from November until April. Rockefeller Plaza in New York has been an excellent precursor to this function of squares.

Festival like activities are more common in the European tradition of squares than in Canada or the United States. Wine and beer festivals usually overflow into the squares of many European cities. These may be gaily decorated for dancing and general celebration. The numerous ethnic groups in Toronto have presented festivals of ethnic dances in Nathan Phillips Square under the sponsorship of the Folk Art Community Council. Similar events were held at Queen Elizabeth Plaza, in Vancouver in connection with the Vancouver International Festival.

A less organized festive-type of activity is the annual celebration of Guy Faulks night in Trafalgar Square in London. Thousands of students, representing numerous schools, converge in the early evening at the square. They sing their school songs in vain attempts to dominate the scene; they frequently pour liquid detergent into the fountains (which soon after overflow into a lake of suds); and the students seem to cause no problems for the companies of "bobbies" who surround the central area. The Guy Faulks celebration is a spontaneous event where each of the celebrants is a participant.
It was noted in the previous chapter that the Greeks and Romans used their squares for art exhibitions. In later periods important art works were set up for permanent display within the square, (e.g. Piazza della Signoria, Florence). The public square can today be an excellent gallery of art, especially for works not damaged by sun or rain. In Vancouver this was successfully done with an exhibition of sculpture at Queen Elizabeth Plaza, as part of the Canadian Centennial celebrations. The square is thus used as an exhibition hall or art gallery.

In the above discussion, functions of squares in the categories of: drama and spectacles, musical concerts, sporting events, festivals, and art displays, described functions which, in most cases, are special events in the square; that is to say that they were either, not a daily occurrence, or, they were an organized regular or irregular activity. In each case, the particular event was enhanced by the location of a square in the core of a city, where large numbers of people were at hand; the surrounding area was able to provide a good proportion of the audience-participation. In this way a large open area is adapted to the particular needs of different functions of leisure. When the central area of the square is left free of development, it is easier to accommodate these different functions. Peripheral landscaping, and a raised platform area would seem more functional for these special square uses.

The principal leisure function of the public square is the casual social use of the area for non-formalized activities. This use was listed
as "non-purposive" in section i). By "non-purposive", the author refers to the myriad of social activities whose main objective is realized in the activity itself, such as: general conversation; observation of one's surroundings for personal pleasure; relaxing by sitting, reading, looking, etc.; these are all part of experiencing and being part of an environment. Non-purposive activities may have numerous indirect benefits to the doer, (e.g. healthful relaxation), but, in these cases, this is not primary to the person concerned, at the time of the activity; he is content to seem to do nothing.

Squares have a purposeful origin in the establishment of a place for political meetings, for religious ceremony, for commercial trade, and for organized functions of leisure. But the total amount of time which is devoted to these activities, in the major square of contemporary cities, is very small in comparison with, the amount of time when a square is dependent upon casual social use. Furthermore specific functions may be improved in a square where the level of casual social use is high. For example, a civic ceremony of welcome to a visitor can draw upon the casual square users at hand; an art exhibition will be viewed by more people when the viewers include not only persons who have gone to the square for this particular purpose, but also those who happen to be in the square, and a musical concert would, in the same way be better attended. From this, it may be concluded that the problems of planning city squares must give particular emphasis to the use of squares for casual, informal social functions.
VI. SUMMARY

In contemporary cities, of an industrialized western society, the greater part of the formal functions, historically associated with the public square, are now housed in specialized buildings. This is particularly the situation in regard to political, religious, and commercial activity. Within the category of leisure, there is wide scope for a continuation of traditional square uses. The fact that formally organized activities are numerous in some squares and not in others is probably due to the unawareness of private and public authorities that the public square is an available and suitable place for public functions. The most consistent historical function of squares, which is, even today, a most likely area of use and importance in the square, is casual, informal use by pedestrians during periods of leisure.

A detailed examination of this aspect of use of the square by the pedestrian for casual leisure, is the objective of Chapter IV. In the concluding chapter, the interrelationship of the formal and informal pedestrian usage of squares will be brought together as a basis for final conclusions and recommendations on the planning of public squares in the urban core.
CHAPTER IV

AN ANALYSIS OF THE PEDESTRIAN USAGE OF CONTEMPORARY SQUARES

The core of the city is not its geographical center, or its business district. It is the place to which the public repairs spontaneously on occasions of the greatest urgency, as Washington flockst to its rudimentary civic square, . . . when war ends in armistice, or Roosevelt dies; as New Yorkers throng Times Square. This relationship of the part to the whole, of a single center to the greater organic complex, is a major key by which we can understand the whole of a city as an urban design without ever being able to experience all of it at once. 108

. . . you may go for no purpose at all - just to sit and listen to the fountains splash and the girls giggle and be part of neighbourhood life. People like to be free to sit and dream without being lonely, or to watch others, joining them at will. 109

The ideals, needs, and aspirations of the people of today are not, nor cannot, be the same as those of the past. So the builders of cities are challenged, by society, to examine and improve the environment. The square, as an urban space form, and its supposed functions, are among those items of our inheritance in western urban civilization.


Not only do Medieval, Renaissance, and Baroque public squares still exist, but they continue to function, with varying degrees of success, as this chapter will demonstrate. Furthermore, new squares are proposed and developed each year. The following pages present the findings of the case studies into seventeen such old and new examples, which are listed below in Table I.

**TABLE I**

THE SQUARES IN THE CASE STUDIES

<table>
<thead>
<tr>
<th>Name of Square</th>
<th>Country</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Place</td>
<td>Belgium</td>
<td>Brussels</td>
</tr>
<tr>
<td>Centennial Square</td>
<td>Canada</td>
<td>Victoria</td>
</tr>
<tr>
<td>Nathan Phillips Square</td>
<td>&quot;</td>
<td>Toronto</td>
</tr>
<tr>
<td>Victory Square</td>
<td>&quot;</td>
<td>Vancouver</td>
</tr>
<tr>
<td>Leicester Square</td>
<td>England</td>
<td>London</td>
</tr>
<tr>
<td>Trafalgar Square</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Place de l’Étoile</td>
<td>France</td>
<td>Paris</td>
</tr>
<tr>
<td>Place de la Concorde</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Syntagma Square</td>
<td>Greece</td>
<td>Athens</td>
</tr>
<tr>
<td>Piazza del Campo</td>
<td>Italy</td>
<td>Siena</td>
</tr>
<tr>
<td>Piazza del Duomo</td>
<td>&quot;</td>
<td>Milan</td>
</tr>
<tr>
<td>Piazza San Marco</td>
<td>&quot;</td>
<td>Venice</td>
</tr>
<tr>
<td>Piazza della Signoria</td>
<td>&quot;</td>
<td>Florence</td>
</tr>
<tr>
<td>Plaza de España</td>
<td>Spain</td>
<td>Madrid</td>
</tr>
<tr>
<td>Plaza Mayor</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Civic Square</td>
<td>United States</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Union Square</td>
<td>&quot;</td>
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</tr>
</tbody>
</table>
Initially, the study of contemporary squares, (i.e. squares existing and functioning in present day cities) included only those listed in Table I, in San Francisco, Vancouver and Victoria. But this sampling was too small to yield sufficient information from which conclusions and recommendations could be drawn. Field research was therefore extended, to include case studies which could be undertaken by the author during a European tour. Each of the squares is located in a community exceeding 100,000 persons, (excepting Siena whose current population is only 70,000), and is situated within the central business district of the community. Although the author was aware of most of the squares by name, or by photograph before their selection for study, he made no conscious attempt to choose squares which would influence the findings in any particular way. Inspection of the squares listed in Table I shows a broad variety of cities, which includes: capital cities, ports, industrial centres, tourist "meccas," ancient cities, medieval cities, nineteenth century cities, planned cities, unplanned cities, cities which are rapidly growing, and cities which have long ago witnessed their zenith. An understanding of the workings of public squares, from the perspective of the pedestrian, was sought from this conglomerate of twentieth century urbanism in western civilization.

The chapter first presents a classification of the squares according to the volume of pedestrian users and an analysis of the pedestrian usage. The classification then serves as the "measuring stick" by which relationships are examined relevant to: the forms, the internal developments, the adjoining land and building uses, and the urban structure of the vicinity.
of the square. The research methods and data sources are stated in Chapter I, (pp. 15-18); other details of survey methods and results are presented in the relevant sections. Conclusions from the case studies and a summary close the chapter.

I. THE CLASSIFICATION OF SQUARES ACCORDING TO THE PEDESTRIAN VOLUME

Assume that the value of a public square to a community increases as does the number of persons who make use of the square for informal, casual, activity in periods of leisure. Then other factors of: form, internal development, adjoining land and building uses, and the urban structure and pedestrian levels of the vicinity, may each be related to the volume of users. If the patterns, thus established, may be isolated and controlled, then city planners may be able to predict the general volume of pedestrian users under a given set of conditions. With this knowledge, public squares may be developed for the betterment of the community. This is not meant to imply that the only square of value to a community is a crowded or "busy" square, but that if a relationship may be identified with large volumes of users, and if this is predictable, then a relationship may also be identified for small volumes of users. Such information could then be utilized to develop squares with varying degrees of pedestrian volumes.
In each of the squares in the case studies, the number of persons using the square over a five minute period was counted at three different times. (The times were within the periods: 10 a.m. to 11 a.m.; 12 p.m. to 1 p.m.; and 4 p.m. to 5 p.m.) Persons who were only walking through the square were not counted; the enumeration was limited to those pedestrians who for some reason stopped momentarily or for a longer period of time. This was intended to separate from the calculation, the use of the square as a traffic artery for pedestrians, that is, to separate persons who use the square as if it were a street, rather than a stopping place, a square. Of the three pedestrian counts for each square, the most crowded five minute period was used for the classification. A ratio was made for each square using the volume of users, over the area in acres, of each square. * The squares were then divided into one of the

* This method was limited by the inaccuracy of attempting to count large numbers of persons in busy squares while it was more adequate in counting the lightly used squares. Furthermore, it was impossible to take counts in each square on enough days to minimize the chance that the days that a square was studied were not unusual. All studies of pedestrian volume were made during the period November 1 to April 15 excepting for the squares in British Columbia which were also studied during the summer months.

A more accurate method of counting would be to place a person at each entrance to the square. They would 1) count all persons entering and leaving the square over a given time period, 2) interview each person to determine his use of the square; and 3) insure that no person was counted more than once. Other information regarding the pedestrian counts is found in Chapter I. p. 16.
three classifications of light, medium, and heavy usage. The divisions were arbitrarily selected as:

Light : squares with a "pedestrian volume/area" ratio of less than 20
Medium: " " " " " 30 to 50
Heavy : " " " " " more than 50.

The results of the ratio classification are listed in Table II.

The ratio of the number of pedestrians/area of the square, in acres, may be termed the "pedestrian volume ratio," or P. V. R.

In the squares of "light" P. V. R, the number of persons to be counted was very low, and this made the task simple; the resulting figures are hence quite accurate. The ratios vary from 4 to 18. The squares of medium P. V. R. each had a pedestrian count of 110 or less, excepting Plaza de Espana a very large square which had a count of 360. The ratios in the "medium" class range from 35 to 45. The volumes of users in the "heavy" P. V. R. classification varied from 270 to 590. These were most difficult for a single person to count accurately, but in all such cases the squares were very obviously crowded busy centres of pedestrian activity. The ratios in the "heavy" class vary from 57 to 95.

Table II shows a very wide numerical difference between highest ratio of 95, at Union Square, and the lowest ratio of 4, at each of Civic Square and Place de la Concorde. The average P. V. R. for each of the three classes was:
### TABLE II

CLASSIFICATION OF SQUARES BY VOLUME* OF PEDESTRIAN USERS AND AREA

<table>
<thead>
<tr>
<th>Classification</th>
<th>Name of Square</th>
<th>No. of Pedestrian / Area**</th>
<th>Pedestrian Volume Ratio in Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Usage</td>
<td>Union Sq.</td>
<td>220 / 4.4 acres</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Syntagma Sq.</td>
<td>590 / 6.5 &quot;</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>P. San Marco</td>
<td>270 / 3.4 &quot;</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Nathan Phillips Sq.</td>
<td>340 / 4.3 &quot;</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>P. del Duomo</td>
<td>510 / 7.0 &quot;</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Trafalgar Sq.</td>
<td>350 / 6.1 &quot;</td>
<td>57</td>
</tr>
<tr>
<td>Medium Usage</td>
<td>Pl. de Espana</td>
<td>360 / 7.9 acres</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>P. della Signoria</td>
<td>65 / 1.6 &quot;</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Centennial Sq.</td>
<td>20 / 0.5 &quot;</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>P. del Campo</td>
<td>110 / 2.9 &quot;</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Victory Sq.</td>
<td>75 / 2.1 &quot;</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Grand'Place</td>
<td>70 / 2.0 &quot;</td>
<td>35</td>
</tr>
<tr>
<td>Light Usage</td>
<td>Pl. Mayor</td>
<td>45 / 2.5 acres</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Leicester Sq.</td>
<td>25 / 2.7 &quot;</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Pl. de l'Etoile</td>
<td>85 /11.3 &quot;</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Pl. de la Concorde</td>
<td>65 /15.0 &quot;</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Civic Sq.</td>
<td>35 / 9.8 &quot;</td>
<td>4</td>
</tr>
</tbody>
</table>

*Volumes are based on counts taken on days of normal usage during pleasant seasonal weather conditions.

**Area of each square was measured from the outermost limits of the square, and includes sections used for vehicular traffic.

***Including the Piazzetta.
Table II shows that there is not a relationship between the size of a square and the number of users. There are: large squares which are little used, such as Civic Square; large squares that are heavily used such as Trafalgar Square; comparatively small squares that are busy urban spaces, (e.g. Piazza San Marco); and small squares with little usage, (e.g. Leicester Square.)

It is interesting to compare the date of development of a square, with the pedestrian volume ratio. This information is provided below in Table III, "A Comparison of the Age of Squares with the Pedestrian Volume Ratio." The dates listed are approximated from the century in which the major development of a given square was initiated. In such cases as Centennial Square in Victoria, an exact date could be given with facility. But in other examples such as the Piazza San Marco, and the Piazzetta, the development occurs over a long period of several centuries of expansion of the site and the construction of surrounding buildings. For the purposes here, a series of dates rather than a single date is more adequate.

From Table III it can be seen that:

i) each pedestrian volume ratio has squares of a broad age group;

ii) there is an increase in usage with an increase in age, but
TABLE III
A COMPARISON OF THE AGE OF SQUARES WITH THE PEDESTRIAN VOLUME RATIO

<table>
<thead>
<tr>
<th>P.V.R.</th>
<th>Name of Square</th>
<th>Date by Century From First Major Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>HEAVY</td>
<td>Union Sq.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Syntagma Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. San Marco</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Nathan Phillips Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F. del Duomo</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Trafalgar Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Average Age</strong></td>
<td></td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Pl. de Espana</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. della Signoria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Centennial Sq.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>P. del Campo</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Victory Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grand'Place</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Average Age</strong></td>
<td></td>
</tr>
<tr>
<td>LIGHT</td>
<td>Pl. Mayor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leicester Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pl. de l'Etoile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pl. de la Concorde</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Civic Sq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Average Age</strong></td>
<td></td>
</tr>
</tbody>
</table>
this is due to two extreme cases, and is not to be given
great weight;

iii) there are twentieth century squares in each of the three
usage classifications.

The oldest square in the case studies is Milan's Piazza del
Duomo which F. Hiorns says is on the same site as the original Roman
Forum of the city. Piazza San Marco began as a parvis before the
cathedral which was begun in 830 A. D.; it was a market place by 1000,
and was greatly enlarged in the twelfth century.

None of the "light" use squares were of earlier date than the
sixteenth century. This may be explained by other factors in succeeding
sections of this chapter.

It should also be noted that there is no clear relationship between
the country in which a square is located and the volume of use. Heavy
usage classifications were revealed in such geographically distant cities
as Athens and San Francisco; and light usage was found in each of London,

\[110\] Frederick R. Hiorns, *Town Building in History*,
\[111\] Paul Zucker, *Town and Square* (New York: Columbia
University Press, 1959), p. 114
II. PEDESTRIAN USAGE

The total number of persons who use squares may be considered as a homogeneous mass of people. This was the method employed in calculating the pedestrian volume ratios; there was no attempt made to differentiate from one user to another, nor was there grouping of users into several categories. But closer inspection shows that the total volume of users is segmented into numerous types of users who may be classified according to several overlapping divisions. These include grouping by: age, sex, occupation, origin and destination, and times of use.

These are sub-groups within the total volumes of users and they are not intended to be correlated within the pedestrian volume ratio. The patterns of square usage by groups did not in fact correlate with the P. V. R. of heavy, medium, or light usage. The pedestrian usage sub-groups show instead certain characteristics found common to the divisions of the P. V. R. These are described below in the remainder of this section.

A. The Age of Pedestrian Users

The age groups of square users were estimated by the author according to physical appearance, and only for bread categories of: under twenty-one, twenty-one to forty, forty to sixty-five, and over sixty-five. It is expected that numerous errors occurred in this estimation
but it is reasonable to assume that the errors were evenly distributed between groups and hence not of great consequence. (ideally each pedestrian would have been interviewed and asked his age, but even with an army of interviewers, numerous people hesitate or refuse to reveal this personal information.)

For the total group of squares there was no age group that was found to be dominant in all squares or even the great majority of the squares. This was true of both sexes. Neither was any age group found to be absent from a significant number of the squares. But one peculiarity of age was recorded in Victory Square, Centennial Square, Civic Square, and Leicester Square, (representing four out of seventeen squares studied). The peculiarity was that over one-half of the regular users were persons estimated to be over sixty-five years old. This group was predominately male. Of the persons interviewed, they visited the squares most frequently and for the longest periods of time. Most of these men were retired or claimed to be "temporarily unemployed." Their quality of dress suggested to the author a low level of income. Large numbers of elderly men were also observed in Nathan Phillips Square; but here because the total number of square users was great the "senior citizens" did not take on an undue proportion of the total.

The disproportionate age group of users in the four squares cited is listed as follows:
Squares With Over 50% of Users Aged Above 65 Years

<table>
<thead>
<tr>
<th>Square</th>
<th>Ped. Volume Ratio</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centennial Square</td>
<td>&quot; &quot; 40</td>
<td>Medium</td>
</tr>
<tr>
<td>Civic Square</td>
<td>&quot; &quot; 4</td>
<td>Light</td>
</tr>
<tr>
<td>Leicester Square</td>
<td>&quot; &quot; 9</td>
<td>Light</td>
</tr>
<tr>
<td>Victory Square</td>
<td>&quot; &quot; 36</td>
<td>Medium</td>
</tr>
</tbody>
</table>

The reason that so many elderly persons were in these squares is not difficult to postulate. It is quite likely a matter of leisure and limited financial resources. They desire to pass many hours inexpensively in a pleasant atmosphere. The public square can offer them this. The large old age group was not found in any of the heavily used squares. A large number of rooming houses and lower class hotels are located near Victory, Centennial, and Civic Squares, many of the older men interviewed lived in these places; and Leicester Square is at the edge of London's Soho and Covent Garden districts which also house numerous old people.

Abutting Centennial Square is Victoria's 'Senior Citizens' Activity Center." This community facility would be expected to contribute a large number of square users. But this Activity Center is frequented largely by elderly ladies of whom only a very few use the square as anything but a "short-cut"; this was reported in an interview with the assistant city manager of Victoria who has taken many opportunities to observe the activity within Centennial Square. 112

112 Interview with Mr. W. Hooson, Assistant to the City Manager, Victoria, March, 1966.
Jane Jacobs has recorded a similar factor of people in leisure in her examination of public open space. She writes:

There is one group in cities which, all by itself, can enjoy and populate a park long and well — although it seldom draws other types of users. This is the group of people with total leisure, the people who lack even the responsibilities of home, and in Philadelphia these are the people of Penn's third park, Franklin Square, the Skid Row park.

The large proportion of old people in these parks is possibly also due to the fact that each of Centennial, Civic, Leicester, and Victory Square is in an old part of the city where low cost accommodation is available in hotels of the vicinity. Elderly residents of these hotels make use of the nearby open space to pass some of their leisure. If these people were not in the area, the squares in question would be less important to the community as a meeting place.

B. The Occupations of Square Users

The occupations of persons using squares was recorded by personal interview, and from information volunteered by persons whose own occupation brings them into close and frequent contact with the general users. (These were waiters in sidewalk cafes, clerks in tourist information centers located by the squares, students, who read frequently in the squares, and salesladies, in shops abutting the squares.)

---

information showed that particular occupation groups used the square for leisure at particular times of the day.

In the well known squares of Europe (i.e., P. San Marco, P. della Signoria, P. del Duomo, P. del Campá, Grand 'Place, Pl. de l'Étoile, Pl. de la Concorde and Trafalgar Square), the early morning visitors to the squares were few in number, and these were drawn largely from the tourists who had come to see the squares and the landmarks around them. Cold morning air or rain seemed to diminish the size of this group in the morning, but, it did not stop them. They were most likely adhering to schedules that established a limited and specific time for such visits.

Persons employed in the general area of the square were frequent lunch-time utilizers of the eating facilities. In the North American and English squares this meant a bag-lunch and, a bench, a wall, or lying on the grass. The persons doing so were predominantly sales girls, workers from nearby construction sites, students, and office staff. In Europe the lunch-time "square-goers" crowded the sidewalk cafes where they purchased drinks and food. Their occupational group was not classified, but the usually easy to recognize European labourer was not noticed by the author, probably because he did not work nearby, and could not afford the relatively high price of refreshment on the squares' cafés.
Madrid's Plaza de España, and San Francisco's Civic Square, were each visited in the afternoon by women who sat alone or met in small groups. They appeared to be middle aged housewives, and often had babies in carriages. In Plaza de Espana, on the three successive weekday afternoons when it was studied, a group that varied in size from two to eight women gathered informally to knit and, of course, talk. Mid afternoon casual gatherings of women of an older group in Plaza Mayor were also observed. (Figures XXXIII and XXXIV).

Plaza de Espana

FIGURE XXXIII

Plaza Mayor

FIGURE XXXIV

The students were a frequent occupation group to visit Vancouver's Victory Square and the Piazza San Marco of Venice. In the former case the nearby Vancouver Vocational School and the Vancouver School of Art were the points of origin, while in Piazza San Marco, students gathered by the Campanile and along the Piazzetta when they left the "Biblioteca Marciana" to smoke cigarettes or just to stand and watch the tourists. The retired unemployed users have previously been mentioned. Younger
people without occupation were also a frequently interviewed group in San Francisco's Union Square. One such person who claimed to be a writer exclaimed, "I come to this place whenever I can. It's the greatest! It moves!"

The Place du Tertre in Paris's Montmartre district is a favourite site for oil painters to gather. (Figure XXXV). Artists are also common visitors to Piazza San Marco, Piazza della Signoria, Piazza del Campo, and even Victory Square.
In summary, the people who use the public square, wherever it was studied, have come from a broad range of occupational backgrounds. Their diversification was noted on both continents and implies that the public square, in the core of large cities, has an attraction not limited to any particular occupational section of a community, but includes children, housewives, clerks, office personnel, business men, artists, students, the unemployed, the retired, and tourists.

C. Origin and Destination

The direct pedestrian interviews (see appendix) conducted for the squares in San Francisco, Victoria, and Vancouver, attempted to discover the residence of the squares' users. This item had to be abandoned as not a sufficient number of the persons cared to volunteer the information, on which to formulate conclusions. Due to language difficulties and lack of time direct interviews with pedestrian users were not conducted in the other squares. From the squares where the interviews were attempted, many of the older men were kind enough to name a nearby street or hotel in which they resided; but the majority of persons were uncommunicative and not infrequently hostile on this area of data collection.

The questions of the last point of origin before coming to the square, and the point of destination intended upon leaving, were more readily revealed. For each of Civic Square, Victory Square, and Centennial Square, most of the persons interviewed came from and were
going to a location within approximately five blocks of the square, that is from a point within the vicinity of the square. Also a large number of these same persons returned to their point of origin directly after leaving the square.

A great number of persons walk through a square on a pedestrian trip. They throng the perimeter sidewalks along squares situated in areas of high pedestrian levels of a city, such as in Union Square, Piazza del Duomo, and Leicester Square. Although these persons are participating in the activity of the square, and may be enjoying its amenity, they were using the square as a traffic route rather than as a meeting place. These "passers-through" were not included in the pedestrian counts and were not the subject of any interviews.

Interviews at Victory Square and Civic Squares showed that the greatest majority of persons using the square came from or went to a location within the vicinity of the square. They were predominately going or coming from their place of residence, or work.

Unlike this, many users of Union Square come from a location considerably beyond the general urban core area within which the square is situated. Union Square was, therefore, deemed to be a functional open space for the whole of the community and for tourists from beyond. Centennial Square is also a magnet for tourists, although the interview did not reveal this. (It was learned through discussion with residents of the city.)
Using the research data there is evidence to suggest, but not to conclussively state the following categorization of the pedestrian users of public squares:

i) Square users are generally distributed evenly between the age groups, excepting a disproportionate number of elderly men found in North American squares of light and medium use.

ii) The diversification of occupation groups that use the square is general and not limited to any small section of the community. This was the pattern in squares of all volumes of usage.

iii) Some squares are used predominately by persons who come from and go to areas quite near the square, while other squares are used predominately by persons who come from and go to areas inclusive of a much greater part of the total community. Neither of these two characteristics was particular to any P.V.R. group.

iv) Different groups of square users such as: local office and retail shop workers, mothers with children, and housewives, were found to use the square at particular times of the day; students, tourists, the unemployed, and the retired were found to use the square throughout the day.
III. FORM AND PEDESTRIAN VOLUME

In Chapter II a spatial classification of form was outlined which uses the terminology of Paul Zucker. This system divided the squares of the study into classes of: closed, nuclear, dominated, grouped, or a combination of these. Analysis of form by space also recognizes three bounding elements; these are the ground, the sky, and the sides. The ground plan of a square has two simple categories which are: first, those whose plan are regular geometric shapes, such as a circle, a rectangle, a rhombus, a triangle, a square (geometric), or an ellipse; and second, those whose plan is an irregular shape. A further division of form is between those squares whose ground is basically a flat plain in profile, and those whose ground is sloped or broken into two or more levels. These may be named "flat" and "non-flat." These divisions of form were tabulated in order to identify the spatial form of the squares, and to demonstrate any relationship that may exist between particular forms and the volumes of pedestrian usage. (Table IV.)

Regarding the spatial classification of squares, Table IV indicates the following correlation with the P. V. R.

1) No particular form within the four classifications can be isolated as an influence on the P. V. R. In each of the heavy, medium, and light ratios there was a mixture of at least three forms. Several squares had combined
## TABLE IV

**SPATIAL FORM AND THE PEDESTRIAN VOLUME RATIO**

<table>
<thead>
<tr>
<th>P. V. R.</th>
<th>Name of Square</th>
<th>closed</th>
<th>nuclear dominated</th>
<th>grouped</th>
<th>regular</th>
<th>irregular</th>
<th>flat</th>
<th>non-flat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy</strong></td>
<td>Union Sq.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Syntagma Sq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. San Marco</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nathan Phillips</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. del Duomo</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trafalgar Sq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td>Pl. de Espana</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. della Signora</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Centennial Sq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. del Campo</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Victory Sq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grand' Place</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Light</strong></td>
<td>Pl. Mayor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leicester Sq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pl. de l'Etoile</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pl. de la Concord</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Civic Sq.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
classifications; this too was found in each P. V. R. group.

ii) Squares in the heavy and medium usage groups had either regular or irregular ground plans. The light usage squares all had regular ground plans. This indicates that squares with a regular or irregular ground plan may have a high P. V. R. The author does not believe that being regular caused a decline in usage in the lightly used squares; other stronger influences to be discussed in the following pages are more likely influences.

iii) Squares in the heavy and medium usage groups had either flat, or non-flat profiles. The light usage squares were all flat. Again, a cause and effect relation may not be claimed, but it is indicated that both non-flat and flat squares may have medium or heavy usage. Furthermore a broader sampling would probably have uncovered examples of light usage squares which had a non-flat profile.

In summary, analysis of the spatial-form of squares and the volumes of pedestrian usage, shows that: no particular spatial form is characteristic of any P. V. R.; regular ground plans are not a prerequisite to squares of high usage; and flat profiles are not a quality of all heavily used squares. Therefore, it is suggested that the physical forms of squares as they are defined in Chapter II are not functions of the pedestrian usage. If this opinion of the author is correct, it is contrary to the
hypothesis, and suggests that the question of forms is a flexible issue having different solutions to different problems. However, if the findings regarding flat, and regular shaped squares is not explainable by other more significant factors, then it must be concluded that squares which are regular in plan, and flat in profile have a detrimental effect on the volume of pedestrian usage.

IV. INTERNAL DEVELOPMENT AND THE USER

The activities of people in squares encompass the broad scope of actions that are made available to them by the internal physical development of the square. The actions observed during the course of the study reveal degrees of movement, of mental activity, of enthusiasm and interest towards the happenings of the square, of exuberant joy of living, of preposterously, humorous people as they react to each other and the square itself.

Jane Jacobs, Sigfried Giedion, Gordon Cullen, Grady Clay, G. E. Kiddersmith, Lawrence Halprin, Kevin Lynch and Camillo Sitte, are among the numerous authors who refer to the vital importance of the internal development of the square to the effective utilization of it by people. Pools of water, gushing fountains, bold sculpture, brilliant flowers, trees, and the motion of birds in flight are among the ingredients of the "potion that will spew forth people." Using data collected in the research this theory was more closely examined. Table V "The Relation of the Internal Development to the Pedestrian Volume Ratio" was prepared
to identify any relationship that may exist between the volume of persons who use squares and certain internal elements of the square. The items selected for testing were, whether or not:

i) a fountain or pool was in the square;

ii) there was sculpture in the square;

iii) food or other refreshments were available to the public in the open air cafes;

iv) large trees were growing in the square;

v) a display of flowers was an element of the square;

vi) there was a provision for seating in the square, in addition to any that may be provided in a café;

vii) the square was divided into specific areas for pedestrian and vehicular use;

viii) pigeons were numerous in the square;

ix) the ground surface was paved or was grass, gravel, or earth.

None of the components of Table V were evaluated for quality; instead the mere presence of the element was sufficient to indicate a positive notation in the tabulation. The consistent patterns suggested by the table is startling. It seems to confirm the opinions of the authors cited above and gives concrete support to the idea that the pedestrian usage of the public square is a function of the internal elements of the square and these may be a principle determinant of the types, incidence, and period of the pedestrian usage.
# Table V

## The Relation of the Internal Development to the Pedestrian Volume Ratio

<table>
<thead>
<tr>
<th>Name of Square and P.V.R.</th>
<th>Number of *Elements pool and/or (excluding pool element)</th>
<th>Fountain</th>
<th>Sculpture</th>
<th>Open Air</th>
<th>Large Flowers (in addition to cafe)</th>
<th>Seating</th>
<th>Separate Pigeons</th>
<th>Ground paved</th>
<th>Ground not paved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEAVY P.V.R.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Union Sq.</td>
<td>5</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Syntagma Sq.</td>
<td>8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>P. San Marco</td>
<td>3</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>P. del Duomo</td>
<td>6</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Trafalgar Sq.</td>
<td>7</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nathan Phillips Sq.</td>
<td>6</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>% of total possible with element*</td>
<td>65%</td>
<td>50%</td>
<td>100%</td>
<td>50%</td>
<td>33%</td>
<td>83%</td>
<td>83%</td>
<td>83%</td>
<td>83%</td>
</tr>
<tr>
<td><strong>MEDIUM P.V.R.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pl. de Espana</td>
<td>6</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>P. della Signoria</td>
<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Centennial Sq.</td>
<td>3</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>P. del Campo</td>
<td>3</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Victory Sq.</td>
<td>6</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Grand'Place</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>% of total possible with element</td>
<td>39%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>33%</td>
<td>83%</td>
<td>50%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td><strong>LIGHT P.V.R.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pl. Mayor</td>
<td>2</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Leicester Sq.</td>
<td>4</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pl. de l'Etoile</td>
<td>4</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pl. de la Concorde</td>
<td>2</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Civic Sq.</td>
<td>4</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>% of Total possible with element</td>
<td>35%</td>
<td>20%</td>
<td>80%</td>
<td>20%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>80%</td>
<td>0%</td>
</tr>
</tbody>
</table>

* Excluding whether paved or unpaved.
An examination of the details of the findings will attempt to explain how the internal development of a square is related to the pedestrian usage volumes. Examples available from the case studies, literary sources, and from other squares studied by the author, will hopefully allow the reader to imagine or recall the square in "action."
The internal elements to be discussed are those listed in Table V.

A. Pools and Fountains

Nathan Phillips Sq., Royalty Spec. Sales,
Toronto Toronto.

FIGURE XXXVII
A fountain or pool of water is the earliest internal element of a square that the research identified. It was consistently found in squares throughout their historical development from the ancient Aegean world to the modern age. In the case studies, it was found that a fountain or pool was a significant internal element in:

- 65% of the heavy volume squares;
- 39% "medium";
- 35% "light".

The sight and sound of water in motion in public squares is a consistently observable focus of pedestrian activity. In Toronto's Nathan Phillips Square, and San Francisco's Civic Square, people would often sit on the benches about the pools or on the stone walls of the pool. They read newspapers and books; talk to each other; and watch the reflecting pools. The flowing of water or its constant splash seemed to be a pleasant, refreshing, and peaceful sound. A "romantic" would recognize an association of man and nature.

The fountains of Trafalgar Square, Piazza San Pietro, Piazza della Signoria, and Centennial Square were more exciting. Water splashes down from sculpture, or, from jets of water. The continuous motion of a traditional "wedding cake" like fountain, or the programmed variations of contemporary fountains, each seem to fascinate onlookers. They were observed: to stand and stare from a short distance; to sit
at the fountains edge and feel the cool water. More youthful delight in the fountain is demonstrated when children climb right in and splash to further amuse both themselves and entertain others. This generally harmless activity is sometimes arrested when fences prevent children from possible danger.

The full extent of public appreciation of fountains was strongly demonstrated to the author at a recent visit to the former World's Fair site in Seattle. Here, the sunken fountain is programmed to create elaborate and complex effects with jets of water that radiate from a central hemisphere; recorded music accompanies the water cycle. On a summer evening a crowd of about fifty persons was seated at the pools edge. The fountain performed while Handel's "Water Music" accompanied loudly, and coloured lights exaggerated the effects of the event. When the cycle was complete, the onlookers spontaneously began to clap their hands as if applauding an animate theatrical event — indeed to them it was. The fountain had performed a ballet of water and the audience had shown its appreciation.

While all fountains do not receive or even merit applause, they were found to be a major attracting element in public squares.

Why fountains and pools should have this somewhat mysterious magnetism on people is not easily understood. Lawrence Halpin goes beneath the rational level of human experience to explain this phenomena of our species. Halpin writes:
There is a quality about water which calls to the most deep rooted and atavistic part of our nature. In the deep canyons of our cities, water, along with fire, trees, and the almost hidden sky above, are the elements which can still tie us to our primitive past. Of all these, water and fire evoke the most direct responses. Fire in the city is dangerous, negative and evil; while water is positive and life-giving — the element from which we have all come. The wildness and exuberance of water stirs us with its qualities of nonconformity and vigor.114

The fountain and pool as furnishing elements in the public square seem to answer a human need. The widespread and general public gratitude for the pleasure of this community facility is expressed each time

a pedestrian or motorist stops or takes a passing glance at such fountains. The frequent and lengthy duration of onlookers about fountains in each square where they were located reflects their positive influence on the number of persons who use squares. The author has no doubt that people will go to a square specifically to see a fountain. The Centennial Fountain in the square before Vancouver's courthouse is such a case. Tourists, (easily recognized by their cameras) and local residents of the area were recently seen by the author at this square after 1 a.m.; they were standing or sitting and looking at the spurting jets of water and the "sculpture, " their number, at this early hour, exceeded thirty persons. Centennial and Civic Squares each had a high proportion of their use focused about the fountain and pool. For each of these light and medium pedestrian volume squares it may not be unjustified to predict that without these water elements the number of their users would decline and hence a similar decline of the value of the public square to the respective community.

B. Sculpture

Sculpture in public squares was the internal element most common to the furnishing of the squares studied. Sculptures were found in 100% of the heavily used squares, 50% of the medium used squares, and 80% of the light used squares. In Centennial Square and the Campo, sculpture
was not present in its own right but was part of a fountain. * In Grand'-

1'Place there is a considerable amount of sculpture on the building facades,
but this was not considered an "internal" element. In the Place de
l'Étoile sculpture is a great part of the Arch of Triumph and the Arch
itself could be considered as a gigantic sculpture.

Sculpture in the square has two principle functions. The first
is related to the original reason that the sculpture was placed. Second
is the function of its present day use.

Chapter II has shown that, as a commemorative device in public
squares, sculpture has a long history beginning in the Agorâi of Greece
and continuing on through the Baroque period. This is equally true of
the modern squares whether their sculpture remains from an earlier
date or is of the twentieth century. The column mounted with a figure
is a common example: in Trafalgar Square is Nelson's Column —
a homage to Britain's hero of the Napoleonic Wars; in Union Square,
the Admiral George Dewey Monument is a reminder of the naval battle
at Manila Bay in the Spanish-American War. In Syntagma Square a bas-
relief marks the Tomb of the Unknown Soldier; in Victory Square, soldiers
of three wars are remembered through sculpture; and in Piazza del
Duomo, Plaza de Espana and Plaza Mayor, statues of Victor Emmanuel,
Cervantes, and Philip IV respectively, are given a central place of honour.

* It may be argued that all manmade fountains are in fact sculpture and
water is a medium of this form, but for the purpose of this study the two
are counted separately.
In each of these cases, a city or nation has chosen the public square as a most suitable place to honour its heroes through a sculptured symbol.

The artistic genius of a civilization may be represented by the sculpture in a square. Piazza della Signoria is thus a museum to such Florentine giants as Michelangelo, Bandinelli, Cellini, and classical sculptors. Whether such sculpture is held in awe, as is Michelangelo's David, or is regarded as somewhat of an artistic misfortune, as is Bartolomeo Ammanati's Neptune, the square itself gains in importance not only as a museum but as a focus of community identity. The Neptune is disparagingly known to Florentines as "il biancone" which is loosely translated as "the big white thing", but even so it can hardly be doubted that in spite of questionable aesthetic value, the removal of "il biancone" would be sorely missed in Florence. Similarly, in Toronto, Henry Moore's Archer created public controversy upon its erection in Nathan Phillips Square; but this very controversy has caused many pedestrians to go into the square and see for themselves. On each occasion that the author visited the square, people continuously gathered about it to see what "the fuss was all about;" they posed beside it for pictures; children climbed on the base and crawled through the statue's openings; other persons touched it, seeming to draw tactile pleasure from the cold bronze. Regardless if the work is good or bad — today people go to the square and see the sculpture and are attracted by it and take conscious or unconscious joy from it. People do go to the square with the objective of seeing the sculpture. The sculpture is thus a contributing
Sculpture in Squares

FIGURE XXXIX.

factor to the pedestrian usage of the square. Lawrence Halprin writes that "we need great sculpture in the street to comment on our civilization and speak of the condition of our culture, even, possibly, to throw stones at it." Art lovers may reject the use of statues as targets, but Halprin's opinion of sculpture for streets certainly warrants

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115 Ibid., p. 9.
equal consideration for public squares. This value of sculpture in the heart of a city was discussed at the 1951 International Congress for Modern Architecture. Writing for the publication of that gathering, J. J. Sweeney says:

... if 'the Core' is to function spiritually as a Core, human attention must be brought to focus there as intensely as possible; and sculpture by its very nature is a most efficacious means to this end. ... But what is most important for the Core of the city is the focal intensity which sculpture can provide, whether free standing sculpture related by similarity or contrast to the architecture of the city's Core and composed spatially with the surrounding buildings, or sculpture that makes an intimate
part of the buildings themselves through a unity with them in technical expression as well as in symbolic associations. Such a marriage of the material and immaterial and such a footnote of monumentality is what sculpture, conceived in proper relationship to a building, or to its surroundings will provide.\textsuperscript{116}

The architects have hit upon this relationship of sculpture to the urban core, but certainly the planner must also be conscious of this urban amenity and encourage its effective use in public open spaces of contemporary cities. The research for this paper found numerous examples of sculpture playing a significant role in the activity of squares as shown by the numbers of persons who gather about it; learned authors and civic designers have recognized its value among the furnishings of public open spaces; from these two sources it is very strongly suggested that sculpture in the public square is an amenity factor which, when present, tends to increase the number of persons who use squares, and also broadens and deepens the relationship of people to the square and hence to the community. The sculpture need not be an individual art object in the commonly accepted sense. It includes the sculptural decoration of a building (e.g. a Gothic church façade), or perhaps a building itself, (e.g. San Marco in Venice), or a gushing fountain, even a flashing sign, (e.g. signs in Times Square New York, or the main street of Las Vegas). It is not important that the element meet an arbitrary definition of sculpture, but rather that it has the fascinating and arresting effect of "sculpture" on people who see it.

\textsuperscript{116}J. J. Sweeney, "Sculpture and the Core of the City, " \textit{The Heart of the City}, (London: Lund Humphries, 1952), p. 59.
C. Pigeons:

Pigeons are dirty, often covered with vermin, and their excrement mars: cornices, benches, sculptures, and the occasional pedestrian, of many public places. Yet they have a positive side which should be considered. Table V shows that pigeons were numerous in 83% of the heavy volume squares; 33% of the medium volume squares; they were not numerous in any of the light volume squares. It could be concluded from this that pigeons like people, or perhaps people like pigeons. It would, however, be more correct to suggest that theirs is a mutual fascination. In Trafalgar Square, Piazza San Mareo, Syntagma Square, and others, pigeon feed is sold in the square each day by vendors with a small tray or wagon. For a few cents, a small bag or can of seeds is purchased by those numerous people who like to feed pigeons. With arms outstretched these persons may become literally covered with pigeons attracted by the food. Persons without feed who keep their arms to their sides are most apt to be ignored. In Vancouver's Pioneer Place, one elderly gentleman was observed to visit the square three times each day laden with bags. The pigeons recognized him and flock to his arms, shoulders, and head. In a short while he will have taken assorted grains from his bags and pockets and begun his routine of feeding. In Plaza de España, Piazza del Duomo, Piazza del Campo, Syntagma Square, and Union Square, pedestrians who had brought pigeon feed with them were also observed. There is then a cycle of: pigeons which are in squares
because they like to be fed; people who know there are pigeons in the square and like to feed them; and vendors who see a commercial opportunity and make use of it. It is interesting that Nathan Phillips Square has only few pigeons at the present time; but if it follows the pattern of each of the other heavily used squares, then pigeons and their feeders will eventually congregate there in larger numbers. The presence of pigeons in a square is a pleasant distraction to persons in addition to those who feed them. Large crowds of people were frequently seen gathered to watch the pigeons being fed. People stand about the square waiting for a flock to land or take flight. This can be an exciting event. In Piazza San Marco, Trafalgar Square, or the Campo the
sudden flight into the air of hundreds of birds, flying in a swarm, and creating a loud beating sound with their wings, has frightened and delighted tourists and local residents for many years. It can be a magnificent sight. In P. San Marco, the birds seem about to block out the sun; when they return to ground, their cooing adds another sound to the urban scene. Some people go to P. San Marco specifically to see the pigeons; it's an event about which visitors like to speak. The square is not only a setting for the byzantine church, but, it is a circus ring for the aerial acrobatics of birds. Their swift movement contrasts with the static setting of architectural façades, and on the ground they add a "living" texture to the cold hard pavement. Other birds may have a similar affect.

D. Cafés:

The sidewalk café is a major aspect of public life in many communities of Europe. In seven of the seventeen squares surveyed, this was an additional internal element directed towards leisure life. Even though it was the winter season, the small tables in the open air cafes were well populated by people who gathered; to read; to watch the activity of the square; to talk; to meet friends; and to make new acquaintances. The cost of this is the price of a coffee or some other beverage; food is also available. The duration can be just a few minutes, or a few hours. Usually the tables are located on the sidewalks about the edge of the square as at Il Campo, P. del Duomo, and P. della Signoria; or the tables may extend into the central area of the square.
Syntagma Square, Athens.
Piazza San Marco, Venice.

FIGURE XLII

In the latter case, the open air cafes are operated by hotels abutting the square which have underground service passages beneath the road, connecting the interior of the square with the hotels.

Sidewalk cafes were found in:

50% of the heavily use squares;
50% " " medium " " ;
20% " " light " " .

Pedestrians go to open air cafes situated in squares; the information available does not show that they utilize such cafes in preference to those not on squares. But the extensive amount of land used for the sidewalk cafes in P. San Marco, and Syntagma Square indicate a measure of the success of such facilities.

These sidewalk cafes are usually situated on publicly owned land which is rented to adjacent restaurants and bars. The cafe may interfere with the width of sidewalk space available for pedestrian traffic,
but citizens of these cities seem to be of the opinion that a busy open
air cafe is a suitable and *public use* of public land. If the "city is for
the people" this may be a land use concept worthy of extensive experiment
in North America. The large numbers of persons who eat packed-lunches
in the North American squares studied indicates a possible market. The
institution of the "coffee break" in the working day of America is a further
source of probable users, as are shoppers. Grady Clay reports the
great public success of the sidewalk cafes in New Orleans. He writes:

> Jackson Square is proof that it is possible to attract Americans to outdoor cafes in the United States. There seems to be a current mythology about sidewalk cafes. 'Practical minded' men say "That's all right for Europe but it won't work here." May I suggest they go to the Cafe du Mond across from Jackson Square, a happy, gay spot both night and day, crowded with local citizens as well as tourists. 117

The cafes set up in the summer malls of Ottawa's Sparks St.
and Kitchener's King St. are Canadian examples of well used open air
food facilities in the urban core. But the restaurant located at Victoria's
Centennial Square is reported by city officials to have had only minor
success in its attempts at open air service. The lesson of European side­
walk cafes may be that beverages and light lunches or "snacks" receive
considerable public response but "dining" in a public street or square is
less apt to be of extensive public use. The sidewalk cafe may be a very
casual place, in a comfortable setting. It can be under an arcade, an
awning, umbrella, or completely in the open. In many cases, especially
on the boulevards of Paris, the sidewalk cafe may be "glassed in" for
weather protection.

In Toronto's Nathan Phillips Square "soft drinks" are sold in the summer months from street vendors. The roof of the portico surrounding the square seems to be an excellent location for casual café facilities, such as umbrellas and tables, but this has not been attempted. Renting such space to private restauranteurs is an idea that city governments may find both profitable and beneficial to the community.


Since the development of the residential square in the baroque style the subject of beautification of urban open spaces has frequently turned to garden elements. Trees, flowers, grass and shrubs, add new varieties of colour and texture to the urban space which had formerly restricted its furnishings to the basics of fountains, statues and pavements, surrounded by buildings. These all were fashioned from the concrete materials of stone, metal, and wood; all were limited in colour to the natural hues of the building materials, with occasional use of paint or coloured tiles.

Squares of this type still are extant, being preserved and highly respected in their cities. Of the squares in this study, this type if exemplified in: Grand 'Place, Place de la Concorde, Plaza Mayor, and each of the Italian squares, (P. del Campo, P. del Duomo,
P. San Marco, and P. della Signoria. The introduction of the auxiliary elements drastically altered the character of the square and its relation to the city.

The public square was the apex of urbanity, the symbol of all that the city had come to represent. Trees, grass, flowers, and shrubs are a natural element even though they may be organized by man. If they are allowed to totally dominate a square, they may be likened to a "fortress of nature" shutting out the city, and injecting the rural, rejecting both the assets and faults of the community by the isolation of total contrast. Considering the relation of natural elements in the townscape J. L. Sert writes:

The landscape of the Core is essentially a civic landscape. It is a place where the civic expression of a town finds its highest point. This civic landscape is a product of man as opposed to a natural landscape, and in some cases natural elements — even trees — would be out of place. I would not suggest that this should be a general practice, but just consider for a moment how horrible a tree would look in the Piazza San Marco! It just could not live there; it does not belong, for man has taken the place of the natural elements and geometry has become paramount.118

Or these same elements may be carefully controlled and limited, so that their contrast to the city is subtle and refreshing. In the large modern city, a park-like square into which people may seek an adjourn-

ment from urban life has favourable support from many users. But the public appeal of such park developments in squares seems to have a decreasing effect on the number of pedestrian users.

From Table V the following data may be emphasized.

Large trees were growing in:

- 33% of the heavy use squares;
- 33% " " medium " " ;
- 40% " " light " " .

In the heavily used squares (Trafalgar, and Syntagma) trees were not dominant, and were restricted to a perimeter border in the case of Trafalgar, and a grove like garden in a part of the central area of Syntagma. This may be contrasted with the light use squares with trees, Place de l'Etoile, and Leicester. In each of these tall shade trees cover an extensive portion of the ground area.

The trees are usually a part of squares that are unpaved. The question of whether a square should be paved, or, planted with grass and arranged with gravel walks, is not decided by reference to Table V. It shows that:

- 83% of the heavy use squares are paved, and 17% are not;
- 58% " " medium " " " " " 42% " " ;
- 70% " " light " " " " " 30% " " .
There is no continuous decrease of pedestrian usage to correspond with the paving or non-paving of a square, even though there is a decrease between the heavy and light use squares.

The areas of greatest concentration of pedestrians in squares that have both paved and unpaved ground areas is a source of more useful information concerning trees, and gardens.

In Athens' Syntagma Square, (heavy P.V.R.) the park area of the square had few users, while the paved open areas were constantly crowded. The garden area of Trafalgar Square, (heavy P.V.R.), cut into the terrain before the National Gallery, was sparsely occupied at the same time when the paved area with its pigeons, fountains and statues was filled with movement, sounds, excitement and people. The formally planted trees and unpaved walks in the Place de l'Étoile had a few strollers, while a small, but continuous, group of visitors may be observed about the paved central area by the Arch of Triumph. This same pattern of pedestrian usage was observed in Plaza de España, and Civic Square. It was not the case in Victory Square, or Union Square. The planted areas of these two open spaces are interwoven with sidewalks, or large paved sections. Pedestrian activity is thus dispersed throughout the garden setting. Also the arrangement and size of the trees in these squares is not so dense or large as to shut out a view of the surrounding streets and buildings. On warm sunny days people commonly sit or lie on the grass. Sun bathing and sleeping are not unusual activities among the
The desire to beautify squares with garden elements can be the source of very colourful and decorative designs. Flower gardens were an internal development of;
83% of the heavy use squares;
83% " " medium" " ;
40% " " light " " .

In the author's opinion, these flower gardens were of importance to the decoration of the square only in the cases of:

<table>
<thead>
<tr>
<th>heavy use</th>
<th>medium use</th>
<th>light use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Square</td>
<td>Pl. de España</td>
<td>Civic Square</td>
</tr>
<tr>
<td>Victory Square</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The most outstanding example of beautification through gardens among the case studies was Union Square where flowers are in bloom through most of the year.
The availability of seating in squares correlates directly with the pedestrian volume ratio as shown below:

83% of heavy use squares have seating;
50% "medium" """
40% "light" """"

It is not shown that people go into a square because there are benches provided for them, this seems extremely unlikely. The case is more apt to be that administrative bodies provide seating in a square after the need has been demonstrated, as will probably occur in Vancouver's Court House Square; or, seating is provided in expectation of a need during the development of a square, as was the case in the two new squares of the case studies, Centennial, and Nathan Phillips. Benches were found to be used especially by older persons who tended to sit for long periods.

It would seem, that, in some cases, the designers of public squares have spent considerable sums to shelter and guard the use of the space; but they have, unintentionally, by their actions discouraged public use. Such is the result of the fence. Its message cannot be missed, for, it clearly says, "keep-out," or "keep-off the grass." The fence singles out an area for viewing only, while public spaces would have more frequent use if their design was an invitation to enter. None of the heavily used squares in the study were protected with iron and wire;
none of the ancient, medieval, or renaissance squares, in urban cores and used by the general public, had fenced-off central enclosures. But the type of squares which evolved from the aristocratic private squares in residential complexes set the pattern. Victory Square and Leicester Square were the only cases in the study where fences enclosed a park area. The fence may facilitate the maintenance of a square, and the closing of a square, both of which are periodic factors, but a continued daily effect of a fence is its restriction of public access to the square and psychological inferences.

Flowers, trees, shrubs, grass, and fences are each elements which may be very beautiful in themselves. But their obvious appeal is an element of which the landscape architect, parks board, municipal council, or their planning advisors must be wary. Many squares work satisfactorily without them; others in which they dominate have only light or medium pedestrian usage; this tends to destroy the historic role of the public square as the heart of the city. A discriminating policy towards their use would help to control and determine the role of a public square in the urban core.
Square Orbon, Brussels.  Victory Square, Vancouver.

Square Orbon, Brussels.  Leicester Square, London.

Fenced in Squares

FIGURE XLVI
F. Roadways in the Square

Many functions of the square, which have been previously described, exclude vehicular traffic from the public square; furthermore, the idea is in vogue among urban planners that the pedestrian and the automobile cannot co-exist amicably in such open spaces as plazas and malls. This is to opt for the easy and obvious solution to the conflict of pedestrians and automobiles. The basis for the decision is questionable. The major square of a community was historically found to be an integral part of the community's communication system whenever the square was also an integral part of the community. But today the urban communication system is predominately a system for vehicular traffic movement and storage. It therefore seems that a public square which would maintain this relationship of integration with the traffic network and dominance of the pedestrian functions of the square, must adapt to the needs of each. Existing adaptations must be investigated before rejecting the automobile, or other modes of transport.

Table VI was prepared to identify the relationship of the heavy, medium, and light degrees of the pedestrian volume ratio to vehicular traffic in public squares.
### TABLE VI
THE RELATIONSHIP OF THE P.V.R. * TO VEHICULAR TRAFFIC

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>V.T.** V.T. V.T. V.T.</td>
<td>Heavy Light Heavy Light</td>
<td></td>
</tr>
<tr>
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<td>Union Sq.</td>
<td>X</td>
<td>V.T.</td>
<td>100%</td>
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</tr>
<tr>
<td></td>
<td>Syntagma Sq.</td>
<td>X</td>
<td>V.T.</td>
<td>50%</td>
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</tr>
<tr>
<td></td>
<td>P. San Marco</td>
<td>X</td>
<td>V.T.</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nathan Phillips Sq.</td>
<td>X</td>
<td>V.T.</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. del Duomo</td>
<td>X</td>
<td>V.T.</td>
<td>60% 20% 20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trafalgar Sq.</td>
<td>X</td>
<td>V.T.</td>
<td>60% 20% 20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Percent per category of total with vehicle</td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P.V.R. = pedestrian volume ratio.

**V.T. = vehicular traffic
Four squares of the case studies do not allow public use of their space for vehicular traffic. These are Nathan Phillips Square, P. San Marco, Centennial Square and P. del Campo. These are equally divided between heavy and medium P. V. R. Two are very new, and two are very old. P. San Marco has no vehicles because Venice is built on islands in a lagoon and transportation is by foot or canal. The canals do not, at the present time, enter the square. The Piazza del Campo, in the medieval hill town of Siena, is not easily accessible to motor vehicles, without extreme modification of the surrounding street system, and wholesale destruction of numerous splendid old buildings. The compactness of the community, the continued dominance of pedestrian traffic, the relatively short distances to be travelled, and the historical interests of the city, allow the square to function well without automobiles. Nathan Phillips Square is surrounded on three sides by a colonnade, the roof of which is a pedestrian walk-way. Beyond the colonnades, lie the busy streets of Toronto. Victoria’s Centennial Square is bounded on three sides by buildings, the fourth side is formed by Douglas Street, the main street in the core; Centennial Square forms an alcove off this busy route and is too small to require any internal development for vehicular traffic. It is readily accessible to roadways from the openings in its parameter.
Considering the squares that do permit public vehicular traffic, two types are observable from the point of view of internal development. These types are:

i) those squares whose internal development does not show any marked differentiation of zones for pedestrian use and vehicular use; and,

ii) those squares with roadways which separate vehicular traffic zones from zones for pedestrians only.

The squares which permitted vehicles, and also separated these vehicles from pedestrians by internal development, totalled ten of thirteen cases. The three cases without separation, (p. della Signoria, Grand' Place, and Pl. Mayor), are all old squares, in old parts of the city. In each of these cases, the volume of vehicular traffic was noted, by casual observations, to be light. The cars, driving into, or through the squares, were few enough in number, that they did not create a degree of conflict with pedestrian users which was serious enough to warrant the construction of pedestrian "islands," roadways, curbs, sidewalks, etc. Two of these squares were medium P. V. R., the other was light P. V. R.

Table VI shows that, of the squares with separation of pedestrian and vehicular zones, nine of ten cases were observed to have a high volume of vehicular traffic. The existing internal
development of all ten cases, is from the nineteenth or twentieth century. The internal development of roadways in all these cases is integrated with the urban transportation system.

The most interesting data from Table VI is that:

i) 100% of the squares permitting vehicles and with heavy volumes of pedestrians also had heavy vehicular traffic.

ii) 50% of the squares with vehicles and medium pedestrian volumes, also had heavy vehicular traffic volumes;

iii) 60% of the squares with vehicles and light pedestrian volumes, also had heavy vehicular traffic volumes. This data indicates that heavy volumes of vehicular traffic is not detrimental to the volume of pedestrian usage. Indeed, it is the author's opinion that part of the interest of a square, to the pedestrian, is the movement and stopping of cars, and buses. In Syntagma Square in Athens, many people at the sidewalk cafes sit and watch the traffic; the continuous stop and go at traffic lights, the boarding and exiting of people from buses, and the honking of horns, each add a vitality to the square. But there are certainly limits to the presence of automobiles as an amenity. These limits were not empirically defined by this study, but it is possible to draw conclusions from the observations. Figure XLVI is a photograph
taken in the Place de la Concorde, at approximately three-thirty p.m. on a week day. Hundreds of automobiles are lined up waiting, for the traffic signal to change, others are parked around the central islands. The pedestrian zones within the square are quite empty of people. To get to them is not a pleasant experience; for in this square, the automobile horns constitute a nuisance; the exhaust fumes are quite heavy; the drivers, (by this author's estimation) are not sympathetic toward pedestrians; and in total, the volume of traffic is so dominating and unpleasant that it constitutes an extreme prejudice against pedestrian activity. The situation is similar at the Place de l'Etoile, where the vehicular traffic interchange function, of this low P. V. R. square, detracts for the pedestrian, from the architectural grandeur and historical interest of the space.
In summary:

i) the exclusion of automobiles and other vehicular traffic from public squares is not a prerequisite to heavy volumes of pedestrian usage of the square;

ii) in squares where vehicular traffic volume is relatively heavy, pedestrians are usually provided with zones separate from vehicles;

iii) vehicular traffic is detrimental to pedestrian usage of squares at an undetermined level when its volume dominates the function of the square; below this level, vehicular traffic may be considered an interesting internal element for the pedestrian user.

G. Dramatis Personnae

One element, for which it is most difficult to demonstrate a relationship with the number of pedestrians is the people themselves. It is an axiom of "show business" that the best advertisement is the "sold out" sign; this is to say that people attract people. Similarly, in squares, there are certain "hints" that the activities and presence of people are a factor influencing the total number of users.

Some of the activities of the square users previously mentioned include: meeting and talking; feeding and watching
pigeons; eating and drinking; looking at the surrounding buildings; sitting; sleeping; and reading. Another activity which seems to occupy many visitors in squares is looking at other people; observing their dress and manner; listening to their conversation, watching their movement; taking mental note of their diversity and their sameness. Especially in a square where the number of tourists is large, and the languages, clothing and appearance of people are varied, the simple act of watching can be a pleasant pastime of leisure. G. E. Kidder-smith has noticed this in Capri where he considers the Piazza Umberto to be greatly responsible for the large number of tourists to the island. He writes:

... the climate. ... the Blue Grotto ... the dulcet air and the intriguing geology are only partly responsible for the fact that half the tourists in Europe seem to flock there today. The other reason ... is a ... square. This piazza is not just an open space where people come merely to shop or post a letter; it is, unknown even to its citizens, an open-air non-stop theater with its stage at one end and a properly shaped auditorium facing. The actors are the fantastic crowd of bizarre tourists, each striving to outdo the other, each arrayed in his private peacock feathers, the brilliance of which is accentuated by the black clerical gowns of the priests visiting the cathedral behind. When these gorgeous birds tire of the perambulating role, they continue their see-and-be-seen pleasures in the 'auditorium', the convenient cafes whose myriad round tables, gay with awnings, practically fill the square. This minute piazza is the key to the secret of today's Capri ... and is Italy's outstanding exposition of what a few strategically
handled square feet of open space can produce
in sensitive hands. For the Piazza Umberto
is the eyebrow of Capri and gives character
to the whole island by being a natural,
spontaneous meeting spot through which
virtually every visitor passes. 119

The unconscious participation of pedestrians, in the Piazza Umberto,
or Trafalgar Square, or Piazza San Marco, or indeed in any of the
studied squares, is a marked contribution to the life, movement
and interest of the space. In Piazza San Marco crowds gather and
break-up coming seemingly from nowhere and going nowhere;
stop to talk or look at the church, the pigeons, the arcades and
each other. Early in the morning before the crowds come, the square
still has its architectural beauty -- but it is the people that seem to
give it vitality.

The Piazza San Pietro is generally a busy square with
tourists and clerics visiting the basilica and adjoining buildings.
But on those days when the Pope is scheduled to appear this monu­
mental setting for the basilica fulfills a special social function.
Thousands of people cheer, wave, and pray. They are emotionally
roused by the Pope's presence; so too the size of the crowd enhances
the meaning and pleasure of the experience for the individual. He
comes not only to see the Pope, but also to see the crowd; each
is complimentary to the other. Similarly we may conceptualize an

119. George Evrard Kidder Smith, Italy Builds: Its Modern
individual's pleasure while watching a parade; if he were the only spectator it is unlikely that his pleasure would be as great as when he watches the parade from a crowded vantage point. But, in a square, the individual is both the parade and the spectator.

H. Summary

The combined internal elements of each individual square are contributors to the action which takes place in the square. The material facilities of physical embellishment such as sculptures,
fountains, paving, flowers and trees have a direct relationship to the numbers of people who use squares and the ways in which they use them. Benches, chairs, open-air cafés, and other food and leisure facilities are a recurring element influencing pedestrian volume and the general amenity of a square. Heavy volumes of vehicular traffic, when separated from pedestrian zones within a square, may act as an amenable element, providing that the number of vehicles does not become so great as to dominate the space and adversely detract from the other amenities available. The presence of people appears to affect the activity and possibly the numbers of persons who use squares but no satisfactory evidence was uncovered to clearly establish a cause and effect relationship in this case;
V. THE GENERATION OF USAGE BY ADJOINING LANDS AND BUILDINGS

A. Adjoining Land Uses and the Pedestrian Volume Ratio

The functional analysis of squares, described in Chapter II, identified and defined the "associated function square" as one "whose purpose is directly related and dependent upon a land or building use that adjoins the square."* This dependency upon adjoining uses was also one of the characteristics of the "multiple function square." **

Analysis of functional determinants of usage was derived from historical research; in this section data from the case studies, collected by mapping, is presented to analyse any relationship that may exist between the adjoining land and building uses, and the volumes of pedestrian usage of contemporary squares.

Table VI (Adjoining Land Uses and Their Relation to the Pedestrian Volume Ratio), lists all of the different adjoining uses that were found in the field research. These have been listed in ten categories.

* Chapter II, p. 34.
** Chapter II, p. 36-38.
The categories used to classify the land uses were selected to group certain types of uses. Some of these might have been listed together, but a separate category seemed a necessary means of clarifying the peculiar frequency of certain building uses. The general headings are: institutions and offices; government administrative offices; churches; museums; galleries and libraries; publicly administered tourist information bureaus; travel agents; hotels and other tourist residences; restaurants, bars and cafes; theatres, cinemas, and auditoria; and retail shops and services. The land area occupied by some retail shops is much greater than that occupied by others, (e.g., a department store compared with a cigar store). Hence, in a given square, one side may be totally bordered by one store, while another square of equal size may have numerous small shops bordering an equal frontage.

In order to compensate for the misleading arithmetic figures in such instances Table VI indicates only whether or not retail shops were found adjoining the square.* For each of the other uses the incidence

* A more sophisticated method for comparing retail and other land uses would have been to compare the square footage of each land use category as a ratio of the area of the square. At the time when the study was being carried out this method had not been considered by the author. A comparison of square footage would be more adequate if it made allowance for the greater traffic generation of some examples within a grouping than others of the same type, e.g., a 1000 square foot fur retail shop has fewer clients than an equal size drug store.
### TABLE VII
ADJOINING LAND USES AND THEIR RELATION TO 1

<table>
<thead>
<tr>
<th>NAME OF SQUARE</th>
<th>Inst. Offices</th>
<th>Govt. Admin.</th>
<th>Church</th>
<th>Museum Gallery Library</th>
<th>Tourist Information</th>
<th>Travel Agents</th>
<th>Hot</th>
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</thead>
<tbody>
<tr>
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<td>4</td>
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<td>5</td>
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<td>3</td>
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<td>8</td>
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<td>100%</td>
<td>100%</td>
<td>100%</td>
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</tr>
</tbody>
</table>

*The "Giardino Real" does not directly adjoin the Piazza but is however adjoined by it.*

**The boundary of the Place de l'Étoile was considered to be the inner ci...**
TABLE VII

ADJOINING LAND USES AND THEIR RELATION TO

<table>
<thead>
<tr>
<th>NAME OF SQUARE</th>
<th>Inst. Offices</th>
<th>Govt. Admin.</th>
<th>Church</th>
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<th>Tourist Information</th>
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<td>42%</td>
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<tr>
<td>Étoile**</td>
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<td>-</td>
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<td>3</td>
<td>7</td>
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<td>2</td>
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<td>1</td>
<td>2</td>
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<tr>
<td>% of total</td>
<td>26%</td>
<td>58%</td>
<td>0%</td>
<td>14%</td>
<td>9%</td>
<td>7%</td>
<td>22%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>26</td>
<td>12</td>
<td>3</td>
<td>15</td>
<td>11</td>
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<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*The "Giardino Real" does not directly adjoin the Piazza but forms howes

**The boundary of the Place de l'Étoile was considered to be the inner
of each category was totalled and tabulated for each square. This method is far from perfect. It was accepted by the author on the grounds that by personal observation, the variation of size for uses other than retail shops was not so great as to alter the general validity of the tabulations. In each case study, the building uses listed were those found on the ground floor of buildings. Building uses above the ground floor were generally offices, hotel, residential or the same as the ground floor. The latter is especially the case where ground level uses were institutions and offices; government administration; churches, museums, galleries and libraries.

Details of Table VII are summarized below:

### SUMMARY CHART OF TABLE VIII

<table>
<thead>
<tr>
<th></th>
<th>Heavy Volume</th>
<th>Medium Volume</th>
<th>Light Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. variety of different land uses per square</td>
<td>6.0</td>
<td>5.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Avg. number of different land uses per square</td>
<td>18.2</td>
<td>11.4</td>
<td>7.7</td>
</tr>
<tr>
<td>% of total number of Restaurants, bars, or cafes</td>
<td>42%</td>
<td>32%</td>
<td>26%</td>
</tr>
<tr>
<td>% of total number of churches</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>% of total number of museums, galleries, libraries</td>
<td>53%</td>
<td>33%</td>
<td>14%</td>
</tr>
<tr>
<td>% of total number of travel agencies</td>
<td>69%</td>
<td>24%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Each of the above items are land uses that may be found throughout the central business district of large communities. When they are concentrated about a single square, the incidence of pedestrian usage has been shown to be greater than the incidence of usage in those squares with fewer of the listed uses.

Furthermore, it is noteworthy, that each of these uses (that increases in incidence with the more heavily used squares), is functionally related to activities of leisure. This may be for short periods of leisure during working hours when restaurants and stores are frequented by people who work in the vicinity; or it is the leisure time spent in a visit to a museum, art gallery, or church; it is the time spent outside a library waiting for a friend who is returning a book; or it is the time spent loitering - just watching others use the surrounding buildings.

One particular group of building space lessees must be mentioned; this is the travel agencies. The author observed that travel agents generally and air-line companies especially tend in large cities, to rent office space within a very short distance of each other. In Vancouver this is noted in the Burrard Building, on Georgia Street, where several air-line companies have located a ticket office. But, in Athens, Milan, London, Venice, San Francisco
Siena, and Madrid, travel agents' offices are concentrated about a square. Furthermore, each of the squares was both a multiple function square and the principle square of the city. In this same principle square location an office of the American Express Company was generally found. With this knowledge, tourists who make up the larger portion of travel agency customers, may easily locate these offices in a strange city by simply going to the main square. This reinforces the public square as a major focus of tourist activity. The general importance of tourists who are attracted by adjoining land uses should not be underestimated. Much of the stature and pride of any city is expressed through the impressions and opinions of the visitors. It is their admiration which can inspire community pride, or conversely, it is their disappointment which can engender community humility. Economically tourism is of major significance. In British Columbia it is the second largest dollar earner for the province. No city needs to regret a high proportion of visitors to its urban open spaces. Grady Clay holds this same general opinion. He writes:

"Jackson Square is to me the perfect example of the necessity of attracting tourists to tomorrow's downtown. The tourists are the gay and giddy element in the Jackson Square Scenery. . . . When you consider that business, trade and professional conventions have developed into one of the major industries of America you can no longer afford to write off "tourists" as an important part of your community's downtown scene."  

The quote on page from Kidder-Smith's description of Piazza Umberto in Capri has a similar high regard for the tourist presence in public squares.

B. The Correlation of Adjoining Land Uses and Times of Square Usage

The generation of pedestrian usage of squares by adjoining lands and buildings correlates to the times of the day when the adjoining uses are most active.

The times of the day when pedestrian volumes were generally at a peak were between 11 a.m. and 2 p.m. Earlier in the day, usage was greatest in squares with special attractions for tourists, as in P. San Marco, Place de l'Etoile, P. della Signoria, and Constitution Sq. Those squares without special interest to tourists tended to be used, in the morning, only by persons who walked directly through them. In the remaining daylight hours (after 2 p.m.) the use of squares did not peak. An ebb of use occurs in the squares of Spain, Italy, and Greece between 1:30 p.m. and 3:30 p.m. when it is the custom for people to have their lunch. Although this may be taken in the open-air restaurants, the greatest activity during this time of day is again created by tourists who find amusement in the square while the shops, museums, galleries, and some churches are closed.
In the European squares a second peak period develops between six o'clock and nine. This is the time of day after work and before the late evening dinner. The streets and squares are quickened by citizens who come out from their homes to stroll, or sit and drink coffee and eat pastries in the sidewalk cafes. This practice of the evening walk before dinner is not the custom in American but it is a prominent factor in many European cities. The narrow shop-lined streets of Venice and Athens are easily clogged with pedestrians who window-shop, talk, and even sing. The walk seems commonly to be terminated in the cafe or its open-air extension. The European squares such as Place de la Concorde or the P. della Signoria where the cafe plays no part or is a comparatively minor feature have little pedestrian use in this evening period. But Syntagma Sq. and P. San Marco are thronged by the public at this same time.

None of the English or North American squares of the study had open air cafes. Nor is there a custom of late dinners preceded by walks which might provide this element of evening users. Business carried on in the shops, and tourist facilities are usually closed at night so they can generate no activity.

This closing of stores is a special "time of use" factor to any square whose sides are bordered by early closing retail shops, or other uses that maintain similar hours.
Examples of this were especially noticeable in each of Victory, Centennial, and Union Squares whose institutional and retail adjoining uses dominate the edges of the square, and after regular business hours seem to bring down a curtain telling the square goer to go home.

When the land uses adjoining squares are for any reason not immediately available to their would-be users, then the urban amenities of the square can provide a pleasant spot to sit and wait. This waiting is an activity well experienced in the squares of Europe by many North American tourists. When the stores, museums, galleries, and churches close for what may seem an unending lunch period the travellers quickly gather in the squares to wait the re-opening. Beside the Spanish Steps in Rome, in a small square before the Cortes (Parliament) in Madrid, in Papa Stratos sidewalk café in Syntagma Sq., tourists wait for the end of the lunch period so that they can go into the American Express office and collect their mail, or cash a cheque. Many of these waiting people know the business hours, but they arrive early regardless. This leisurely waiting is an experience they seem to enjoy.

A waiting and meeting cause of usage related to adjoining land uses was identified by interview in Union Sq. It was reported that many gentlemen, often with children, will come and wait in the square while their wives shop in one of the department stores
abutting the square. The family car is parked below in the square's 1500 car garage. Although the author has no direct knowledge of it, it seems extremely likely that a similar pattern of waiting and meeting takes place in Toronto's Nathan Phillips Square where the amenity of the square, and the underground garage are just across the street from Eaton's Department Store.

Eating and drinking in the public square is an activity usually provided for solely by facilities operated through restaurants, bars, and cafes situated in abutting buildings. This is the case in Syntagma Sq., P. del Compo, P. del Duomo, P. San Marco, P. della Signoria, and Plaza Mayor. Only Plaza de Espana had a refreshment booth which operated as an internal element independent of establishments in the surrounding buildings. This general dependence of food services on adjoining buildings permits businesses to maintain a minimum of operational handicaps caused by distance, or seasonal fluctuation of open-air amenities.

C. Theatres, Cinemas - Auditoria, and Governmental Uses

Table VI showed that one adjoining land use group, which is also related to activities of leisure, was not found in either the heavy or medium pedestrian volume ratio squares. Its incidence was entirely within the category of squares with a light pedestrian volume ratio. This is the group made up of cinemas, theatres, and auditoria. These facilities do not appear to affect in a positive way the use of the square which they border. A likely explanation is
that users of these facilities seldom find need of a square from the time they arrive at the building until they leave. It is the author's opinion that although such new multipurpose theatres as Montreal's "Place des Arts" or Vancouver's "Queen Elizabeth Theatre" are fronted by large open spaces, called squares, these spaces function primarily as a building set-back for aesthetics; "showing-off" a building. The Queen Elizabeth Theatre Plaza has a few users before or after its performances excepting persons who walk directly through it to parked cars. Toronto's O'Keefe Centre, a comparable structure apparently functions quite well without a fronting plaza; here a wide sidewalk is able to accommodate the intermissions fresh-air seekers and the arrival or departure of persons. Patrons to any of Leicester Square's six adjoining cinemas are no more adequately served by the presence of a square while they line up for admission, than are the patrons to Vancouver's "Theatre Row" section of Granville Street, inconvenienced by the lack of a public square at that location.

In addition to cinemas, theatres and auditoria, one other group of land uses is suggested in Table VI, to be a negative influence on the number of pedestrian users of a square. This is government administration buildings.

Tabulated by P. V. R. categories, the percent of the governmental buildings was:-
D. An Exception to the Rule

An exception to the pattern identified between the volume of pedestrian usage and the adjoining land uses was noted at Union Square.

Each Sunday afternoon this square is very crowded. People come to hear any of a variety of amateur orators. The subjects of discussion are apparently without restriction. The regular public enthusiasm, demonstrated by lengthy stays and the large attendance seems to owe nothing to the surrounding land uses. The travel agencies, the shops, the department stores and the bank, are closed!

![Sunday afternoon in Union Square](image)

FIGURE L

There are two hotels, but there is no indication that they act as generators. The people seem to come here on Sunday simply because they can expect to hear and participate in the excitement of the square's activity -- or they can sit back and relax in this human spectacle, a continuation of the public speaking functions of the Agora
and Forum.

This Sunday usage transforms Union Square from what is a multiple function square six day a week to an internal function square on Sundays. The combination of internal functions, associated functions, and arterial node functions which create a multiple function square is seen in this instance to break down. The associated functions become negligible and the internal functions overshadow the arterial node function. The result is that simplest and most primitive functional classification - an internal function square.

E. Summary

There is a pattern of land and building uses that adjoin public squares. The squares which have the heaviest pedestrian usage tend also to have a very broad variety of adjoining land uses. The categories of land uses that seem to correlate most strongly with increased pedestrian usage are each a land use that has a comparatively large daily "turnover" of users, (e.g. restaurants and libraries in contrast to insurance company offices). The adjoining uses that are prevalent in the heavily used squares are all used by individuals for activities related to leisure time. These adjoining uses are: churches; museums, art galleries, libraries; tourist information centres; travel agencies; hotels; restaurants, bars, and cafes; and retail shops and services. Each of these uses seems to generate pedestrian usage. Another group of leisure related building uses -- the theatres, cinemas and auditoria -- are not suggested by case studies to be generators
The time when squares receive their greatest use for informed casual junctions is directly related to the amount of pedestrian activities resulting from the adjoining land uses; this is especially noticeable when retail shops adjoining squares are closed.

Squares may on occasion function quite independently from the adjoining uses, while at other times the functioning of the square may be closely integrated with the adjoining uses. When this occurs the "associated functions" of a square may become negligible resulting in a corresponding change of the squares functional classification. This characteristic was only shown in regards to special functions. It was not suggested by any of the observations or analysis regarding informed casual usage which is the subject of this chapter.

V. THE INTEGRATION OF THE SQUARE WITH THE URBAN STRUCTURE

Thus far in the analysis of contemporary squares the thesis has dealt with the public square as if it were an isolated space within the city. Of course this is not the case; the square (or squares) is only a very small portion of the greater fabric of urban land. Its functioning is meshed with the general urban structure and activity. The historical integration was described in the survey of Chapter II and it provides the foundation for the analysis of this section. The areas of concern are:
i) the location of the square within the C. B. D.;

ii) pedestrian levels in the vicinity of the square;

iii) the general availability of the public open space in the vicinity of the square;

iv) the relationship of the square to the urban street system;

v) the availability of public transportation facilities from the square to other urban districts.

Data relevant to these factors are tabulated in Table VIII, "The Square in the Urban Structure."

A. The Location within the C. B. D. and Pedestrian Levels

Each of the squares in the case studies is located within the central business district (C. B. D.) of a community. But within this loosely and arbitrarily defined zone some squares are situated near the fringe while others are located more closely to the general centre. From Table VII it is shown that:

83% of the Heavy P. V. R. squares are near the C. B. D. centre

40% of the Medium P. V. R. squares are near the C. B. D. centre

33% of the Light P. V. R. squares are near the C. B. D. centre

This general increase in the P. V. R. with more centrally located squares is a benefit derived from the larger number of persons within what may be termed the "catchment area" of squares. This is also reflected by the level of pedestrians on the streets in the vicinity of
the square. The pedestrian levels were recorded by casual observation. Results of the tabulation indicate a continuous decrease of the percentage of squares, per P. V. R. category, with high pedestrian levels in the vicinity of the square; the decrease as would be expected is from the heavily used squares to the lightly used squares. The location of squares within an area of high pedestrian levels is not by itself a great enough factor to create a heavily used square. This is demonstrated by the four squares which were of medium or light P. V. R. although the pedestrian level of the area around them was observed to be high.

B. The Availability of Public Open Space in the Vicinity

One of the defining elements used in the study describes squares as a volumetric expansion of open space. That is to say that the volume of space contained by a square, appears visually to be of greater dimensions than the open space that leads into it. If we assume that the heights of structures that create the walls of streets and squares are a constant, then this volumetric expansion of space should be clearly visible in plan. The plan below of parts of Venice will help to clarify this concept. The public open space (which for the purposes of this study include squares, streets, and parks) are shown in white; the portions of land available for buildings, (or private open space) is filled in black. The space that indicates the Piazza San Marco, and the Piazzetta, is clearly a much greater
opening in the urban landscape than any of the other streets, squares or parks. Consider its area in relation to the area, or volume of other space of equal length. This expansion of space is "felt" by persons who walk through the streets and come into the square. The public open space of streets, a very scarce commodity seems to explode. The square seems all the more precious because of the tightness of the surrounding area. This is part of its impact. It is not a factor that should be geometrically measured, but rather it is an experience which may be assumed to affect most people. This may be a consequence of some degree of claustrophobia inherent in the make-up of human beings; this characteristic, which this study may only hypothesize, is perhaps relieved in the open space of a square.
Similarly the limitations of size, of boundaries and walls, may satisfy some other ecological preference of the human species.

Table VIII records whether or not there were other open spaces in the vicinity of each square which constituted a comparatively large quantity of public open space. The table shows that this was the case for 100% of the lightly used squares, 60% of the medium used squares, and 50% of the heavily used squares. This suggests that there is a "supply and demand" relationship of open spaces in the C.B.D. As the supply increases, the demand for use of any individual square may decrease. Excluding other squares, the demand for public open space in the C.B.D. is met by streets and parks. These are in competition with the squares. The aerial perspective of Grand' Place, (hidden below the town hall of Brussels), shows what was once a comparatively large opening in a medieval city, now transformed into a closet sized space in comparison with the broad roadway of the foreground. This is a medium use square.

The map of the Place de l'Etoile and vicinity illustrates again, that the square is not so large a space, in proportion to the expanses and greater lengths of the four major approaching boulevards. Indeed a pedestrian entering this square is more likely to be impressed by the Arch of Triumph, and the vista down the Champs Elysee, than by the square. In this "cornucopia" of open public space, the Place de l'Etoile may be irrelevant as open space.
TABLE VIII
THE SQUARE IN THE URBAN STRUCTURE

<table>
<thead>
<tr>
<th>Name of Square</th>
<th>Located approx. of immed. space in square</th>
<th>Ped.Level of C.B.D. high</th>
<th>Other Open Arterial facility routes intersect at centre of immed. space in Sts. intersect at comp.large at the square</th>
<th>Public Trans. at the square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syntagma</td>
<td>-</td>
<td>X</td>
<td>X park streets</td>
<td>X bus</td>
</tr>
<tr>
<td>Duomo</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X bus, subway</td>
</tr>
<tr>
<td>San Marco</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X, Vaporetto**</td>
</tr>
<tr>
<td>N. Phillips</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X, bus, trolley</td>
</tr>
<tr>
<td>Trafalgar</td>
<td>X</td>
<td>X</td>
<td>X park</td>
<td>X, bus, subway</td>
</tr>
<tr>
<td>Union</td>
<td>X</td>
<td>X</td>
<td>X street</td>
<td>X bus, trolley, subway</td>
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% with factor: 83% 100% 50% 66% 100%

MEDIUM

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<tr>
<th>Name of Square</th>
<th>Located approx. of immed. space in square</th>
<th>Ped.Level of C.B.D. high</th>
<th>Other Open Arterial facility routes intersect at centre of immed. space in Sts. intersect at comp.large at the square</th>
<th>Public Trans. at the square</th>
</tr>
</thead>
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<tr>
<td>11 Campo</td>
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<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Espana</td>
<td>-</td>
<td>-</td>
<td>X park street</td>
<td>X bus</td>
</tr>
<tr>
<td>Grand Place</td>
<td>-</td>
<td>-</td>
<td>X streets</td>
<td>-</td>
</tr>
<tr>
<td>Signoria</td>
<td>-</td>
<td>-</td>
<td>X squares</td>
<td>-</td>
</tr>
<tr>
<td>Victory</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X bus</td>
</tr>
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% with factor: 40% 40% 60% 60% 40%

LIGHT

<table>
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<th>Name of Square</th>
<th>Located approx. of immed. space in square</th>
<th>Ped.Level of C.B.D. high</th>
<th>Other Open Arterial facility routes intersect at centre of immed. space in Sts. intersect at comp.large at the square</th>
<th>Public Trans. at the square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centennial</td>
<td>X</td>
<td>X</td>
<td>X streets</td>
<td>-</td>
</tr>
<tr>
<td>Civic</td>
<td>-</td>
<td>-</td>
<td>X streets</td>
<td>X bus</td>
</tr>
<tr>
<td>Concorde</td>
<td>-</td>
<td>-</td>
<td>X park streets</td>
<td>X, bus, subway</td>
</tr>
<tr>
<td>Etoile</td>
<td>-</td>
<td>-</td>
<td>X park streets</td>
<td>X, bus</td>
</tr>
<tr>
<td>Leicester</td>
<td>X</td>
<td>X</td>
<td>X square</td>
<td>X, bus</td>
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<tr>
<td>Mayor</td>
<td>-</td>
<td>-</td>
<td>X street square</td>
<td>-</td>
</tr>
</tbody>
</table>

% with factor: 33% 33% 100% 50% 66%

* "open space" is meant here to include any public land, open to the air, such as parks and streets.
** "vaporetto" - launch used for public transportation in Venetian canals.
Major parks were observed in several instances to be located quite near a major square. This occurs with: The Zapiou and Syntagma Square in Athens; St. James' Park and Trafalgar Square in London; the Tuilleries and Place de la Concorde in Paris; and the Royal Botanical Gardens and the Plaza de Espana in Madrid. They do not correlate to a decrease in the P.V.R. The author observed that the squares in question could be quite busy with pedestrians when the parks seemed lightly used. They each seem to fill a basically different function. The streets and squares are an urban
setting with urban activities. Those persons desiring the amenities of an urban environment are thus more satisfactorily accommodated in the streets and squares. The greater abundance of greenery in parks is more akin to a rural setting which by its slower tempo is non-urban, and apparently not preferred by those many persons who choose to use a square even though a park is equally available.

The differentiation between a "park" and a square is a complex subject. It is, in the author's opinion, a matter of priorities in distinction of form and internal development. A square may be
developed as a park. A park may have a square within it. But, the distinction lies in these points: a square is a spatial concept whose defining bounds are critical elements, i.e. it is a space form—a container, but in the case of a park, the primary distinction is its internal development, while its bounds are incidental, i.e. the presence of vegetation and soil, of growing things, whether they be growing "naturally, or highly organized. When a person stands in a square, he may look in any direction and be aware of its limits, but in a park, he is more apt to be aware of its vegetation and other aspects of its internal development. The result of this distinction is that a park may be unlimited in size, while a square may not be so large that its bounds cease to be an important aspect of its development.

C. The Square and the Street System

Historically, the focusing of urban life about various public squares was physically related to the plan of the community by the convergance of streets at this point. In this hierarchy, the major streets intersected at the major square. The square functioned as an arterial traffic node. This condition was also the case for most of the squares in this study. Arterial streets were found to intersect at:
66% of the heavy P. V. R. squares;
60% of the medium P. V. R. squares;
50% of the light P. V. R. squares;

This correlation of heavy usage with the arterial node function in contemporary squares maintains the traditional importance of this determinate of usage. (Other details of this were previously discussed in section IV, F of this chapter).

An extension of this structural relationship is the routes followed by the public transportation facilities. These would tend to follow the routes of the arterial streets for buses and trolleys. In addition a subway line, with more flexibility in its routes, may interchange with other subway routes, and also with the surface transport network. The availability of these services, and more critically, their intersection at a square, is noted in Table VI to be related to the columns of pedestrian usage. These public transportation facilities including buses, trolleys, and subways, had intersecting routes at

100% of the heavy P. V. R. squares;
40% of the medium P. V. R. squares;
66% of the light P. V. R. squares;

In regard to the surface traffic element, this arterial node function is so great at Place de l'Etoile and Concorde that the pedestrian
functions of the squares for casual informal use become relatively insignificant. This leads to the conclusion that the multiple function relationship of internal, associated, and arterial node functions ceases to operate beyond a certain undefined point when the arterial node function becomes disproportionate to the others.

D. Summary

The volume of pedestrian usage of a public square is influenced by the degree of integration of a square with the physical structure of the community. The evidence gathered shows that the volume of pedestrian usage of a public square is more apt to be greater when:

1. The square is located within the approximate activity centre of the C. B. D.,
2. The square is located within an immediate area of high pedestrian levels;
3. The square is located in an area in which public open space is not overly abundant and the supply of public open space provided by the square seems great relative to other public space available in the vicinity;
4. The square is an arterial node in the network of urban transportation facilities as regards both the street system itself, and the available public transportation facilities.
CHAPTER V
A RESPONSE TOWARDS THE
DEVELOPMENT OF SQUARES IN URBAN PLANNING

I INTRODUCTION

How should a public square be designed in the "downtown" of a city so that it will be significant to the community, beneficial to the community's functioning, and be utilized by a sufficient number of persons to warrant its development and maintenance? This is the basic question to which this research has sought a meaningful response. It is dependent upon the assumption that a public square is in fact an urban structural element with vital qualities relevant to the contemporary community. The latter is only an assumption, which this study does not conclusively prove. It remains, nevertheless, an assumption which gathers in force and credibility as a personal reaction to the experiencing of a number of exciting, and busy squares in some cities, and sensing the impact of the lack of this same community facility in others. Equally important to the conclusions is that group of squares in the
downtown, which though beautiful, have for some combination of reasons, no sustained demand for use by the community. In this respect, their "beauty" is a sore upon the city, a sore needing either corrective action or removal.

Without again summarizing all those summaries of previous sections, this chapter will briefly consider: the functioning of squares; the determinants of their usage; and the validity of the hypothesis. From the conclusions of these a guide is formulated for the planning of a multiple function square in the C.B.D. A critical examination of the study evaluates the methods, procedures, and findings. Areas of further research are suggested.

II FUNCTIONS OF SQUARES

The activities that take place in the public square are generated by four principle aspects of urban life. These are politics, religion, commerce, and leisure. The association of these aspects of urbanism with the public square has historic origins that continue into the present age; examples of these were found in recently developed squares as well as those that continue to function though built in another historic period.

The activities that occur within each functional aspect may be divided into one of two categories. These are the formally organized
or special activities, and the casual activities which have no formal organization. Either of the categories may be regular or irregular.

The way in which the activities of a square take place may be considered as a functional classification. The author has analysed the functioning of squares and identified four types. These are: the internal function square, the associated function square, the arterial node square, and the multiple function square. The political, religious, commercial and leisure aspects may each have activities which, when they occur, would give the square the attributes of one of the four functional types. The dominant of these would be the functional classification. Each of the functional types is optimized by different physical developments. These are described in this chapter in section III, "Pedestrian Usage Determinants."

The most frequent use of squares is for activities of leisure. This is a regular day to day function that accounts for by far the greatest amount of normal use. Political, commercial, and religious functions tend to be irregular, special and formal. Along with the irregular and special leisure functions, they constitute activities of maximum use of a square. In such periods of maximum use a square is not likely to be classified as multiple function.

Concerning the users of squares, the case studies showed that for regular casual use in leisure time: i) squares are a useful
community facility for a broad and diverse segment of the population including age and occupation groups; ii) the users come from both the vicinity of the square, and from parts of the community well beyond the squares vicinity; for some squares, user origins are predominantly from the vicinity; iii) some groups of users tend to use the square at particular times of the day, others use the square throughout the day...

An abstract function of a square is derived from those ideas or things that it may symbolize to the community as a whole, or to parts of it. This is a reflection of the degree of functional integration of the square with its vicinity and community. A square whose functions, both symbolic and real, are in complete sympathy with the ideas and aspirations of the community, will be of most value to the community. A square which is predominantly used by and comes to represent the needs or objectives of a particular group or class, is not likely to be highly valued by the community.

To the extent that the uses of a square are predictable and controllable, they may be planned.

III PEDESTRIAN USAGE DETERMINANT: A RE-STATEMENT OF THE HYPOTHESIS

The investigation of pedestrian usage of public squares aimed at isolating those factors which evidence suggested, influenced the
degree of pedestrian usage. The factors investigated were within the four categories of: form; internal development; associated land and building uses; and the relationship of the square to the urban structure. Tabulation of data from the case studies indicated the following patterns:

A. Form

The form of a square is a flexible issue; closed, nuclear, dominated, or grouped squares showed no pattern of influence upon the degree of pedestrian usage. However, squares which are regular in plan, and flat in profile are less apt to be heavily used than irregular non-flat squares. But the evidence of this is not strong. Providing the form is within the definition of squares set out in Chapter II, then it is not a determinate of usage, except as noted above.

B. Internal Development

The combination of internal elements of each individual square are influential on the degree of pedestrian usage of the square.

1. Usage of the square is likely to be greater if the following internal elements are available; fountain or pool; sculpture (broadly defined); open air cafes; flowers; seating, and pavement.

2. Vehicular traffic of heavy volumes, below an unidentified point, is a beneficial element providing that the number
of vehicles does not become so great as to adversely affect the other elements of the square.

3. Pigeons and people are two animate internal elements that seem to positively influence the degree of usage.

4. Pedestrian usage of a square is likely to be greater as the total number of internal elements approaches the complete list described above. The critical thing is that the furnishings of the square provide a variety of interesting and amenable foci which will both attract persons into the square and then maintain their interest and involvement over a repeated number of visits. The square should strike people as being the place "where it's happening!"

C. Adjoining Land and Building Uses

1. There is a correlation between adjoining land and building uses and pedestrian usage.

2. Squares with the broadest variety of adjoining land and building uses tend to have the heaviest usage.

3. Squares with the greatest total number of different land and building uses tend to have the heaviest usage.
4. Land uses with a comparatively large "turnover" of users are most frequently adjoining heavily used squares.

5. Land uses most prevalent among heavily used squares are used by persons for activities related to leisure time. These are: churches; museums; art galleries; libraries; tourist information centres; travel agencies; hotels; restaurants; bars, cafes; and retail shops and services.

This list is made up of two types of uses. First, those which an individual visits infrequently (e.g. museums, galleries, libraries) but which many people and tourists especially do visit, and secondly, those which an individual may visit many times in a short period. Visits to this latter group are less apt to be considered "special." These uses include refreshment facilities and retail shops.

Detailed analysis of the retail shops was not included in the field research. But from personal observation the author finds it necessary to record that there is a very wide variety of retailing facilities in the C.B.D. Only some of these may be considered useful generators of pedestrian usage. The general types of retail shops that are likely to be generators include department stores, drug stores, clothing shops, shops with interesting window displays, book stores, and other shops in which people are inclined to browse.
6. Theatres, cinemas and auditoria are most commonly found adjoining squares of lesser pedestrian usage. Their traffic generation is concentrated into a few minutes before and after performances. In these short times they are positive elements.

7. Governmental and institutional land uses (excepting types like those listed in item 5) are generally a negative factor on pedestrian usage. Only when these have a comparatively large and frequent "turnover" of users is this tendency likely to reverse.

8. The times of heaviest usage is directly related to the activities generated by adjoining lands and buildings only in some cases. In others the patterns, movements, and volumes of square usage are, at times, unrelated to the nearby facilities.

9. One community facility that often has urgent demand is the "public lavatory." This may be either an adjoining land use or an internal development. It is easy to overlook this facility but it is a very beneficial addition to many squares and it may be sorrowly missed in squares where it is not provided. It may not be overstating the case to say that this is a generator of pedestrian usage.
D. The Urban Structure

The volume of pedestrian usage tends to be greatest when:

1. The square is located within the approximate activity centre of the C. B. D. in an immediate area of high pedestrian levels.

2. The square fulfills a demand for public open space in an area of the C. B. D. where this is not overly abundant.

3. The square is an arterial node in a network of urban transportation facilities, as regards the street system and the available public transportation facilities. This will make the square readily accessible to a greater portion of the urban population, and accessible to a greater geographical portion of the community.

The conclusions stated above are evidence to support the hypothesis as it is stated in Chapter I, page 6. A detailed explanation of this is contained in the relevant section of each chapter where the factors are described and examples given. However, the conclusions regarding form and the urban structure suggest an amendment to the hypothesis to include the accessibility of the square to the community and deletion of the phrase relevant to form. Including these amendments, the hypothesis is restated as follows:
THE PEDESTRIAN USAGE OF PUBLIC SQUARES IS A FUNCTION OF: 
THE INTERNAL DEVELOPMENT OF THE SQUARE: THE LAND AND 
BUILDING USES ADJOINING THE SQUARE: THE AVAILABILITY OF 
OTHER TYPES OF PUBLIC OPEN SPACE IN THE VICINITY OF THE 
SQUARE: THE LEVELS OF PEDESTRIAN ACTIVITY IN THE VICINITY 
OF THE SQUARE: AND THE ACCESSIBILITY OF THE SQUARE TO THE 
COMMUNITY.

IV  PLANNING THE MULTIPLE FUNCTION 
SQUARE IN THE C.B.D.

Any satisfactory proposal for the development of a public 
square in the C.B.D. must consider two distinct and separate types 
of usage that the square should be planned to accommodate. The 
first of these is the casual, informal, regular use of the square for 
activities of leisure. This is the meeting, talking, resting, "non-
purposive" group of activities. The planning for this use requires an 
optimization of all the pedestrian usage determinants that have been 
identified in the study. The second type of usage that requires the 
planner's attention is the special, or formal activity related to 
politics, religions, commerce and leisure. Planning for this usage 
combines the needs of the casual usage with the particular needs of 
particular events.
Considering these functions, it is desirable that the principle square of a community be designed to meet many different needs at different times. That is to say, that such a square should be designed as a multiple function public square to meet the usual and unusual needs of the community. It could be a place for political meetings, for religious observances, commercial activities of a special festive nature, and the numerous leisure activities related to "cultural," ethnic, athletic, and musical, dramatic and festive events. It must be a theatre, a sports field, a dance hall, an art gallery, an artists' workshop, a fair ground, a military parade ground, a civic reception hall, a political forum, a discussion place. It must be able to create both a "party" atmosphere and be a passive area.

It is not possible that a square is the best place for each of these activities, but historically it was the one public open space that could accommodate them all. In today's squares, examples have been cited to demonstrate a continuing interest and need for such an urban space. This multiplicity of uses is the functional standard that may guide the planning of squares.

Within this functional objective, a major public square in the C.B. D. may be predicted to be "successful" depending upon the degree to which the pedestrian usage determinates, previously outlined, have been followed.
The study has not given any arithmetical measurements from which a hierarchy of the pedestrian usage determinants may be concluded. So equal weight must be given to each of: internal development, adjoining lands, and building uses, and the relation to the urban structure. The author would suggest, that when any of the three aspects falls below a minimum standard, then even a maximum efficiency of the other aspects will not result in a successful multiple function square. In fact, the multiple function square seems unable to exist when any of the aspects has a zero value. This indicates that the relationship between the internal, associated, and arterial node functions is that of factors. Also, the multiple function relationship breaks down and becomes inoperative when any of the factors becomes so great that it leaves the others insignificant. This is the case in the market square, the square before some monumental buildings, and the traffic interchange square. This conclusion is indicated but not proved by the research.

For special functions, the multiple function relationship is not critical, but for casual, informal, everyday use of a public square, generally high levels of pedestrian usage are more likely to result when the multiple function relationship is maintained. This would require an optimum achievement of the pedestrian usage factors. Proposals for the development of a major square in the C.B. D. are most likely to be successful in their implementation stage when this course has been followed.
It is the responsibility of the city planner to advise policy making bodies of the factors which will determine the use of public squares. Other groups of less insight or narrower objectives may recommend less adequate development proposals. In this way a parks board may be eager to initiate a new "green space" in the urban core; the architects may speak with one voice for beautiful spaces in the downtown to show-off their buildings; the retail merchants will seek additional parking, at public expense, beneath a new open space; city hall bureaucrats will strive for a monument to their efforts with a great square before the "palace of city administration." Each of these has a degree of merit and justification. But the objectives need co-ordination and most of all, there must be a strong guard on the part of planners. They act on behalf of the citizens as a whole, to ensure that a public square is not a place of disuse but the most vital, and used portion of the community. A place which expresses the dynamic qualities of the urban environment and is fashioned and located to optimize this function.

V EVALUATION OF THE STUDY

The mechanical methods available to the author for the measurement of pedestrian usage of squares were simple and not as reliable as may be desirable. This is a definite shortcoming of the study. Furthermore it would have been interesting if an attempt had been made to test the findings by measuring the usage factors of a square
Predicting its P. V. R. and then taking pedestrian counts to see if the predictions accurately reflect the actual P. V. R. A more detailed analysis of retail stores would have been useful.

In the author's opinion, the strength of the research and the findings lies in the comprehensiveness concerning the identification of factors of usage and the broad scope of the historical research. The author has attempted to describe the "essence" of the plaza in the past and present, to show the reader what it has meant to the community what it means now, and hopefully to inspire new variations of this theme for the future. The beauty of a city lies not merely in its physical structures, but the life that moves through, around and between those structures. Likewise with public open spaces, beauty is inseparable from the presence of man as he uses those spaces. To this extent, this study of squares intends to put men back into urban spaces by demonstrating the enjoyable conditions which can result from this move back and how this enjoyment can be enhanced by the presence of the user himself -- obtaining a cycle of functions which produce their own aesthetic.
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A. BOOKS


### B. PUBLICATIONS OF ORGANIZATIONS


### C. ARTICLES IN PERIODICALS


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D. ESSAYS AND ARTICLES IN COLLECTIONS


E. ENCYCLOPEDIA ARTICLES

APPENDIX
PUBLIC SQUARE SURVEY FORM AND CHECK LIST

A. Name of square
   City
   Date of survey

B. Form of square: closed... dominated...
   nuclear... grouped...
   amorphous...
   Approximate area ....... acres
   photographs.....

C. Comments on internal development
   :
   :

D. Map of adjoining land uses completed.....

E. Map of city and/or vicinity of square obtained ..... 

F. Historical data recorded

G. Pedestrian Counts
   survey no. i. time.... Ave. no. of persons/5 min. ... 
   ii. .... 
   iii. .... 
   est. no. of ped. users per ave. day....

H. Pedestrian activities observed........................

I. Additional comments (see reverse side)
PEDESTRIAN INTERVIEWS
UNIVERSITY OF BRITISH COLUMBIA
URBAN SQUARE THESIS: RESEARCH STUDY

Name of square: Victory
City: Vanc.
Date: Feb 10
Time: 11:15
Sample No.: 12

Weather: approximate temperature: 55 degrees
- raining: yes; no
- windy: yes; no
- cloudy: yes; no
- sunny: yes; no

Interviewer: ____________________________
Interviewee: 1. address: ____________ st. __________ city
2. occupation: retired
3. purpose for being in square:
   business: working:
   shopping: meeting:
   relaxing: soc.rec.:
4. activity while in square:
   resting: yes; reading
   eating: yes; looking: yes
   other (indicate):
5. last stop before coming to square: __________
6. destination after leaving square: __________
7. approximate time spent in square: _______ minutes

Additional comments: (what does interviewee like or dislike about this square)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________