THE CENTRAL BUSINESS DISTRICT:

A STUDY IN METHODOLOGY.

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SCOPE AND CONTENTS:

This thesis provides a critical appraisal of those techniques, which have been employed in studying the functional characteristics of the C.B.D.; from this basis, a number of techniques are amalgamated, and employed in conjunction, in an effort to provide a better and more comprehensive methodology in the study and understanding of the ensemble of functions found in the Central Business District. A conceptual framework is set by a review of the pertinent literature, and a chapter on the author's own concept of the C.B.D. The approach is essentially interdisciplinary.

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PREFACE.

With the ever-increasing concentration of peoples and activities in urbanized areas, problems have arisen which are beyond the scope of any one discipline to handle. It has become evident that solutions to the problems of the modern city will only come through interdisciplinary research and the co-operation of specialists from many fields of endeavour, working towards the solution of similar problems. This latter trend has become intensified in recent years both among professional workers and academics, but is by no means a new development. It was no less a figure than Sir Patrick Geddes who stated as early as 1915:-

> "Geographer and historian, economists and aesthete, politician and philosopher have all to be utilized as guides in turn, and from each of these approaches one learns much, yet never sufficient."[1]

If it is true that such co-operation is required in the understanding of urban problems it is likewise true for units within the city. This thesis is devoted to the study of one such unit of the city, namely the Central Business District, hereafter referred to as the C.B.D. The C.B.D. is unquestionably the most complex unit of the city and as such suffers from the greatest accumulation of problems; to understand its workings and its problems we must view it through the eyes of the interdisciplinary treatment it requires.

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1 Sir Patrick Geddes, Cities in Evolution (London, William and Norgate, 1915), P.315.

The objectives of this thesis are threefold. Firstly, a critical appraisal of the techniques used in the study of C.B.D.'s by the disciplines of sociology, geography and economics; and also by planning which differs from the latter three, in that it is an art rather than a science. In this work particular attention is focused on functional aspects of the C.B.D.; techniques which have been employed to furnish an understanding of the latter are appraised under the following criteria:-

a. What distinguishes one discipline's techniques from those of other disciplines?

b. How well do the authors meet their objectives by the techniques they employ?

c. Do the techniques they employ lead to a better and/or more comprehensive understanding of the C.B.D.?

The second objective is to devise a more comprehensive, and improved methodology in the study of the C.B.D. as a complex of functions. The methodology will constitute an amalgamation of those techniques which are, in the author's opinion best suited to portraying a more complete understanding of the functional nature of the C.B.D.

A third and ancillary objective is to examine the degree of uniformity, or lack thereof, in the designation of terminology in the many writings.

The writer is aware that there may well be other techniques, applied by numerous other disciplines, which have some application to this study. However, it has been deemed impossible, in a study

of this length to consider all the techniques. Techniques are modes by which concepts can be given expression; it is a prerequisite therefore that these concepts be known and understood. Conceptually, the C.B.D. has been viewed in a number of more or less distinct ways. It has been viewed as a complex of functions; as a complex pattern of land uses which at the same time portray some order; as a structural complex; and as having a more or less definite morphology or form. It will be evident that these concepts have gradations of meaning to each of the disciplines here examined and that their terminology is somewhat different; this will be brought out in the text. To give breadth to the study and a framework into which the detailed content of the study will fit each of these concepts of the C.B.D. will be discussed in Chapter 1.

As pointed out above it is with the functional aspect that this thesis is primarily concerned, and it is against this concept that the techniques will be appraised. Nevertheless, it is the writer's aim to examine the techniques which have been employed in furnishing a better understanding of the other concepts noted above, since it is believed that some at least of these techniques will be applicable to the study of the C.B.D. as a complex of functions.

Why has the functional aspect been chosen for study in depth? A number of reasons are given for this choice. Firstly, the C.B.D. is a multi-functional unit of the city, as demonstrated in the Appendix. There appears, however to have been an over-emphasis on the retail function of the C.B.D., and consequently less attention has been directed to the other essential C.B.D. functions. It is

unfortunate that the very term 'central business district' seems to have promoted this idea of a retail centre. The C.B.D. is an intense concentration of numerous activities often in close association with each other. To understand the location of one activity often demands insight into the location of its neighbour. The C.B.D. is much more than a shopping centre.

Since the turn of this century mobility has been greatly accelerated. No longer do we find at the heart of our cities all the activities we might have found 50 years ago. Then people lived in the 'city' and worked there. Most activities, including industry, manufacturing, not to mention the bulk of peoples homes, were located there. With improved highways and the introduction of new modes of travel this has changed. The C.B.D. is becoming more specialized and selective in the functions it entertains. Is the C.B.D. taking on a new functional aspect? What impact has the process so often referred to as decentralization had on the C.B.D. as a complex of functions? This study will enable the answer to such questions.

The C.B.D. may be recognized as a complex of functions, but these functions are also reflected in the land use pattern and in the structure of the C.B.D.; they are interrelated and dependent upon each other. Therefore, to fully understand the functional composition of the C.B.D. it will be necessary for us to view it from time to time within its broader context. That conceptual framework will be set in the following chapter.

CHAPTER 1.

CENTRAL BUSINESS DISTRICT CONCEPTS.

It is the purpose of this chapter to outline the main concepts held by the writer concerning the central business district.

The C.B.D. as a Morphological Unit of the City.

Morphology is essentially the study of composite forms in space which result from the complex interrelationships of structure, function and land use. The form of the C.B.D. however, is also influenced by the ground plan and the topography of the site. As Dickinson has pointed out, it should not be forgotten that the character of the buildings depends not merely upon the purpose for which they are needed, or the materials of which they are built.[2] Architectural features of the separate forms in the C.B.D. depend upon aesthetics, culture and tradition. Thus the C.B.D. will have also a more or less definite cultural form.

The topography may add to, or detract from, the character of the C.B.D.; it may allow for its growth or be a restricting factor. Similarly the street plan will influence the growth and form of the C.B.D., depending on whether it is spider-web, rectangular or irregular in ground plan. The very narrow, winding streets,

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2 R.E. Dickinson, The West European City (London, Routledge and Kegan Paul Ltd., 1961), p. 265.

combined with the great density of buildings in many European cities, which are essentially medieval in origin, give them a morphology very different from that witnessed in most North American cities.

The city is essentially an aggregate of spatial units, one of which is the C.B.D. This sector of the city can be likened to a region, and it possesses the normal qualities of a region. It has a 'core' area in which use intensity reaches a peak and in which are found the highest buildings in the C.B.D. Within this 'core' are usually found the highest land values in the city. Outward from the latter there is generally a gradation in use intensity and in the composition of the activities performed; this is in turn reflected in the decline of land values. Rarely is the C.B.D. sharply defined. Instead it is generally circumscribed by a dingy - looking zone of deterioration that surrounds the business centre of almost every city.

The C.B.D. as a Complex Pattern of Land Uses.

The land use pattern of the C.B.D. is a reflection not of the immediate and current space requirements of the community, but rather of the cumulative needs over a period of time.

Within the C.B.D. there are great variations in the intensity of land use. The 'core' is represented as a group of peak-use intensity areas, usually fringed by a group of uses which continue to occupy virtually all the floor space; the latter, however, do not portray such marked segregation of uses or such pronounced vertical development.

If the C.B.D. were to be divided into a number of use zones,

retail business uses would predominate at the centre, with close-by numerous office uses. Generally these uses would fall off towards the fringe. Between the core and the edge of the C.B.D. there is likely to be a great range of uses, a reflection of the great number of activities performed within the district. In general, residential and industrial uses increase in number and intensity when the zonal boundary of the C.B.D. is reached.

It should be pointed out that the above is a very generalized picture, and that the land use pattern of one city is never the same as that of another. Generally a C.B.D. which has reached a stage of maturity will portray a very different land use compostion to a C.B.D. which has not gone through any process of specialization or areal differentiation.

There is usually a change in intensity of land use with height. Retail uses predominate on the ground floor and reflect the importance of traffic generation to the activities which are performed at ground level. Only large department stores have two or more floors solely devoted to retailing. Upper floors in the C.B.D. are primarily given over to office uses.

The pattern of C.B.D. land use is influenced by numerous factors. Transportation is one of the most important of these. The interrelationship and location of streets and arteries, as well as parking facilities in the C.B.D., will be a controlling influence in the amount and location of economically useful land for all categories of use. Moreover new modes of travel have brought about new land use patterns. For example, there has been dispersal of particular types of land use since the introduction of the automobile,

and at the same time a certain homogeneity has been brought about by the specialized requirements of certain activities, such as department stores. The latter have a tendency to cluster and thereby generate more traffic and customers.

Certain other factors tend to bring about compactness and homogeneity; they vary of course from city to city. Perhaps zoning and land use planning, with their use classifications and nice categories may compartmentalize the land into neat bundles. This has been true of a number of European cities which have undergone massive renewal since 1945. Often where there has been urban renewal on a large scale this compactness has been an end product. Zoning is an important factor because if it is not flexible it may freeze the land use pattern indefinitely.

The C.B.D. as a Structural Complex

Most people's image of the C.B.D. is one of diversity. Here they often see the tallest buildings in the city, these in turn are found in close proximity to single storey structures, vacant areas and parking lots. In North America the latter has taken up so much space that the C.B.D. has been likened to an old man's mouth with his dentures out!

Structure here refers to the way in which space is occupied; it may be determined beforehand as in the case of new towns, or may be conditioned by the site; it may be treated qualitatively, or quantitatively through the study of density, floor space ratios etc. Blank spaces are as much part of the C.B.D. structure as are linear or nuclear developments. Whatever the structure of the C.B.D., it

has a totality, and this fabric is produced by the massing of buildings and the spaces between them.

In reality most of us are to some extent aware of the structure of the C.B.D. We recognize a group of department stores, a cluster of theatres here, a number of office blocks in another location. However, we cannot understand these groupings with reference to the present alone. The C.B.D. has been given character and diversity due to the fact that it is the one area of the city that has continuously been subject to rebuilding - even in the total absence of planning as we might think of it today.

Structure results from an effort to relate people and facilities over urban distances. There are 2 methods of overcoming distance. People can be transported to facilities or facilities can be distributed to people. In either case it is essential to overcome the costs of friction and to provide the optimum of convenience.

Areal variations in the internal structure of the C.B.D. are based on a number of factors. The following are some of those factors we must keep in mind if we are to understand the physical structure of the C.B.D.:- there is a recognizable relationship between land values and height of buildings; because land use is readily observable and easily mapped, floor space use maps are a convenient way of assessing structure both in the vertical and horizontal sense; variations in central business height and central business intensity are also calculable from such maps. The street pattern and block size will also affect structure, as will the degree of vertical movement within tall structures, first made possible by the elevator. Absentee - ownership, speculation, and other human

desires and wishes may also have a marked influence on the structure of any C.B.D.

There is likewise an apparent relationship between C.B.D. structure and the factors of transportation and traffic. In many cities the C.B.D. is a focus of car traffic, requiring much open space for parking or the development of new multi-storey structures above or below ground. As a unit of the city in which people work, shop and demand entertainment it is possible to show that there is a relationship between their desires and the amount of space which is required in the C.B.D. both horizontally and vertically. Structure then is an expression of the activities that the C.B.D. performs, and the desires, purposes and wishes of the city's inhabitants.

The C.B.D. as a Complex of Functions.

Most towns and cities are chosen as to their advantages of trade and commerce. The primary focus of internal activities and the major contact with a tributary area is generally found in the central business district. It is within the C.B.D. that one invariably finds the most intense concentration of activities in each city; it is often the heart, brain and prime mover, inseparable from the city as a whole.

In the light of its functional characteristics what distinguishes the C.B.D. from other component units of the city? The basic characteristic of C.B.D. functions is in their location; they must have traffic, since by their very nature they thrive on mobility. Secondly, C.B.D. functions cater to a wider range of clientele than any other portion of the city; and thirdly the C.B.D. possesses a wider range of activities than is generally found anywhere else in

the city.

C.B.D. functions are traffic generators; they may be divided into two groups. Firstly those activities which are highly specialized, and secondly those activities which offer a wide range of goods or services to the public. Both types of activity depend on volume of traffic. Thus, within the C.B.D. we find large department stores offering a great range of goods within one building. At the other extreme are the specialized activities such as the lawyer or the high class ladies clothes store. Specialized activities may have a larger than city wide clientele; they may be regional or even nation-wide in scope. Thus, the highly specialized financial district of Wall Street, New York, falls into the latter category.

The latter leads on directly to the question of functional maturity. The maturity of any C.B.D. does not depend on the size of the city. Nor of course can we expect to find total maturity within any one C.B.D. irrespective of the size of the city. There will be portions which are mature and those which are not. Functional maturity is expressed in the range of functions performed; in the degree of competition and specialization; and in the degree of areal specialization, such as the emergence of functional zones. The latter is brought about by the clustering of like activities into one or more distinct districts within the C.B.D.

What is meant by the term C.B.D.?

The C.B.D. is a more or less distinct unit and generally includes the historic core of the city. It is the most complex segment of the urban area, and as such suffers from the greatest

accumulation of problems, economic, social and physical. It is generally the one area of the city which has continuously been renewed, a pointer to its lasting importance.

The C.B.D. is here recognized by its functional ensemble, its pattern of land use, its structural complex, and its morphology. It is a multi-functional unit of the urban environment, housing those functions which can command a central location, and also those parasitic functions which feed off the traffic generated by other activities. Certain types of industry and manufacturing have their place in the C.B.D., and likewise such functions as those of residential, institutional, recreational etc. have a vital role to play in the life of the central business district. In many ways then the term 'business' is misleading.

The C.B.D. is recognized as having a 'core' in which the definite qualities reach their greatest intensity. Within the 'core' is the 'hub' or peak land value intersection. Surrounding the core is another recognizable zone which grades off until the fringe or zonal edge of the C.B.D. is reached.

CHAPTER 2.

REVIEW OF THE LITERATURE.

There are three reasons for reviewing the literature in this chapter:-

1. How has the term central business district come about, when did it become an accepted term, and how have the authors distinguished it from adjacent units of the city?
2. From reviewing the literature on C.B.D.s, what are the main concepts about that unit of the city? Do they correspond to those set out in the previous chapter?
3. The review of the literature will furnish information on what techniques have been employed in C.B.D. study.

As Murphy has pointed out the section of the city here under consideration is known by a variety of names.[3] However the term central business district has gained ascendancy over the others in recent years, until today this name, and its abbreviated form, C.B.D., are familiar to everyone working with city problems.

The term central business district first emerged in the 1920's, but drew its inspiration from earlier writers, the most important of whom were Hurd, Geddes, Gras and Haig. There are certain similarities in their concepts and in their terminology. Thus we

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[3] R.E. Murphy, "Techniques in Central Business District Research," Techniques, Vol. 1. (1959), pp. 101-28.

find in these early writings an awareness of many of the basic characteristics of the C.B.D. Hurd as early as 1895, and in his book of 1903[4] recognized the 'business centre' in terms of its intense concentration of activities and the constant tendency for these activities to segregate into definite districts. Geddes, in two of his early books published in 1904[5] and 1915[6], recognized a more or less definite 'central area' in terms of its centrality in regard to traffic movement, the variety of commercial activity carried out, and above all the necessity for renewal. He gave no name to this central area, but that he recognized it as distinctive, there can be no doubt. In 1922, Gras, an economic historian recognized a central portion of the city by its specialization and great range of functions.[7] Two decades after Hurd, another economist, R.M. Haig published his classic study on New York and its environs.[8] One of the questions Haig asked himself, where do things belong in an urban area? is still the key question in analysis of urban location. He recognized a 'central commercial area' by its land

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4 R.M. Hurd, Principles of City Land Values (New York: The Record and Guide, 1903, 1924), pp. 14-16.

5 Sir Patrick Geddes, City Development (Edinburgh, Geddes and Co., 1904).

6 Geddes, op. cit.

7 N.S.B. Gras, An Introduction to Economic History (New York: Harper and Bros., 1922)

8 R.M. Haig, "Major Economic Factors in Metropolitan Growth and Arrangement" (New York: Regional Plan of New York and its Environs, 1927), vol. 1., p. 31.

use pattern and the functions which are performed in that area. He notes the range of functions as being characteristic.

By the 1920's then, the above characteristics were noted, and they have some similarity to those characteristics outlined in the previous chapter. As evident above, the portion of the city here under consideration was referred to in numerous terms; always it was denoted as being central.

In 1925 Park stated that modern means of transportation and communication have lead to the concentration of traffic in the (central) business district and have made possible the emergence of the department store.[9] In the same year Burgess, a co-worker of Parks in the newly formed school of sociology in Chicago stated the following,

> "in all cities there is the natural tendency for local and outside transportation to converge in the central business district."[10]

Here for the first time, to the writer's knowledge, the term 'central business district' is explicitly employed. Burgess' further statements are of significance for they epitomize the 'classical' approach to the C.B.D., in which it is viewed as the focus of transportation, as the most accessible area of the city, as the focus of daytime population, and as a major employment centre. This may be so, but it is easy to think of exceptions, and it is therefore important to realize that the C.B.D. cannot be fully understood in terms of these factors alone.

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[9] R.E. Park, The City, ed. R.E. Park (Chicago: University of Chicago Press, 1925), p. 23.

[10] E.W. Burgess, "The Growth of the City", The City, ed. R.E. Park (Chicago: University of Chicago Press, 1925), p. 52.

From 1925 on, the term central business district comes into common usage and is freely employed in Hoyt's classic study of Chicago land values.[11] However in the same year, 1933, Colby refers to the 'central zone' and gives no definition of what he means by that term. Nevertheless it is probably true to state that from 1937 on, with the publication of Proudfoot's work on Philadelphia,[12] and his article on city retail structure,[13] that thereafter the term becomes ever more common, particularly in North A merica.

If we jump to the 1950's we find that the term is generally being used on both sides of the Atlantic. The controversy now, however, concerns what should be included within the C.B.D. and how it should be defined. Thus, by 1952 Hans Carol was devising a delimitation method for the C.B.D. of Zurich. He recognized the C.B.D. as a multi-functional unit of the area, and the qualitative section of his work was followed by a quantitative estimate of the amount of space occupied by various functions.[14] By this technique he was able to distinguish the C.B.D. core, the transition area and the non - C.B.D. area.

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11 Homer Hoyt, One Hundred Years of Land Values in Chicago (Chicago: University of Chicago Press, 1933).

12 U.S. Department of Commerce, Intra-City Business Census Statistics for Philadelphia, Pennsylvania prepared under the Supervision of M.J. Proudfoot Research Geographer, Washington D.C.: Bureau of the Census, May 1937, p. 25.

13 M.J. Proudfoot, "City Retail Structure", Economic Geography, vol. xiii (Oct., 1937), pp. 425-28.

14 Hans Carol, "The Hierarchy of Central Functions within the City" Printed in the I.G.U.S. Symposium in Urban Geography, ED. K. Norborg (Lund: C.W.K. Gleerup Publishers, 1960), pp. 555-575.

Meanwhile, Murphy and Vance were working on devising a technique which would allow for the comparative delimitation of C.B.D.s of medium sized American cities.[15] They chose a much narrower range of functions than did Carol. Moreover the functions they chose were not truely representative of the range of functions found in the C.B.D. Different again is the Horwood and Boyce concept which depicts a much larger C.B.D. than that defined by Murphy and Vance. They also view the C.B.D. as being made up of two distinct portions.[16] As Murphy has aptly pointed out there is nothing really new in this core - frame concept. It was employed by both the Cincinnati City Planning Commission and the Seattle City Planning Commission, some years before Horwood and Boyce published their book.

Likewise in Britain there appears to be little agreement on what constitutes the C.B.D. Diamond in an article on Glasgow's C.B.D., states that the latter area is known in Britain as the 'central area', in the U.S. as the C.B.D.[17] Edwards disagrees and views the 'central area' as being larger than the C.B.D. and includes areas of industry, old residential development, and "comprises the historic core of the city, together with the inner fringe of the so - called twilight zone."[18]

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15 R.E. Murphy and J.E. Vance, Jr., "Delimiting the C.B.D.", Economic Geography, vol. xxx (July, 1954) pp. 189-222.

16 E.M. Horwood and R.R. Boyce, Studies of the Central Business District and Urban Freeway Development (Seattle: University of Washington Press, 1959), pp. 9-22.

17 D.R. Diamond, "The Central Business District of Glasgow" pub.in The I.G.U.S. Symposium in Urban Geography, ed. K. Norborg (Lund: C.W.K. Gleerup Publishers, 1960), p. 525.

18 K.C. Edwards, "Trends in Central Area Differentiation" (Lund: 1960), p. 519.

Edwards' opinion is most widely accepted and is supported by two recent articles, one on Cardiff[19] and one in which the C.B.D. is viewed as part of the central area.[20]

Today the term C.B.D. is employed by numerous scholars from various disciplines. What they do not agree on is what exactly constitutes the C.B.D. and how it is to be delimited. Often the task of delimitation is left to the geographer and/or planner, the sociologist, economist, engineer etc., merely accepting this defined unit as the framework in which he will work. Indeed it would appear that many workers on C.B.D. problems are merely expected to have fairly sharp intuitive ideas of what the C.B.D. is.

Functional Concept - It is the purpose of this section of the chapter to review the literature on the functional concept of the C.B.D. It is important however that a review be set against a standard held by the writer. Here the writer will be concerned with whether the literature reveals an interest in the distribution of functions, range of functions, degree of intensity or the nature of the functions performed.

In the literature of economics there is an obvious concern for the distribution of functions, the C.B.D. being viewed as merely a piece of economic productive machinery. This view was early expressed

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19 Carter and G. Rowley, "The Morphology of the Central Business District of Cardiff", Institute of British Geographers, Transactions, No. 38, (June, 1966), pp. 119-134.

20 Gwyn Rowley, "A note on Central Business District Research in Britain", The Professional Geographer, vol. 17, (Nov., 1965), pp. 15-16.

by Hurd when he stated that the basis of the distribution of all business utilities is purely economic, land going to the highest bidder, and the highest bidder being the one who can make the land earn the largest amount.[21] Even at this early date we see the over-emphasis on land values as being a determinant of the location of activities, a view which has been perpetuated because there is no total concept of the C.B.D. as a functional unit. Hurd did note that certain activities tend to gather together into 'special districts',[22] but he says nothing of the range of functions or their nature. Haig also viewed the C.B.D. as a market for the production and/or distribution of goods. The distribution of activities he sees as being brought about by an effort to minimize the disutilities and costs of friction by locating where transportation costs are at a minimum.[23] Haig notes the range of functions in Manhattan, New York, but says little about why there should be this range, or what functions are characteristic of the C.B.D.

Ratcliff in an early article took these views one step forward, by viewing the urban scene as being made up of the distribution of several functional areas, e.g. retail area, industrial area etc.[24] His article has further significance, for it marks the beginning of the over-emphasis on the retail function of the C.B.D. The focus of

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21 Hurd, op. cit., p. 77.

22 Hurd, ibid.

23 Haig, op. cit., p. 303.

24 R.U. Ratcliff, "The Problem of Retail Site Selection", Michigan Business Studies, vol. ix. (1939), pp. 1-93.

every city according to Ratcliff, is the 'central shopping area'. Such a definition is obviously shallow, and it has been such like statements which have created the image of downtown, as being nothing but a retail centre. Ratcliff in examing the distribution of certain retail types, again views the C.B.D. as an economic machine, whose parts have been arranged and rearranged until there is approached the maximum of efficiency in the performance of its commercial functions.[25] It is interesting that by 1949 Ratcliff was viewing the C.B.D. as a multi-functional unit of the city and he asks himself, why certain functions should be there. He sees the answer in functional associations, the fact that they can draw on the entire community for customers, and that a central location is required to minimize transportation costs.[26] Ratcliff's article is an exception, in that he considers the nature of certain functions, if only briefly. Most studies have been concerned almost exclusively with distribution.

In the literature of sociology there is also a very apparent concern for the distribution of activities. Often the distribution of these activities is explained in terms of land values. 'Businesses', to McKenzie, concentrate around the highest land values in the city, and as the city grows there is a struggle among utilities for the vantage points of location.[27] This he believes makes for the increased

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25 Ratcliff, ibid., p. 60.

26 R.U. Ratcliff, "The Dynamics of Efficiency in the Locational Distribution of Urban Activities", Published in Readings in Urban Geography, ed. Mayer and Kohn (Chicago: University of Chicago Press, 1963), p. 313.

27 R.D. McKenzie, "The Ecological Approach to the Study of the Human Community" in The City, ed. R.E. Park (Chicago: University of Chicago Press, 1925), p. 73.

value of land and greater height of buildings. This view is carried to its extreme when Park and Burgess state,

> "Land values are the chief determining influence in the segregation of local areas, and in the determination of the uses to which an area is put."[28]

This statement does not take into consideration that if a function must be in the C.B.D., it will be there irrespective of land values. Moreover, building height means very little if we do not know how intensively that space is being used for C.B.D. functions. In many C.B.D.s, the space is not being so used. Moreover, is it not the uses which determine the land values rather than vice versa? Indeed there is little agreement among sociologists regarding this question of land values. Quinn observed that land values affect as well as reflect the struggle for location within the metropolis.[29] Because of their training, most sociologists have been interested in residential location. Thus, Hawley states that family units are distributed with reference to land values and the time and cost of transportation to centre of activity.[30] In both economics and sociology then, there has been concern for the factor of land values, frictional costs, efficiency and the profitable utilization of space. The over-emphasis on the factor of land values, would seem to arise from the lack of appreciation on the part of the authors that the C.B.D. is a total entity, and that it can be viewed functionally as a total entity.

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28 R.E. Park and E.W. Burgess, ibid., p. 203.

29 James A. Quinn, Human Ecology, (New York: Prentice Hall, 1950), p. 449.

30 Amos H. Hawley, Human Ecology, (New York: Ronald Press, 1950), pp. 280, 281.

In 1951 Johnson[31] stated that the C.B.D. can be better understood in terms of the ecological viewpoint, than the geographical one; if by this he means that the C.B.D. can be better explained in functional terms than in area terms, he is correct. The distribution of functions occuring in the C.B.D. are explained in terms of transportation, which he states, fix the retail and service functions at the centre; other functions are identified with the focus of communications (telephone, telegraph, radio etc.) and include banks, insurance offices, investment houses and so on. Other functions which the author listed should merely have been referred to as land uses. The arguement is a weak one; C.B.D. functions are there for numerous other reasons besides transportation and communications. Again Johnson epitomizes the 'classical' view of the C.B.D. as the focus of urban activity. In sociology there has been little concern for anything other than the distribution of urban activities.

In the literature of geography and planning, there is an interest in the static distribution of activities and in certain dynamic aspects. Furthermore the concept is tempered by other considerations, the most notable being the idea of the total unit. The dynamic aspect is more prevalent in the planning literature, due perhaps to the concern for creating new functional forms to meet changing needs. It is apparent, moreover, that in the geographic literature there is more attention given to land use, than to function. In reference to the latter,

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31 Earl S. Johnson, "The Function of the Central Business District in the Metropolitan Community" in A Reader in Urban Sociology, eds. P.K. Hatt and A.R. Reiss, Jr. (Illinois: The Free Press, 1951), pp. 480-491.

Smailes pointed out that it would be helpful to know the area affected by functional succession, that is, by changes in the type of occupier, since the property was first developed. It is important to know how this functional succession is expressed, whether in old structures, housing new functions, or through the erection of newly designed premises. These distinctions are related not merely to the functional use of plots, but to the very fabric of the city.[32] This is in many ways a more significant technique than simple land use mapping. Unfortunately few studies of this type have been carried out.

If there has been little concern for the changing functions of certain structures, there has been considerable interest in the changing distribution of activities within the city. In 1933, Colby analysed the centripetal and centrifugal forces working on 22 U.S. cities, and also 4 in Canada, and 3 in the U.K.[33] Although the 'classical' approach is again emphasised, Colby does recognize that C.B.D. functions must serve a city wide clientele, that there is grouping of certain functions into sub-districts, and that the C.B.D. performs certain very specialized activities. Nothing is stated about nature, range or intensity.

In the traditional view traffic is focused on the C.B.D. and concentrated there. But with the introduction of ring roads and through-

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[32] A.E. Smailes, "The City Core: Hobart Tasmania", A Review Article of Peter Scott: Hobart: An Emergent City, The Australian Geographer, vol. vi. (1955), pp. 19-31.

[33] Charles C. Colby, "Centrifugal and Centripetal Forces in Urban Geography, Annals of the Association of American Geographers, vol. xxiii (March, 1933), pp. 1-20.

ways this pattern has been greatly changed, especially in N. America. The C.B.D. however, is still the focus of intra-city traffic, and C.B.D. functions as well as parasitic ones, top on it. The traditional view of the C.B.D. is exemplified in the writings of Proudfoot, and Harris and Ullman[34] in which the C.B.D. is still the most convenient point of access from all parts of the city, and the point of highest land values. Their description of the C.B.D. goes little beyond merely stating some of the functions which are performed there and that they serve a city wide area. Little indication is given of the true range of functions, aspects of specialization and competition, intensity of use and other fundamental characteristics.

Although there has been more concern with land use than with function in the geographic literature, Murphy and Vance do consider the nature of the functions performed in the C.B.D., their distribution and intensity and to a certain extent their range. The latter however, is limited to a narrow spectrum of the functions found in the C.B.D.[35] A somewhat similar composition is found in the writings of Horwood and Boyce, except that the range is a wider and more realistic one.[36] The writings of these authors will be considered in more detail later in the text. Murphy and Vance give a dynamic aspect to their writings, by examining functional shifts within the C.B.D., and the general movement of the C.B.D. itself. They point out, that there is always advance and retreat

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[34] C.D. Harris and E.L. Ullman, "The Nature of Cities" published in Mayer and Kohn (Chicago: University of Chicago Press, 1963), p. 284.

[35] R.E. Murphy, J.E. Vance, Jr., and Bart J. Epstein, "Internal Structure of the C.B.D.", Economic Geography, vol. xxxi. (Jan., 1955), p. 42.

[36] Horwood and Boyce, op. cit.

in certain sections of the C.B.D., bringing about zones of 'assimilation', and zones of 'discord'. These zones in themselves, portray certain types of activities. The whole district, as Dickinson[37] has pointed out, tends to move towards areas of higher residential quality. This however, may not be due so much to the attractiveness of the high quality residential area, as to the fact that the industrial - wholesaling district near the railroads, with its attendant low class housing, tends to repel the C.B.D.

Summary. Throughout, the concern has been to portray the distribution of C.B.D. functions. In the literature of economics, these functions have been related to factors of efficiency, rent paying ability, the value of land etc., in sociology the factor of land values has been employed to explain the distribution; in geography and planning literature, there has been an attempt to relate the functions performed in the C.B.D. to various social, economic and technological factors. The concept of the C.B.D. as a total, dynamic, functional unit is given expression in the literature of geography and planning, and where this is so, it leads to consideration of other characteristics besides distribution. Little is mentioned about the factors of specialization and competition of C.B.D. functions; of the importance of traffic; or the influence of various human factors on the complex of functions found in the C.B.D.

Land Use Concept. Again the primary concern in the literature of economics is for the distribution of land uses. Land use is considered in terms of production, utilization, efficiency, rental value, within a

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37 R.E. Dickinson, City Region and Regionalism (London, 1947), pp. 96-97.

C.B.D. which is viewed as a market. Thus Hurd stated, "when land is suitable for a number of purposes, one utility competes against another and the land goes to the highest utilization."[38] Later Haig pointed out, that even with all the imperfections and distortions of the market, there is an observable tendency for the national economic forces to create an urban pattern which is relatively efficient in its basic space relationships.[39] Haig's statement is closely followed by Ratcliff and other economists. In the literature of economics, the land use pattern is viewed as being the outcome of site selection in a competitive market. It is then assumed that there should be a correspondence between the pattern of C.B.D. uses and the value of the land. This is true, for the most valuable land is in the centre of the C.B.D., i.e. in the 'core'. All we really learn from this, is that there is greater competition for land in the C.B.D. than elsewhere in the urban area, and that land is of greater value in the C.B.D. In fact there is little distinction made between function and land use. It is not pointed out that there can be a greater range of land uses within the C.B.D. than functions; in fact, range is not mentioned in these writings. What land uses are characteristic of the C.B.D.? Is not intensity of use a basic characteristic? From such writings one obtains little indication of what distinguishes the C.B.D. from other units of the city. Indeed, one of the failings is that it is not viewed as a composite entity in itself.

Sociologists have tended to see the urban land use pattern as

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38 Hurd, op. cit., p. 145.

39 Haig, op. cit., p. 303.

falling into certain geometric patterns. Burgess, therefore viewed the C.B.D. as one of a series of concentric zones;[40,41] Homer Hoyt later refined this theory in his sector concept in which he states, similar types of land use originate near the centre of the city, and migrate outward toward the periphery.[42,43] The authors are really propounding general statements, not theories as such. Other sociologists have tended to relate the pattern of land use with land values. Be this as it may, the main concern has been with distribution, and we derive little understanding of the complex pattern of land uses found in the C.B.D. from their writings.

Similar studies to the above are apparent in the geographic literature. Hartman after an examination of 40 U.S. cities, concluded that the shape of the C.B.D. generally fell into one of three basic geometric shapes - the circle, star and diamond, depending on the layout of the street plan.[44] This he concluded from an examination of land use maps. Studies, however which were carried out by Murphy and Vance do not verify Hartman's findings. The former found the shape to be

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40 Burgess, op. cit., The City, ed. Park.

41 E.W. Burgess, Urban Areas: An Experiment in Social Science Research, (Chicago: University of Chicago Press, 1929), pp. 113-38.

42 H. Hoyt, The Structure and Growth of Residential Neighbourhoods in American Cities, (Washington, D.C.: Federal Housing Administration, 1939).

43 H. Hoyt, Quoted in Harris and Ullman, op. cit., p. 283.

44 G.W. Hartman, "The Central Business District - A Study in Urban Geography", Economic Geography, vol. 26, (Oct., 1950), pp. 237-244.

that of a quadrate cross.[45] Such studies are little more than mental exercises, based on a small sample, they are of little value. They of course tell us nothing of the internal characteristics of C.B.D. land use.

We find in this literature an attempt to relate the pattern of land use in the C.B.D. to numerous factors. The mode of transportation is an important factor. The introduction of the automobile has led to the dispersal of certain types of land use, and at the same time a certain homogeneity has been brought about by the specialized requirements of certain functions. Not enough stress has been placed on certain human factors, such as speculation, local government policy and the like, in attempting to understand the land use pattern.

In the literature of geography and planning we do find, however, an interest in the intensity of land use, and the great range of land uses found in the C.B.D. are portrayed in various types of classification. It must be remembered of course, that land use is a reflection of the function performed, and that the range of land uses in a C.B.D. defined by Murphy and Vance will be much smaller than in a C.B.D. defined by Horwood and Boyce. The former have shown by land use mapping, and the application of a central business height index, (i.e. the proportion of all floors in C.B.D. uses, expressed as a percentage of the total floor space at all levels), that intensity of use drops off away from the 'core' of the C.B.D. and also vertically. In their study of 9 U.S. cities they divided the C.B.D. into a number of 100 yard zones to

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45 R.E. Murphy and J.E. Vance Jr., "A Comparative Study of Nine Central Business Districts", Economic Geography, vol. xxx. (Oct., 1954), pp. 301-336.

demonstrate that certain uses have an affinity for certain locations in the C.B.D.[46] The latter is again a concern with distribution. The land uses mapped will of course be determined by the initial functions chosen as characteristic of the C.B.D.

Summary. In the literature of economics the primary concern is for explaining the distribution of land uses, in relation to various economic factors. Little differentiation is made between land use and function. Besides distribution we learn little. The literature of sociology, and to a certain extent that of geography, portrays a wish to fit the urban land use pattern into certain geometrical patterns. Emphasis on this has led to little consideration of the internal composition and characteristics of the land use found in the C.B.D. The literature of geography and planning, has, more or less, considered the intensity of land use, the range of land uses, and their nature. Over the latter there has been considerable disagreement.

The Concept of Structure. Little attention has been given to structure either in the literature of economics or sociology. The former again shows an interest in production and efficiency. Thus it may be more economical to have a six storey building, rather than a one storey one. In most cases the term structure is used in a purely economic sense. For example, Ratcliff speaks of 'urban land use structure',[47] or of 'retail structure'. The literature of sociology again portrays an interest in the factor of land values. Park states

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46 Murphy and Vance, ibid.

47 Ratcliff, op. cit., p. 299.

that as a city grows and there emerges distinct functional areas, such as the C.B.D., competition for sites makes for increasing value of land, and increasing height of buildings.[48] The term structure as used in economics is similar to that employed in demography and other subjects and is a valid one. But in sociology we learn little about the structure of the C.B.D. through the emphasis on the factor of land values. The factor of land values is only one amongst many which influence structure. Again there is no concept of the totality of the C.B.D. How does site determine the structure of the C.B.D.? What influence do man made barriers, such as railways, parks etc. have on structure? What influence does the street plan and block size have on structure? What impact do human desires and motivations have on structure? How important an influence is legislation, zoning, renewal policy etc.? These are some of the questions which must be asked if we are to understand the structure of the C.B.D.

Many of the above questions are answered in the literature of geography and planning; structure here referring to the mode of grouping of buildings and streets. Dickinson considers the aspects of street layout, social and economic processes, and the stage in the historical development, as they influence structure.[49] Murphy and Vance give consideration to the dynamic aspects of C.B.D. structure. They point out that the C.B.D. is ever-changing. Areal variations in the internal structure of the C.B.D., Murphy, Vance and Epstein see, as being brought about by factors such as land values, variations in land use,

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48 Park, op. cit., p. 299.

49 Dickinson, The West European City, op. cit., p. 2.

street patterns and block size and variations in building height. They also refer to dynamic factors such as traffic movement, and the vertical movement of people in tall buildings.[50] Their work is much more detailed than might be assumed here, and it furnishes considerable insight into the structure of the C.B.D.

Although one occasionally finds reference to the impact of man made barriers on the structure of the C.B.D., this and other aspects, such as absentee-ownership, speculation, over-zoning for certain uses, legislation etc. have not been treated in detail in the literature.

Morphology. The concept of morphology is not found in either economics or sociology. Although it is essentially a geographic term, and a European one, it is often found in planning literature. The term 'form' is sometimes substituted for morphology, especially in North America. The study of morphology, which took its inspiration from the writings of numerous early French and German scholars, attempts the study of composite forms in space. It has been of particular interest to geography, because it is a study of spatial relationships which unite to produce what might be called the fabric of the city. Smailes was concerning himself with morphology when he stated that it might be more significant to map the changing functions, and how these are housed in the C.B.D., rather than to simply map land use. Dickinson sees morphology as the expression of the activities performed, and the purposes of the city's inhabitants, as well as the configuration of the land.[51] The great merit of this concept is that the C.B.D. is viewed as

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[50] Murphy, Vance and Epstein, op. cit.

[51] Dickinson, op. cit., p. 265.

a unit in terms of structure, function and land use combined. This has, more or less, removed the reliance on single purpose arguments which we find in other portions of the literature, for example, the over-emphasis on land values.

The need to view the totality of the C.B.D. is expressed in much of the planning literature. In Britain, since the war, legislation has been passed allowing for the morphological development of the centres of new towns. In North America, Van Ginkel has explicitely pointed out the need to plan for the totality of the C.B.D.[52] Indeed, many grandiose schemes have been devised for C.B.D.s; what we rarely learn from the literature is how such plans will be implemented. For instance, Van Ginkel would prefer to have diversity at the core of the C.B.D., and deplores the compartmentalization of certain functions into distinct districts. The latter she views as often being brought about by zoning and land using planning, with what she calls its neat use categories. A fair question to ask might be, how does one go about achieving these ends - especially the diversification of activities in the C.B.D.? Allowing for the free play of the American market, this seems impossible.

Conclusions. That there should be conceptual difference in the literature is not really surprising, for each discipline works with set goals in mind. However, in urban research and study, there is need for the pooling of knowledge acquired by scholars from many disciplines and fields of endeavour. We cannot hope to reap the fruits of this teamwork until we first recognize conceptual and terminological inconsistency, and secondly work towards making ourselves understood in an

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[52] B.L. Van Ginkel, "The Form of the Core", Journal of the American Institute of Planners, vol. xxvii. (Feb., 1961), p.59.

interdisciplinary spectrum. Inconsistencies in terminology will be dealt with in more detail later in this thesis.

Techniques. It is the purpose of this third section of the chapter to illustrate from the literature, what techniques have been employed by various authors in dealing with the functional aspects of the C.B.D. It may well be that techniques have been used in better understanding the other aspects of the C.B.D. (outlined in the second section of this chapter), and which have application to the problem in question; if so this will be portrayed.

There have been a number of more or less distinct approaches to C.B.D. study; an approach is here defined as a combination of technique and objective; it should not be confused with a concept. It is thought that the best way of portraying the techniques is to outline these approaches.

Studies of Retail Sales. Retail sales volume in shopping goods has been widely used as an economic barometer of the health of the C.B.D.[53] Writing on city retail structure in the 1930's, Proudfoot noted that retail stores in the C.B.D. do a greater volume of business per unit area than elsewhere within the city area.[54] Although the latter is to the point, Ratcliff has since pointed out that it is a common misconception that the majority of retail trade is done in the C.B.D.[55] Actually, it has been observed that the percentage of retail trade in the C.B.D.

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53 Homer Hoyt, "Impact of Suburban Shopping Centres in September, 1956", Urban Land, vol. xv. (sept., 1956), pp. 5-6.

54 Proudfoot, op. cit., p. 425.

55 R.U. Ratcliff, Urban Land Economics (New York: McGraw-Hill Book Company, Inc., 1949), pp. 387-388.

(of American cities), tends to vary inversely with the population size of the central city.[56] The only techniques which have been used in such studies are an analysis of census material; the latter is also significantly employed in Weiss' excellent article on C.B.D. literature.[57]

Numerous studies have likewise been made of retail decentralization. In fact, problems of retailing, have been given more attention than any other facet of the C.B.D. There is little agreement as to the factors responsible for decentralization. McMillan sees the explanation in terms of growing suburban population and increasing distance, therefore, from the C.B.D.[58] McMillan's pessimism about the C.B.D. is supported by Wolff, who sees the problems of the C.B.D. as arising from physical decay, lack of parking and congestion of traffic.[59] Cox, on the other hand, sees the major problem as one of parking space.[60] Other

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56 Larry Smith, "Maintaining the Health of Our Central Business Districts", Traffic Quarterly, vol. viii. (April, 1954), pp. 114-115.

57 S.F. Weiss, "The Central Business District in Transition, Methodological Approaches to C.B.D. Analysis and Forecasting Future Space Needs", City and Regional Planning Studies, Research Paper No. 1. (Chapel Hill: Department of the City and Regional Planning, University of North Carolina, 1957), p. 9.

58 S. McMillan, "Changing Position of Retail Trade in Central Business Districts", Traffic Quarterly, vol. ii, (1957), pp. 357-372.

59 L.N. Wolff, "The Central Business District in Transition", Appraisal Journal, vol. xxxi, (1963), pp. 365-368.

60 T.E. Cox, "Transportation and Parking Facilities in Downtown Rehabilitation", Traffic Quarterly, vol. xi, (Oct., 1957), pp. 471-491.

authors, including Sternlieb[61], Nelson[62] and Carroll[63], to mention only a few, offer various other explanations. Generally no attempt is made to formulate a hierarchy of causative factors; mostly the writings are purely descriptive, and do not draw on detailed examination of case studies.

Of particular interest in this context is an article by Jonassen who examined consumer attitudes in Columbus, Seattle and Houston.[64] The technique he used was one of systematic interviewing and statistical analyses of the data so gathered. The author examined the attitudes of people living in various sections of the metro area toward C.B.D. and suburban facilities. Advantages of the C.B.D. are found to relate to availability; disadvantages to accessibility. Obviously such attitudes are significant regarding retailing in the C.B.D.

Land Values. Land values have been employed widely in the study of C.B.D.s as witnessed above, and in terms of structure, land use and function. Hoyt in his classic study of land values in Chicago pointed out that an income can only be derived from an urban site,

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61 G. Sternlieb, "Is Business Abandoning the Big City", Harvard Business Review, vol. xxxix, (Jan. - Feb., 1961), pp. 152-164.

62 R.L. Nelson, "Outlying Shopping Centres vs. Downtown Retail Trade", The Appraisal Journal, vol. xxv, (Oct., 1957), pp. 485-98.

63 J.C. Carroll, "The Future of the Central Business District", Public Management, vol. xxxv, (July, 1963), pp. 150-153.

64 C.T. Jonassen, "The Shopping Centre Versus Downtown: A Motivation Research on Shopping Habits and Attitudes in Three Cities," Bureau of Business Research, College of Commerce and Administration, (Columbus, Ohio State University, 1955).

by erecting a building on it, the only exception being parking and signboards.[65] In a study of Minneapolis, a close association between type of institutional service and the value of land was observed. It was noted that the main retailing area coincides with the highest land values, whereas such services as hotels, banks, theatres, warehouses etc. are on sites of much less value.[66] This was also found to be true in a study of St. Paul.[67] This affinity of retail stores for the peak land value area was also conspicuous in the work carried out by Murphy, Vance and Epstein.[68]

Another approach has been the study of assessed values and changing land use. Both Hoyt[69] and Wendt[70] have pointed out the weaknesses in the use of assessed values, since they do not adequately show the course of the real estate market as indicated by actual sales. Nevertheless, as Weiss has pointed out, recent studies using assessed valuations have proven to be effective tools in relating changes in property values and land use in C.B.D.s.[71] Studies of

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65 Homer Hoyt, op. cit., p. 5.

66 Calvin F. Schmid, Social Saga of Two Cities, (Minneapolis: Bureau of Social Research, The Minneapolis Council of Social Agencies, 1937), pp. 53-55.

67 Calvin F. Schmid, "Land Values as an Ecological Index", Research Studies of the State College of Washington, vol. ix. (March 1941), pp. 31-33.

68 Murphy, Vance and Epstein, op. cit.

69 Hoyt, op. cit., p. vii.

70 Paul F. Wendt, "Central City Property Values in San Francisco and Oakland", Part 4 of Parking as a Factor in Business (Special Report 11., Washington D.C.: Highway Research Board, 1953), pp. 115-158.

71 S.F. Weiss, op. cit., p. 11.

both Seattle[72] and Flint[73] have used this technique. Since land use is a reflection of function this technique is significant.

Data on leasing and rentals, where it can be collected, apparently offer another tool. Thus, William Olsson used rental data to construct a shop-rent index, computed by adding the shop rents of street frontage, and dividing the total by the length of the frontage. Olsson found that the highest rental index was found at centrally located street intersections where pedestrian traffic was heaviest.[74] The latter is an important observation since most C.B.D. functions are traffic orientated.

People and the C.B.D. Numerous studies have been carried out of the movement of people into and out of the C.B.D. Such studies are also important in light of the functions performed at the centre, since many of these functions depend on the traffic they generate. As Weiss has shown it is this concentration of daytime population which is essential to the vitality of the C.B.D., and gives meaning to the concentration of functions and intensity of land use.[75]

It was Breese who pioneered investigation into daily flow

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72 Louis C. Wagner, "Economic Relationships of Parking to Business in Seattle Metropolitan Area", Part two of Parking as a Factor in Business.

73 Deil S. Wright, "Central Business District of Flint, Michigan. Changes in the Assessed Valuations of Real Property, 1930-1951 (Ann Arbor: Institute for Human Adjustment, University of Michigan, 1954).

74 William Olsson, "Stockholm: Its Structure and Development", Geographical Review, vol. xxx. (1940), pp 420-438.

75 Weiss, op. cit., p. 12.

between residence and C.B.D. He found that high off peak flows focused around department stores and mercentile establishments in the areas of high land values.[76] Breese did not have enough data on which to examine trip purpose, but since the time of his study, origin-destination studies have been carried out. Most studies show that more people enter the C.B.D. for work, or a combination of work and business, than for any other purpose. The techniques employed are usually those of home interviews based on statistically selected samples, and interviews of non-residents in their cars as they cross cordon lines set up around the area.[77] As Jonassen has shown, the further removed the customer is the fewer visits he will make to the C.B.D.[78] This finding is also supported by Sharpe's study of Washington D.C.[79] Jonassen concludes, that the changes which are taking place seem to involve a general redistribution of functions.

In contrast with shoppers, the employment segment of the daytime population in the C.B.D. is relatively unexplored. Proposals have been made by Foley and Scmitt,[80] among others, that question be

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76 G.W. Breese, The Daytime Population of the Central Business District of Chicago, with Particular Reference to the Factor of Transportation, (Chicago: University of Chicago Press, 1949), p. 205.

77 Murphy, op. cit., p. 104.

78 Jonassen, op. cit.

79 G.B. Sharpe, "Measuring the 'Pull' to the Central Business District and to the Suburbs", Urban Land, vol. xii. (Feb., 1953), pp. 3-7.

80 Donald L. Foley, "Urban Daytime Population: A Field for Demographic Ecological Analysis", Social Forces, vol. xxxii, (May, 1954), pp. 323-330.

included in the census of population to relate place of residence with work place, or facilities. Foley has also called attention to the need for "the development of conceptual and operational measures for bringing the nature of daytime population movement and distribution into the open."[81]

Conclusions. Above have been outlined the main approaches to C.B.D. study. These approaches in themselves cut across, and overlie, the concepts outlined in the second section of this chapter. The techniques used in the above approaches are readily apparent from what has been stated; they will be appraised critically in the next chapter under the criteria set out in the preface. Consideration will be given to delimitation techniques in the following chapter, since it is within this framework that certain studies have been carried out.

It is hoped that what has been stated in this chapter will form a framework into which the more detailed and specific work of this thesis will take its place. It is essential to realize that the aspects of the C.B.D. which have been outlined above are each an integral portion of a whole. In a subsequent chapter the functional aspects of the C.B.D. will be given deeper consideration. It is the belief of the writer however, that to fully understand the C.B.D. as a complex of functions, entails understanding of the land use patterns and the structural fabric of the C.B.D. The latter aspects are inseparably linked to each other to give meaning and expression to that unit of the city which we refer to as the Central Business District.

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[81] Foley, op. cit., p. 330.

CHAPTER 3.

CRITICAL APPRAISAL OF TECHNIQUES.

It is the purpose of this chapter to appraise critically the techniques which have been employed in portraying certain functional aspects of the C.B.D. These techniques will be appraised under the criteria set out in the preface.

Although no detailed examination of a specific C.B.D. is undertaken in this thesis, it is thought essential to discuss the delimitation techniques which have been applied to C.B.D.s, and the choice of functions which have been considered representative of the district.

Delimitation Techniques. Techniques used for delimitation of the C.B.D. range from zoning ordinances to boundaries arrived at 'intuitively'.[82] It is apparent from the literature that most writers have relied, in the case of each city, upon local judgement as to the extent of the district. This is well illustrated in the writings of Hartman,[83] Foley[84] and Ratcliff,[85] to mention only three. Yet again, absolutely arbitrary techniques have been employed. In a study of the

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82 Murphy and Vance, Delimiting the C.B.D., op. cit., p. 420.

83 Hartman, op. cit.

84 D. Foley, "The Daily Movement of Population into the Central Business District", reprinted in Mayer and Kohn, pp. 447-453.

85 Ratcliff, op. cit.

changes in assessed valuations of real property for the C.B.D. of Flint, Michigan, Wright chose the value of $250 per front foot, as delimiting the C.B.D. This value he stated, delimited a 'small' area and 'seemed' to mark some sharp drops in land valuations around the periphery.[86] From Wright's study we learn little or nothing about the nature of C.B.D. functions or their characteristics.

In the U.S. the Census Bureau described the C.B.D. as an area of very high land valuation, and which was characterized by a high concentration of retail businesses, offices, theatres, hotels and service businesses, and an area of high traffic flow.[87] The definition is at best mediocre, since it is not detailed enough, nor are all the land uses typical of the C.B.D. stated. The Bureau's description gives no indication of the range of functions, intensity of use or other fundamental characteristics of the C.B.D.

The first attempt at delimiting the C.B.D. for comparative reasons was undertaken by Murphy and Vance.[88] The really essential functions of the C.B.D. were viewed as the "retailing of goods and services for profit and the performing of various office functions." The technique was that of land use mapping, on a quantitative basis. It was decided that a Central Business Height Index of 1 (the equivalent of a one storey building devoted to C.B.D. uses and covering the entire block) gave a good limiting value. The proportion of space devoted to

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86 Wright, op. cit.

87 R. Murphy, "Central Business District Research", Printed in I.G.U. Symposium (Lund, 1960), p. 478.

88 Murphy and Vance, op. cit., p. 429.

central business uses was shown on a block basis by means of the Central Business Intensity Index. A limited value of 50% decided whether a block belonged to the C.B.D. or not. The Murphy-Vance technique suffers from a number of weaknesses. Why the essential functions should be limited to so few, is nowhere made apparent. Why should there be a profit motive? Are these functions chosen because they are the most dynamic, change rapidly in time and space, and therefore readily mapped at intervals of time? Because of the absence of the profit motive institutional functions are excluded from the C.B.D., although they are found there in almost every city. Of course the index values are absolutely arbitrary. In European cities, with their greater concentration of activities, and their more irregular block size, it is doubtful if this technique has much application. There is moreover, a need to test the technique on cities of various sizes. Murphy and Vance limited the testing of their technique to 9 medium sized (150,000 - 250,000) American cities.

The technique has the advantage, that it can be applied rapidly and does allow for some comparison. Certainly the devising of the technique has had its influence on other studies, for Peter Scott used it in his study of the Australian C.B.D.;[89] Davies tried it out in Capetown[90] and Diamond tested in in a C.B.D. study of Glasgow.[91]

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89 P. Scott, "Australian C.B.D.", Economic Geography, vol. xxxv, (Oct., 1959), pp. 290-314.

90 D.H. Davies, "Boundary Study as a Tool in C.B.D. Analysis, Capetown C.B.D.", Economic Geography, vol. xxxv, (Oct., 1959), pp. 322-345.

91 Diamond, op. cit.

The general conclusion from all these studies was that the C.B.D. can readily be divided into a distinct core, a surrounding area and a fringe. But much more important than the latter is the fact that Murphy and Vance recognize that intensity of use is a key factor; consideration is also given to the distribution of functions, their nature and range. The latter two, however, are limited in their scope. The technique has further merit, in that it could be employed to study the structure of the C.B.D. If it was modified to include a larger range of functions and the space devoted to true C.B.D. uses, mapped, a good three dimensional picture of the C.B.D. could be portrayed.

In a recent study of the C.B.D. of Cardiff, it was aptly shown that it is very difficult to arrive at objective C.B.D. boundaries, without accepting a process of gross simplification, or generalization, which defeats its own end.[92] Moreover, it was shown that the block cannot be regarded as a unit like in American cities. Delimitation of the C.B.D. of Cardiff was based on the application of a number of techniques - land use mapping, floor space indices, gross rateable values and appraised land values. No single technique was effective in itself. However, by a combination of these techniques a rough boundary was arrived at, which had some meaning. This example brings home the fact that the Murphy-Vance technique, in itself, is not sufficient to delimit Cardiff, nor perhaps, many other European cities.

One of the most significant studies to emerge in recent years has been the core - frame idea of Horwood and Boyce. The core is recognized as one region of the C.B.D., and is characterized by intensive

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92 Carter and Rowley, op. cit.

land use, extended vertical scale, limited horizontal scale, concentrated daytime population, focus of intracity mass transit, centre of specialized functions, and internally conditioned boundaries.[93] Definition of the core also takes into consideration the internal sub-cores, which may be present. It is pointed out that at the boundaries of the sub-foci, there tends to develop ungrouped activities, such as libraries, fraternal organizations etc. The core then, in this study, is recognized as a multi-functional area.

The frame of the C.B.D. is characterized by semi-intensive land use, prominent functional sub-regions, extended horizontal scale, unlinked functional sub-regions and externally conditioned boundaries.[94] It is important to realize that both the frame and the core make up the C.B.D. i.e. they are part of one unit.

This concept has merit in that it gives particular attention to terminology, each expression being cleared and explicitely defined. The characteristics noted above are portrayed in two detailed charts. Of greater significance is that the C.B.D. is viewed as a multi-functional unit of the city. The authors concern themselves with the distribution of activities in the core and the frame, and their linkages; they illustrate the true range of functions found in the C.B.D.; they further emphasise the nature of these functions and the intensity of use. One of the weaknesses of the study is that no indication is given of where the frame of the C.B.D. terminates.

Summary. There have been numerous attempts then at delimiting the

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93 Horwood and Boyce, op. cit., p. 16.

94 Horwood and Boyce, ibid., p. 20.

C.B.D., many of them on an arbitrary basis. When the latter has been the case, there has usually be no concept of the totality of the C.B.D. Horwood and Boyce, and to a lesser extent Murphy and Vance, recognize the basic characteristics and qualities of the C.B.D., and because of this have been able to devise a less arbitrary delimitation. Not only do their techniques furnish a delimitation, but through their recognition of the characteristics of the C.B.D., they deliver to the reader a better understanding of that unit of the city. In the literature of sociology and economics, the writer found no concern with delimiting the C.B.D. It would appear that the latter is left primarily to those trained in either geography or planning, and it is within this framework that other disciplines may work.

It is doubtful if any delimitation will ever furnish a firm hard outline. The resulting delimitation of the C.B.D. will be more analogous to the tapping out of a piece from a glass sheet with a hammer rather than a diamond cutter. The shape is ill-defined and accompanied with splinters and shivers.[95] That each C.B.D. is unique is true, and that each one can be delimited solely to meet a specific purpose is possible. But it may be asked, if the comparative study of C.B.D.s can ever advance without some kind of standard areal reference. As yet there has not been enough agreement on just what constitutes the C.B.D., to allow for such a reference. In the end, delimitation is usually only a step to further analysis; it is, however, an important step.

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[95] Carther and Rowley, op. cit.

Functional Classifications. It is, perhaps, reasonable to expect that functional classifications would give a good indication of the range of activities found within the C.B.D. Unfortunately this is not always true; what is more surprising is that land use and function are often confused. The Directory Method is exemplified in Ratcliff's study of the C.B.D. of Madison. He outlines the bases of the functional approach - "to examine the functions of the central area, to reveal and explain changes in such functions over time."[96] In his study, however, Ratcliff deals exclusively with the retail function of what he calls the 'central area'. Nowhere in his text is this area defined. Using 154 categories of ground floor uses employed in the city directories, Ratcliff proceeded to show how the land use pattern changed over a certain time period. The study is really one dealing in distribution. The author does not explain the nature of C.B.D. functions and what the other functions of the C.B.D. are. Since only ground floor uses are considered, no true indication is given of the amount of space in the C.B.D. devoted to retailing, or the intensity of that use. Furnishing as it does, information on the ground floor only, this type of directory method is a very weak one, even for the retail function.

In the 1950's there also appeared what has been described as the 'hard core' method, after the classification proposed by Murphy and Vance.[97] The terminology is unfortunate for the latter were proposing a classification for the whole C.B.D., as they saw it.

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96 Ratcliff, The Madison Central Business Area, op. cit.

97 Murphy and Vance, op. cit.

Weiss[98] and Horwood and Boyce[99] have severly attacked this method, all of them quite wrongly refering to it as the Murphy, Vance and Epstein technique; Epstein was not involved in this part of the study at all. Here again is a good example of the difference of opinion which exist over the functional composition of the C.B.D. In fact, the Murphy - Vance delimitation, corresponds to Horwood and Boyce's core, without the frame, which they believe to be an essential part of the C.B.D.

The Murphy - Vance classification has little to commend it. Their range of functions is much too narrow. According to the authors, public land and buildings, government offices and charitable organizations, occupy substantial land in C.B.D.s, but are not typical of C.B.D. land uses. The latter argument would rather seem to favour inclusion rather than exclusion. Murphy and Vance point out that manufacturing, wholesaling, residence and long term vacancy have no place in the space requirements of the C.B.D. This precious land should be used as efficiently as possible, for purposes that will intensify, and stimulate greater prosperity in the District; all else should go.[100] Firstly, it is not correct that the above uses have no place in the C.B.D.; second, what Murphy and Vance propose, could only be achieved by the most stringent regulation, or by thorough redevelopment, which at best would have difficulty in keeping up with the dynamic shifts that continually occur in central activities.

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98 Weiss, op. cit., p. 18.

99 Horwood and Boyce, op. cit., p. 6.

100 Murphy, Vance and Epstein, op. cit., p. 46.

The Study of C.B.D. Functions. In a previous chapter, the concepts of the C.B.D. as a complex of functions were outlined. This section is devoted to the techniques employed in such functional studies. In a recent study Andrews commented on the concentration "on the retail function of an area which is multi-functional."[101] An examination of the pertinent literature confirms Andrews comment.

The particular function Ratcliff chose to study, was the retail one, and he noted that there was a general tendency towards sectionalism and a clustering of like uses into distinct areas. The object of the author's paper was to analyse the spatial relationships between retail types in the C.B.D. The technique he employed was a very simple one - coincidence in a single block was used as an indicator of proximity. Data was used from the Polk Directories for 24 U.S. Cities. Due to the limitations of this data, the findings are necessarily very rough indeed. It is significant that Ratcliff does not define his area of study; indeed, he stated that delimitation of the C.B.D. "was well-nigh impossible."[102] Ratcliff found that the most crystallized group of uses was women's shopping goods stores, and that these were closely associated with variety and department stores. Furniture stores he found has a tendency to locate near the periphery of the C.B.D., where there is more space and where convenience and accessibility are of minor importance.

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101 R.B. Andrews, Urban Growth and Development: A Problem Approach (New York, 1962), Ch. 3. "The Central Business District", pp. 56-100.

102 Ratcliff, The Problem of Retail Site Selection. op. cit., p. 22.

The author meets his objectives by the crude technique he employs. Moreover, we should remember that this study came at an early date Economists, before Ratcliff had recognized that certain uses tended to cluster together but did not demonstrate this belief. There are certain weaknesses in the technique which are due mostly to the quality of the data. For example, only ground floor space is examined, and the number of retail types considered was limited to seven. Since department and variety stores have usually more than one floor in retail use, the picture is not exactly accurate. Ratcliff demonstrated what was already known, i.e. that there is clustering of certain uses in the C.B.D. and that certain uses have an affinity for particular locations. His study, in its time, lead to a better understanding of this aspect. What is perhaps unusual is that few studies of this type have been carried out since the 1930's But the study has major limitations; again the main concern has been with distribution. No attention is given to intensity of use, or the nature and characteristics of the retail function. Although areal specialization and competition are hinted at, no indication is given of their importance; he notes clustering of like uses but says nothing of the extra traffic so generated. His verbal analysis is that of the economist, in that he sees such patterns as resulting from the deisre for greater convenience and efficiency. It is true that areal specialization is carrying competition to a higher level, and leads to greater functional efficiency, but this is not adequately brought out in the text.

In a later article, Ratcliff views the C.B.D. as a multi-functional unit of the city. The main functions he lists as those of retailing,

finance, commercial, professional services, government activities, administrative, dwelling places etc.[103] His classification is a poor one, and again there is apparent confusion between land use and function (See Appendix). His work is stimulating in that he specifically views the C.B.D. as being more than a mere shopping centre. Ratcliff asks himself, why these functions are located at the 'centre'. He sees the answer in terms of the traditional and classic view of the C.B.D. in which a central location minimizes transportation costs; in which a central location is most convenient to the greatest number of employees and customers, and lastly because a central location offers the advantages of association and clustering of activities. The forces shaping clustering, he states, are always the same, the maximizing of convenience or the minimizing of the costs of friction. The latter is very much the view of the economist.

Ratcliff's article does not lead to a better understanding of the C.B.D., nor is his verbal description of why C.B.D. functions are where they are, even valid today. Today one cannot make an arbitrary statement such as that concerning customers and employees. It is such like statements which have perpetuated the traditional view of the C.B.D. as being the centre of all activity. Although Ratcliff does view the C.B.D. as a multi-functional unit, he does not recognize that it is this range of functions which sets the C.B.D. apart from other units of the city. Nothing is stated of the distribution of these functions within the C.B.D. nor of intensity. It is true the phenomenon of clustering is noted, but it is the degree of the latter, often

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103 Ratcliff, The Dynamics of Efficiency in the Locational Distribution of Urban Activities, op. cit., p. 313.

expressed in greater competition and areal specialization, which is significant. The latter is a sign of the maturity of the C.B.D.

Purely descriptive studies, such as those by Proudfoot,[104] and Harris and Ullman,[105] give little comprehensive knowledge of the C.B.D. They are really only 'generalized pictures' of the C.B.D. Thus, Proudfoot simply states that retail stores, upper-storey offices and residential occupance is restricted to scattered hotels. Nothing is mentioned of other transient residences. Proudfoot is interested in only the distribution of a few of the essential C.B.D. functions. To serve the customers and workers who concentrate in the C.B.D., Proudfoot states "all modes of intra-city transportation are focused here."[106] He sees this as having brought about extreme congestion, which in turn has promoted the growth of outlying shopping centres. Decentralization of C.B.D. activities can certainly not be explained by such a single purpose argument. This 'skimpy' outline, however, does not even meet the objective of presenting a general picture of the C.B.D.; it certainly does not give a better or more complete understanding of the unit of the city under consideration. Proudfoot'S sketch is in fact misleading, for he does not consider the true range of functions found in the C.B.D. Obviously there is no concern with the nature of the functions, intensity, range or other basic characteristics.

Harris and Ullman go so far as to state, that only mass-

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104 Proudfoot, op. cit.

105 Harris and Ullman, op. cit.

106 Proudfoot, op. cit., p. 425.

transportation movement can concentrate the large number of customers necessary to support department stores, variety stores, clothing shops etc.;[107] this is certainly not correct. They recognize that in small cities, financial institutions and office buildings are often intermingled with retail stores, but in large cities these may be set apart in distinct sub-regions. It may be asked, however, if this latter phenomenon is determined by the size of the city. The authors state, government buildings are commonly near but not in the centre of the retail district, and that in most cities a separate "automobile row" has arisen on the edge of the C.B.D., in cheaper rent areas along one or more major highways. No mention is made of other essential C.B.D. functions. There is hardly any necessity to labour the point that this study, like the one above, gives only a sketchy picture and little understanding of the C.B.D.

Summary. Few writers have concerned themselves with writing solely about the functions found in central business districts. Most studies instead, attempt to examine the functions of the C.B.D. in relation to certain technological, economic and social factors. Most authors who have concerned themselves with C.B.D. functions have seen fit to place great emphasis on the retail activity. Even when the C.B.D. has been viewed as a multi-functional unit, greater consideration invariably goes to retailing. Perhaps this is because the distribution of the retail function has changed very rapidly, particularly in the U.S., over the last few decades. Be this as it may, no other function of the C.B.D. has been treated so generously. Virtually no detailed

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[107] Harris and Ullman, op. cit., p. 284.

literature exists on a number of the other C.B.D. functions, such as those of recreation, institutional government. A great amount of ink has been used in writing about the problems the C.B.D. is facing, particularly decentralization - of retail activity. A proliferation of articles bandy back and forth the causes of decentralization, and the present day ills of the C.B.D.; most of them regurgitate the same arguments, and see the same ills as being brought about by similar forces. No doubt, concentration on this phenomenon has also given rise to the over-emphasis on the retail function.

It is significant to note that none of the above authors defined the areal extent of the C.B.D.; it is also apparent that none of the studies are comparative in any way. There is, moreover, a noticeable confusion over what is a function and what is a land use. In most instances the techniques have been verbal; what quantitative techniques that have been employed are elementary. Explanations given for why certain functions locate in the C.B.D. are remarkably stereotyped. But analysis of the nature of the functions, range, intensity and to a lesser extent distribution, is lacking almost altogether. The techniques employed vary little from one discipline to another, except that in the literature of economics, there is a natural tendency to view both the functional makeup of the C.B.D., and the forces working on it, in terms of economics.

Land Values as a Technique. Land values are a further aid in understanding the functional ensemble of the C.B.D. Although this technique has usually been employed in relation to land use and structure, it also has validity in this context.

The first comprehensive study of land values was made by Homer Hoyt in 1933, and remains today as the great classic in its field.[108] Hoyt was sceptical of the use of assessed values, since as he stated they do not adequately show the course of the real estate market as indicated by actual sales. He instead computed land values from actual sales, for the 100 year period, 1830-1933, a gigantic task in itself. Although there is much truth in Hoyt's statement concerning the validity of assessed values, we shall see that they have been used most often because of the difficulty in getting access to actual sales records.

In this study, Hoyt supports the argument that land values are a reflection of land use, not vice versa. He views the fantastic increase in land values for the period, 1877-98, as being brought about by the development of skyscrapers, which permitted a more intensive use of office building sites; and secondly, by the increased volume of trade brought to the C.B.D. by the cable and elevated loops, which in turn, increased the rents on the best retail streets. Hoyt also observed that concentration of retailing on one street, will greatly raise the value.[109] Moreover, since the C.B.D. did not move out of the square mile surrounding State and Madison Streets, in over a century. This concentration also caused great increases in land values.[110]

Hoyt was primarily concerned with the changing distribution of land values over the 100 year study period, and for the reasons

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108 Homer Hoyt, op. cit.

109 Hoyt, ibid.

110 Hoyt, ibid., p. 336.

for land value fluctuations. It is significant to note that Hoyt recognized intensity of use to be important in the C.B.D., and that increased traffic is significant to the functions found there. Hoyt, in his study, was not dealing with the C.B.D. exclusively, but with a whole city. Moreover, he was using land values, not so much as a technique, but as an end in itself. Hoyt certainly meets his objective of showing the changing distribution and fluctuation of land values over the 100 year time period. This is achieved by mapping and a description of the land value changes for each year. Except for the significance of intensity of use, a better understanding of the C.B.D. is not derived from this study.

Schmid has carried out two studies of land values for Minneapolis and St. Paul, both of these include work on the C.B.D. He pointed out, as did Hoyt, the failings of assessed values, but employs them anyway, as they are the only adequate and complete indices of land values available.[111] In his study of St. Paul, Schmid employed a number of techniques. Since land values frequently portray a relationship to mobility, especially in the C.B.D., Schmid makes an attempt to measure the relationship between pedestrian traffic, vehicular traffic and land values. This he presented graphically, and as one would expect, there was a higher correlation between pedestrian traffic and land values, than between vehicular traffic and land values.[112]

Various categories of land values were then employed ($5,000 - peak; $5,000 - $4,999; $2,999 - $2,000 etc.) and the land use in each

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111 Schmid, Land Values as an Ecological Index, op. cit., p. 35-36.

112 Schmid, ibid.

category described. Highest values were found to coincide with the area of greatest traffic convergence, and retail outlets. Banks, the author found, bear a definite relation to retail business sections, but on less expensive land; hotels are found throughout the C.B.D., as are theatres, and tend to be on expensive land, where they can draw on volume of traffic. Towards the periphery of the C.B.D., light manufacturing and wholesaling uses are on much cheaper land. Schmid, then, demonstrated that land values decrease outward from the centre of the C.B.D.; this supports the later findings of Murphy-Vance and Epstein, who modified this somewhat, to show that land values decrease at an ever-decreasing rate from the peak land value intersection.[113]

Again the primary concern is with distribution. Although the author meets his objective by the simple technique he employs, a comprehensive understanding of the relationships would demand a much more detailed study on a lot basis. No understanding of the C.B.D. as a total entity is furnished by Schmid's study. Although a fairly wide range of uses are considered, nothing is stated of their nature or intensity. Moreover, it is surprising that no mention is made of office land use in the C.B.D. The study has merit in that it brings out the importance of traffic to various activities. Besides the demonstration of the latter, we do not derive a better understanding of the C.B.D. from Schmid's study.

Schmid gives a more dynamic quality to his study of Minneapolis, in which he analyses the movement of land values over the period

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[113] Murphy, Vance and Epstein, op. cit., p. 24.

1890-1930.[114] However, the same relationships are again shown to exist; the only difference is that this time a mapping technique is used for each period, 1890, 1910 and 1930. Again concern is with changing distribution. The mapping technique, does bring out the fact that the peak land value intersection has shifted considerable, thus supporting the fact that functions do migrate within the C.B.D.[115]

In its time setting, Schmid's work was significant in furnishing a better understanding of the C.B.D. He demonstrated that there was a relationship between land values and certain activities; he aptly pointed out the significance of traffic to certain functions; and he was able to show that functions migrate within the C.B.D. On these three counts his work was significant and stimulated future research.

Data on rentals apparently offers another tool in the land value analysis of the C.B.D., and was employed in a study of Stockholm by Olsson. Although the study was limited to one function, that of retailing, the findings are of considerable interest. As an expression of shopping intensity, a 'shop rent index' was devised by adding the shop rents of street frontage and dividing by the length of frontage.[116] By this technique, Olsson was able to show that the centre of gravity of the retail trade had shifted over the time period studied, and that the highest shop rent indexes were found at certain centrally located street intersections where pedestrian traffic was greatest. Land values and mobility are again stressed and this supports the findings of Hoyt and Schmid. Olsson very adequately meets his objective, and, no

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[114] Schmid, Social Saga of Two Cities, op. cit.

[115] Schmid, ibid., p. 55.

[116] Olsson, op. cit.

doubt for Stockholm, this technique could be applied to other functions of the C.B.D. Unfortunately, the technique has limitations in its application, for in most countries, rental values are extremely difficult to come by.

Summary. All the studies employing land values have been particularly thorough on the topic dealt with. Although none of the studies are completely comprehensive in themselves, certain significant points are brought out. For example, the relationship between land values and mobility, between land values and various types of functions, and the shifts of C.B.D. functions as expressed in land values. Perhaps the greatest weakness of the studies, is the lack of any concept of the totality of the C.B.D. Certain functions are considered, other are entirely neglected; the authors do not appear to be aware of the nature of C.B.D. functions, intensity, range or other basic characteristics. What really differentiates the C.B.D. from other units of the city is never made apparent. The technique of land values has usually been employed in relation to land use. Since the latter, however, is a reflection of the activity performed, this technique has validity in functional studies. As a technique, land values are of limited significance. Too often their application tends to give a distorted picture of the C.B.D., as if everything could be explained in such terms. To be an effective tool, land values must be combined with other techniques. For instance, land values combined with other techniques may be of value in analysing decentralization. Perhaps the valuation of the C.B.D. is dropping relative to the whole city; a study of changing land values, in relation to certain functions, might then be

significant, as one amongst many techniques.

Traffic and the C.B.D. Above it has been noted that there is a relationship between mobility, land values and certain functions. Since certain C.B.D. functions are traffic oriented, it is important then that we understand the movement of people into the C.B.D. It is this concentration of daytime population which gives the C.B.D. its essential vitality, and gives meaning to the concentration of functions and intensity of use in the C.B.D.

Few studies have been specifically concerned with changes in the numbers, and composition, of the daytime population, as a means of detecting changes in the composition of the C.B.D. In this respect, Breese pioneered work in his study of Chicago. He attempted to describe the daytime population of Chicago's C.B.D. on a typical weekday in May 1940, and the trends in daytime population from 1926 to 1946.[117] The technique was a simple enough one, based on cordon counts, origin and destination studies, and statistics furnished by mass transportation and public carriers. In his analysis of pedestrian flow patterns in relation to land use, Breese found that high off peak flows focused around the department stores and mercantile establishments, in the areas of high land values.[118] It was through pinpointing the significance of off-peak pedestrian flow, that Breese provided a new technique for analysing shifts in the C.B.D.s land use pattern. Due to the lack of data, Breese was not able to analyse trip purposes to the C.B.D.

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117 Breese, op. cit., p. 1,3.

118 Breese, ibid., p. 205.

Although the latter cuts down on the comprehensiveness of the study, Breese was still able to meet his objective. In pointing out the significance of off-peak pedestrian flows, Breese furnished us with a better understanding of the retail function of the C.B.D. Besides this aspect, however, we learn little about the C.B.D. in general, or other specific C.B.D. functions. We need to know much more about the importance of traffic flows to other functions, such as those of recreation, institutional and services to mention only three. Breese's study was the first attempt at analysing C.B.D. population in detail for any given city. His work has certainly been of great influence in stimulating further research.

In recent years there has developed a considerable interest in shopping habits and travel patterns. Jonassen carried out a study of the consumer attitudes in Columbus, Ohio, and later in Seattle and Houston. The technique was one of systematic interviews and statistical analyses of the data so gathered. The objective of the study was to investigate the attitudes which people have in various sections of the metro areas to 'downtown' and outlying shopping areas, and how important are such factors as parking, traffic congestion etc.[119] The advantages of the C.B.D. over shopping centres, according to the survey are availability, greater choice, and cheaper goods; the disadvantage accessibility. Jonassen was able to conclude from his study that changes taking place seem to involve a general redistribution of functions. C.B.D. facilities may increasingly serve specialized

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119 Jonassen, op. cit.

needs, and servicing of more frequent and common needs, may be in process of transfer to peripheral areas.

Even though Jonassen limits himself to the retail function, the techniques he employs, and his findings are of considerable importance. He meets his objective of finding out what peoples attitudes are, in a more or less exact and systematic manner. This type of study is also significant in that it will help to predict the future functional requirements of the C.B.D. If we can predict the attitudes and desires of people, this will undoubtedly be beneficial in future C.B.D. planning. This type of study certainly leads to a more comprehensive understanding of the C.B.D.; too few studies take into account human desires and motivations.

In contrast with shoppers, the employment segment of the daytime population in the C.B.D. is relatively unexplored. In this connection Foley suggested that question be included in the census, regarding work place, and place of residence.[120] Little, however, seems to have been achieved. Foley also called attention to the need for "development of conceptual and operational measures for bringing the nature of daytime population movement and distribution into the open."[121] Foley, working with Breese, actually attempted to devise a standardized data procedure on people entering the C.B.D., excluding pedestrians. This latter was achieved by reducing the figure of persons entering the C.B.D. to a rate - it being persons per 1,000 metropolitan district population. There arose a difficulty, however, in devising the technique,

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120 Foley, Urban Daytime Population: A Field for Democratic Ecological Analysis, op. cit.

121 Foley, op. cit.

for if the standardized data were to be used for comparative purposes, then the extent of the C.B.D. in each case would have to be standard. Of course at this time there was no delimitation technique which could be employed for comparative studies. The authors circumvented this problem by tentatively adopting 3 acres per 1,000 metro district population as standard size of C.B.D.s of large cities. The procedure then is simple. The cordon-court or O-D study information from each given large city is adjusted to what one would expect if the size of the C.B.D. had been defined to include 3 acres per 1,000 metro district population.[122] By the use of this technique, comparative studies of various cities can be made over various time periods.

Refining this technique in a later study, Foley was able to show by a series of 3 ratios, the relationship of daytime population entrance into the C.B.D., destination in the C.B.D., and accumulation in the C.B.D. to metropolitan population size.[123] On the basis of the data, Foley observed that in general, the ratio of persons entering the C.B.D. to persons with destinations in the C.B.D. to maximum accumulation of persons at any one time during the day, is about 4:2:1. This ratio holds true for cities having from half to one million metropolitan population and varies for cities smaller than this.[124] Analysing the trends in entrance over the period 1926-50,

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122 D.L. Foley and G. Breese, "The Standardization of Data Showing Daily Population Movement into Central Business Districts", Land Economics, vol. xxvii, (Nov., 1951), pp. 348-353.

123 Foley, The Daily Movement of People into the Central Business District, op. cit., p. 450.

124 Foley, ibid., p. 450.

Foley found that the ratio of entrants per 1,000 was slightly downward over the period, for cities of 1 million plus. However, the ratio for cities under 1 million was on the increase.

Summary. Estimation of C.B.D. daytime population is one of the most difficult problems facing both professional workers and academics. Such estimates differ greatly from the normal population statistics used in the past. They pertain to daytime, rather than residential population, to the number of persons gathered in a given area at a specific time during the day.

Most research in this field has been of a pioneer nature. Emphasis has been placed on the findings, rather than on the techniques. Foley and Breese's standardized data technique will furnish comparable data. However, the data is based on an arbitrary figure of 3 acres per 1,000 metropolitan district population. Does it follow that the areal extent of a C.B.D. will be in proportion to population size? It should be remembered that Hoyt noted very little areal expansion in the C.B.D. of Chicago, in over a century, a century in which population rose enormously. Much more work still remains to be done before valid generalizations can be made. To the writer's knowledge no population studies have been carried out within the standardized delimitation of C.B.D.s as proposed by Murphy and Vance.

Although none of the above studies really lead to a more comprehensive understanding of the C.B.D. the techniques could be applied to predicting future transportation requirements, space needs in the C.B.D. etc. The inclusion in the census of population of a question that relates the place of residence to the place of work,

would certainly provide essential information. Collected over a span of years, such data would be an indicator of the changing importance of the C.B.D., and would be a basis for the evaluation of future transportation requirements. However, as Horwood and Boyce have pointed out, such data would yield little information regarding changes in central land use. It is important to evaluate changes in the major categories of land use, because of their differing traffic-generating characteristics. Population studies, combined with transportation investigations, and consumer and employment behavioural studies, will undoubtedly lead to our increasing understanding, not only of the functional aspects of the C.B.D., but to a more comprehensive understanding of the C.B.D. itself.

What is perhaps most surprising, both in the literature, and in the application of the numerous techniques, is the lack of awareness concerning the characteristics of C.B.D. functions. From time to time we learn a little about the nature of C.B.D. functions, intensity of use, the range of functions, their distribution, the importance of factors such as traffic, competition and specialization; too often, however, these are merely hinted at in passing. Because there has been little thought given to the totality of the C.B.D., no comprehensive study of this unit of the city yet exists.

CHAPTER 4.

THE C.B.D. AS A COMPLEX OF FUNCTIONS.

It is the purpose of this chapter to present to the reader how the writer views the C.B.D. as a complex of functions.

From the outset it is necessary to point out that the present alone does not furnish all the answers about the C.B.D. The latter is particularly true when we come to examine the differences in the composition of European and North American cities.

The tendency for distinct zones or districts to emerge in the city is not a new one. Early medieval towns had their distinct nuclei; such were the Cité or Domburg, with its ecclesiastical function and the mercantile crafts centre, while the castle attracted the residences of the nobility and their retainers. The central business district as we know it today can trace its ancestry back to the ancient fair, which by the eighteenth century had been transformed to fixed shops and a permanent market place. The internal composition of the city became even more marked when accentuated by differences in site. Thus, the market and trade functions were usually located on lower land and on the main routes, the aristocratic and church sites usually on higher ground.

In Europe, the central business district usually lies on the site of the historic town, and as such, is distinguished by being more fully built up than the rest of the city; often the ground plan is very distinctive, having very narrow streets and small market places,

and the largest percentage of the city's historic buildings. This is also true of North American C.B.D.s, but not to the same degree. The latter are much younger and generally do not possess the same compactness and intensity of use in their C.B.D.s. Both C.B.D.s in North America and Europe are, however, readily recognizable in their degree of structural and functional obsolescence, and the fact that the C.B.D. is the one portion of the city which has traditionally and continuously been renewed.

The composition of the city has changed most rapidly in the last century, and in North America particularly, in the last fifty years. The primary reason for this change was the introduction of new modes of transportation. In the past there was a more rigid break between 'urban' and 'rural' and people generally lived in close proximity to their place of work. Even with the introduction of the railway, activities were still more or less rigidly fixed. The arrival of the automobile resulted in greater mobility, and hence greater choice of location. Residential development began to burst out into once rural areas; certain industries began locating at the periphery; certain services followed the outgrowth of population. Recent developments in transportation have had two major effects. Firstly they have acted towards decentralization of certain activities which used to be found in or close to the centre of the 'city'; conversely they have acted towards greater concentration of certain activities in certain cities. The trends in Europe, however, are not the same as in North America. With the great devastation of European cities, downtowns' emerged less congested. There was very little decentralization, although there are

today some signes of this. Indeed the urban centre emerges from European reconstruction with an impressive metabolism. The C.B.D. has lost none of its essential functions, and usually provides more facilities than before the war, for performing those functions.[125] There has been much less development of outlying shopping centres in Europe, and this is, in many ways, reflected in the residential pattern. In Europe, the only massive decentralization has been in housing - but of a different type to that in North America. Apartment houses generally take the place of single family homes. Compactness has also been brought about by the greater reliance on the bicycle, mass transit, and government participation in apartment construction.

It is essential then to keep in mind that the C.B.D. is not the same in all countries, nor at all times. The term is a new one, but the phenomenon is not.

The C.B.D., as here viewed, is a multi-functional unit of the city. It performs a number of functions besides retailing, which by their very nature have been located primarily within the C.B.D. These functions include residential, commercial services, recreation, institutional, professional services business administration, government etc. As civilization developed, the number of activities conduced in our cities increased, rather than decreased. Many of these activities have located primarily within the C.B.D. It is this range of functions which distinguishes the C.B.D. from other composite units of the city; a good classification will aptly portray this. Only within the C.B.D.

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125 Leo Grebler, "Europe's Reborn Cities", Technical Bulletin No. 28. (Urban Land Institute 1956), pp. 7-104.

does one find such a complex of functions. The functions performed in the C.B.D. are also distinguished from those in other parts of the city, by the fact that they are there to serve a city wide (or wider) clientele. In viewing the C.B.D. as a complex of functions, location then is of primary importance. Essentially C.B.D. functions are traffic generators, and must rely on traffic to exist. Even parasitic functions such as small restaurants and variety shops are located in the C.B.D., because they draw on the traffic generated by other large and more specialized activities. Those activities can thus exist in the C.B.D., although they are not true C.B.D. functions.

C.B.D. functions, i.e. those which serve a city wide clientele, may be conveniently divided into two categories-specialized activities, and 'comprehensive' activities. Department stores and large variety stores are included within the comprehensive category. Such retail outlets demand a large volume of business and are the greatest traffic generators in the C.B.D. They are therefore usually located within the core of the C.B.D., where pedestrian traffic is greatest in concentration. It is usually only large department stores which have more than 1 or 2 floors in retail use. Intensity, then, is often characteristic of this use, and is often expressed in multi-storey buildings and high land values. Such stores offer a wide range of goods and are therefore able to draw on a great volume of shoppers. Depending on the maturity of the C.B.D., there may be a number of other 'comprehensive' activities performed. Thus commercial service of various types may be located in one large office block, or various types of professional services may be grouped together.

Specialized functions, which also serve a city wide area, are also located within the central business district, because they too must depend on volume of traffic. Just as in the above examples the degree of specialization of these functions, will depend on the maturity of the C.B.D. Within the C.B.D. then there may be located various specialized retail stores, such as apparel shops for men and women, shoe stores, large book stores etc. Other specialized uses may include theatres, cinemas, large restaurants, hotels, museums, art galleries, night -clubs and so on, which rely on traffic and serve a city wide clientele.

It is important to note, that the complex of functions which is performed in the C.B.D. are not rigidly divorced from each other. Instead, there is much cross linkage and association between the various functions. Thus large restaurants and theatres are often in close proximity. The restaurants drawing on the traffic created by the theatres; large hotels are often near transportation termini; various commercial and administrative offices have close ties with professionals such as lawyers, accountants and so on; retail stores will depend on large banking firms, which are located in the C.B.D. Intensity of use is a basic characteristic of the C.B.D. Generally there is a decline in intensity as one moves from the core to the edge of the District. It is also customary for one to find the tallest buildings of the C.B.D. within the core, although the latter may be some distance removed from the peak land value intersection. This is explained by the fact that the highest buildings are often office blocks, hotels or apartment complexes, which do not require as central a location, in

relation to traffic movement, as do retail outlets or banks for example. Vertical development is not usually as great in the frame of the C.B.D.; here more horizontal space is required for the handling of vehicles and goods. The multi-storey parking garage, is an exception. It is essential to know, however, just how much space is actually being used for the performance of essential C.B.D. activities. Often this is a great deal less than one would initially expect.

We have spoken on a number of occasions now of C.B.D. maturity, or for that matter immaturity. To fully understand the C.B.D. as a complex of functions, entails an understanding of the latter. The functional maturity of any C.B.D. is expressed in the range of its functions; in the degree of competition and specialization; and in the degree of areal differentiation within the C.B.D. It is further necessary to point out that maturity of the C.B.D. does not necessarily follow on city size. Too often the impression is given that competition and specialization only occur in large cities. There can be specialization for example in a small town. What is important to keep in mind is that there is a gradation, or hierarchy of specialization. Thus, following the latter argument, a jewellery store in one town may sell cheap trinkets, watches, china and other goods, while in a nearby settlement a similar jewellery store will sell only expensive watches and rings; going up the scale yet further, a jewellery store may only sell engagement and wedding rings. It is also conceivable that the same store may go through this process of maturity. Of course the corollary then is also true, i.e. that large cities may portray immaturity in their C.B.D.s. Immaturity of the C.B.D. is often expressed in such uses as small

restaurants, space gien over to furniture stores and showrooms, which require large amounts of space, and will not be found in mature C.B.D.s.

Competition is likewise a good indicator of maturity. Thus, within a mature C.B.D., one would expect to find, for example, a number of women's clothing shops, often in close proximity, and offering a wide choice and comparison of goods. Such stores will be found in areas of heavy traffic flow, as will banks. Banks are often found at street intersections, or along the main artery of the C.B.D., if there is more than one important intersection. It may also be that they are located in close proximity to some other activity in which they have a vital interest. Indeed, this attraction may be so strong, that they will be pulled away from their highly central location. Likewise, many office uses are found in very central locations, but on upper floors where they can still draw on traffic movement. These office often show the desire for competition, as do drug stores and many other uses. Many of the uses then that one finds in the C.B.D. are similar and are similar for the purpose of inciting competition.

The degree of specialization and the emergence of distinct sub-districts within the C.B.D. is likewise a good indication of maturity. In mature C.B.D.s there often emerges a distinct financial district, a civic centre or an area given over primarily to theatres, cinemas and restaurants. In New York, the financial district, centred on Wall Street, is the epitome of this areal differentiation which one may find in a mature C.B.D. The emergence of certain cultural institutions, such as universities, art galleries, museums etc., is likewise a sign of specialization and maturity within the C.B.D. Obviously within any

C.B.D., there may be portions of the district which are mature, and highly specialized, while in other areas there are no such signs. In other words the forces which bring about maturity are not the same in all parts of the C.B.D. Competition and areal differentiation, however, have further significance. The latter is a reflection of the desire to carry competition to a higher level, and thereby promote greater functional efficiency. Competition leads to the generation of more traffic, on which the functions of the C.B.D. depend.

The C.B.D. is constantly in a state of flux as certain portions decline and others are renewed and revived. And, as we have stated before, there are often parasitic functions found in the C.B.D., whiich draw on the traffic generated by other functions. Large numbers of such parasitic activities are a sign of immaturity. With greater specialization, and increased intensity of use, such activities are driven out of the C.B.D., or perhaps they move to an adjacent declining section of the District. The C.B.D. then is a dynamic unit of the city; it changes constantly; it declines in certain portions, and is renewed and revived in others; there are functional shifts within the C.B.D.; one structure over a period of time may house a number of activities, or on the other hand one activity, which in itself keeps changing. Not only do single functions change their location over time, but groups of functions may do likewise. This is particularly evident of those functions located at the peak traffic intersection. If the latter for some reason loses its importance, certain functions, will at first leap-frog to the new location and then be followed by others.

Moreover, on close examination, it readily becomes apparent

that there are a number of processes at work in the C.B.D. which give it a dynamic quality. These processes begin with the inception of the city, and the laying down of the initial skeletal framework of roads and lines of communication. As the city grows, certain activities are excluded from the C.B.D., such as manufacturing and housing, and only those activities which can command a central location remain. As we have seen above, there is also the process of specialization and the emergence of sub-districts within the C.B.D. Transportation changes are important in their effects on the functional ensemble found in C.B.D.s Fifty years ago the C.B.D. in the United States, was a small compact unit at the focus of routes. However, with the introduction of the automobile and greater mobility, the C.B.D. has often taken on a more linear aspect. This is essentially more true of North American than European cities. There is also taking place in most cities, a process of readjustment, greatly speeded up in this century, and particularly in North America, since the end of World War II, and the introduction of large outlying centres. In this process, we again witness the dynamic nature of C.B.D. functions. Some activities disperse a portion of their activity to an outlying area and retain the rest. Often stores, cinemas, furniture stores etc. are closed and may be put to more intensive uses, or of course portions of the C.B.D. may merely stagnate. These processes are at work in most C.B.D.s,[126] and combined with the dynamic aspects of renewal, the movement of people into and out of the C.B.D., their buying behaviour, tastes and habits,

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126 J.E. Vance, Jr., "Focus on Downtown", Community Planning Review, vol. xvi, (Summer 1966), pp. 3-9.

their image of the 'downtown' as the heart of the city - all these forces work to give the C.B.D. a dynamic aspect.

So far in this discussion, examples have been taken primarily from the central portion of the C.B.D., called the 'core' by Horwood and Boyce. In the view of the latter authors, the C.B.D. is made up of two more or less distinct portions, the core and the frame, and this concept is accepted here in this thesis. It will be remembered that the core-frame definition of the C.B.D. delimts an area much larger than that proposed by Murphy and Vance. The former, however, is accepted here as a much more realistic concept of what constitutes the C.B.D. As pointed out before, the C.B.D. as here viewed, constitutes a number of functions not included by Murphy and Vance.

Of all the areas of the city which have been examined by the disciplines considered in this thesis, the zone surrounding the core of the C.B.D. is the one portion of the city which has received the least detailed treatment.[127,128] Yet, functionally, this area is one of the major components of the city. It is popularly recognized as a zone of structural and functional obsolescence, as a zone of deterioration[129] and blight between the core of the city and surrounding

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127 In Recent Studies by Murphy and Vance, only a few of the uses belonging in the frame are mentioned.

128 In "The City", Park and Burgess termed this area a "zone of transition"; they observed that it was an area of high land values and obsolescent buildings, and the home of successive waves of immigrants. Some time later, Harris and Ullman described a few of the functions which belong in this area.

129 Robert E. Dickinson, City Region and Regionalism, (London 1947), p. 96.

residential development.[130] But such statements only provide us with a very limited understanding of the frame of the C.B.D. Just as the core of the C.B.D. is characterized by a number of specific functions, so to is the frame. What are those functions? Wholesaling, commercial services, residential, transportation, light manufacturing and sometimes institutional uses are often found within the frame of the C.B.D. A clearer understanding is perhaps given if these are expressed as land uses. Typical of the frame then, are such uses as warehouses, automobile sales and services, transient dwelling houses and permanent residences, and transportation termini. The functions found in the frame are characterized by being transportation oriented, and by the fact that they require much more horizontal space than the functions found in the core. Intensity of use is generally not as great as in the core, and reliance is on vehicular traffic, rather than the pedestrian. It is often within the frame that we find slum dwellings; the poorest people living in areas of high land values, but paying low rents. However, within the frame there may also be located a university. This will probably be close to major transportation arteries, perhaps mass transit, and be able to acquire more space than it could in a central location. That a number of the other functions outlined above are closely linked to transportation arteries and the demand for space is obvious. Space must be provided both for the handling of vehicles and goods. Changes in the mode of transportation have had their effects on the functions of the frame, as well as those of the core. Thus, when

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130 Walter Firey, "Ecological Considerations in Planning for Urban Fringes", American Sociological Review, vol. xi, (1946), p. 41.

the railway was the chief mode of transportation, there was a distinct tendency for many of the above functions to locate in close proximity. With the introduction of the automobile, greater freedom of choice was offered, and in the frame there often emerged distinct sub-districts just as in the core. Thus, a distinct auto sales area or wholesaling district might emerge, which portray various stages of specialization. In European cities, there is still a stronger tendency for these functions to be located close to the railway. The growth of many of these functions has a tendency to extend into areas of dilapidated housing, often held onto by speculators.

As here viewed then, it is the ensemble of functions found in both the core and the frame, which constitute the central business district. Although the two sections are markedly different from each other, they still constitute one unit - the C.B.D. Moreover, although the two portions are distinct, they have vital functional links, one with the other, in the performance of complementary functions. The transportation and wholesale functions have important links with the core of the C.B.D., as do financial firms and service industries.

It is, of course conceivable, that a second C.B.D. may emerge in the city. One of the primary reasons for such development is the transportation system. As we have stated before, C.B.D. functions depend on traffic. Specialized functions then may locate along major access routes into and out of the city - routes along which people must travel. With ever increasing urban sprawl, particularly in North America, numberous functions have located at or near the periphery of the city, to be more adjacent to their clientele. Such new centres may

begin merely as a cluster of shops, or a large shopping complex; in time numerous other activities may be drawn to this location and eventually a second C.B.D. may emerge. The emergence of such a centre is a reflection of the greater mobility brought about by the car, of increasing distance to the 'old' C.B.D., of changing tastes and habits, the desire and need for more space, and a will to keep abreast of changing technology.

The C.B.D. of most cities constitutes the heart and prime mover of the urban scene; it acts as a great tank which must be filled and emptied of people daily, if it is to have vitality; in most cases it is only within the C.B.D. that one can find such a range of activities; in the minds of city inhabitants, the C.B.D. stands for both slums and civic centres, historic buildings and monuments, and also traffic congestion. To most, the C.B.D. is the epitome of most that is good and a lot which is bad in the urban way of life. In the latter sense, it is generally of interest to all.

CHAPTER 5.

TOWARD AN IMPROVEMENT IN THE METHODOLOGY, WITH PARTICULAR REFERENCE TO THE C.B.D. AS A COMPLEX OF FUNCTIONS.

In previous chapters then, the C.B.D. has been viewed as a complex of functions and the techniques employed in studying this particular aspect have been outlined and appraised. It is, however, necessary to point out that in all cases the techniques discussed were not necessarily applied to the C.B.D. as a complex of functions. Often the techniques employed had the purpose of meeting different objectives. Origin - destination studies for example, might have been used to furnish information on traffic problems; land values may have been studied in relation to land use and structure. Very early in this study it was pointed out that in reality one cannot separate land use and function, nor indeed these two aspects from the structure of the C.B.D. In most cases these relationships are merely hinted at, and little impression of the C.B.D. as a total entity is given to the reader. Thus, although in this thesis the functional aspect have been given priority, the writer is aware that this is only part of the total picture. But keeping that total picture in mind, at once becomes helpful, for it is evident by doing so that a number of techniques which have been employed to furnish insight into aspects other than the functional one have application. To the student concerned with analysing the ensemble of functions found in the C.B.D., a number of techniques are available. Generally these techniques have been applied to meeting very specific

objectives, often within the limits of particular case studies. But to achieve a comprehensive understanding, and a better one, there is the necessity of amalgamating a number of techniques. It is important also to keep in mind the time setting, for in many instances the C.B.D. of today was the town of yesterday.

As to the methodology behind the delimitation of the C.B.D., a number of important issues are at stake. Delimitation of any one C.B.D. must be in accordance with the problem in hand. In this sense every C.B.D. is unique, and the technique applied to one C.B.D. may not be suitable for another. On the other hand, if valid comparisons are to be made, then a standard delimitation technique is essential. The latter is even more significant if the objective of research is to formulate general principles about the size, shape, composition etc. of central business districts.

If the objective is to study local and specific problems, then any number of techniques can be used, such as land values, zoning ordinances, land use mapping - as they best fit the problem. A good delimitation of a specific C.B.D. will come through an appreciation of the particular characteristics of that C.B.D., and the application of techniques which fit the problem. There is no reason why these should possess the same qualities as techniques which have been employed elsewhere. The great danger is in applying commonly accepted techniques in the belief that they will fit all cases.

What is perhaps most important in the delimitation of the C.B.D. is that the true range of functions, characteristic of that unit of the city, be recognized. This is the major failing of the Murphy - Vance

technique, i.e. only a limited percentage of the representative land uses are mapped. It is further contended, that the C.B.D. must be recognized as having two distinct portions, each of which is represented by a certain ensemble of functions. No technique will ever furnish a rigid delimitation line. The best that is likely to be achieved, is an approximation. That approximation, however, can be made more precise by the application of a number of techniques, such as land use mapping, land values, floor space indices etc., and hence the drawing of a more accurate line.

We have already spoken in an earlier chapter about the maturity of the C.B.D. and its evolution. In most cases in the literature, this has been portrayed by the technique of land use mapping over certain time periods. A more valid technique might be to map functional succession, i.e. changes in the type of occupier since the property was first developed. In keeping with this, it would also be of value to know the changes, if any, which have taken place in the structures, housing these functions. By such a technique, the evolution of the C.B.D. can be measured and also the extent or degree of its crystallization. Such a technique would adequately portray the dynamic nature of the C.B.D., the shifts and the clustering of certain functions over time. Moreover, it would combine a better understanding, not only of the functional nature of the C.B.D., but its structure also. Such a technique then, is just as significant, if not more so, than mapping changing land uses. Of course it should not be expected that the associations portrayed by this technique will be the same for all sizes of cities or for all functional types. This technique if applied to

various sized cities, and types of cities (commercial, primarily industrial, recreational etc.) may well furnish us with a more comprehensive understanding of the C.B.D. as a complex of functions, and perhaps some differentiation as to the nature of C.B.D.s of different types of cities.

It was pointed out at the beginning of this study, that a comprehensive understanding of the C.B.D. was likely only to be achieved through interdisciplinary research and the endeavour of team-work. This is likewise true for the single aspect chosen for study in this thesis. But often working as a bulkwark against the success of such interdisciplinary research, is the problem of terminology. Often it is only too apparent that there is little uniformity in the designation of concepts and views. Different terms are often used synonynously, or similar terms are given entirely different connotations by researchers in different fields. If advances are to be achieved in methodolgy, then it is essential that co-workers can readily draw on the research of their colleagues and not be working at cross purposes. This inconsistency is particularly evident in the literature on central business districts.

Inconsistency and confusion are often closely linked. From time to time in earlier chapters, certain of these inconsistencies were pointed out. Here they will be examined more closely. Often used synonymously with the C.B.D., are such terms as central area, central zone, downtown and numerous others; there is confusion over what is decentralization; land use and function are often confused in classifications; the terms land use, structure and function have often entirely

different connotations; there is little agreement over what is the 'core' of the C.B.D., the 'hard core' and indeed the C.B.D. itself; C.B.D. functions and central functions are also confused. Mere recognitation of inconsistency is however negative, and an attempt will be here made to define some of the above terms in a manner which will allow for their use by the disciplines here considered. This is not a matter of mere semantics, for any improvement which can be made, will contribute to a sounder methodology.

Central Area and Central Zone:- Both these terms have been used somewhat synonymously, to refer to a larger area than the C.B.D. as defined by Murphy and Vance. The terms however, correspond quite closely to the C.B.D., as defined in t is thesis - i.e. the core of the C.B.D. and the frame.

The Core of the C.B.D.:- The core of the C.B.D. as here defined, is the more intensive central portion of the central business district and corresponds closely to the C.B.D., as defined by Murphy and Vance. The characteristics of both the core and the frame, have already been outlined in the text. This is the area which corresponds to the C.B.D., as viewed by earlier writers, such as Burgess and some present day writers.

The Hard Core:- The 'hard core', as here defined, lies within the core of the C.B.D. and is the most highly concentrated and intensively used portion of the C.B.D., usually only extending to a few blocks. Within this 'hard core' is generally found the 'peak-land-value-intersection', usually the locality of greatest pedestrian and vehicular traffic. Outward from this peak various measures of intensity

generally decline, though not to the same degree in all directions.

Land Use and Function:- In the literature, there has been considerable confusion of these two terms and in various listings of the C.B.D. functions, one often finds such expressions as office functions, theatre and cinema functions etc. These latter are land uses, or the reflection of the functions performed. The reader is again reminded of the classification of urban functions, cited earlier.

There is considerable variation in the literature as to what is meant by structure, land use and function.

In the geographic literature, land use constitutes the actual use of the land in space and more emphasis has been placed on this aspect, than on the functional one. A function is the activity performed and is conditioned by numerous factors, which are both physical, economic, technological etc. In the geographic literature, there is an apparent interest in the static distribution of activities and their spatial relationships. Structure is the mode in which cities occupy space and may be determined beforehand, as in the case of new towns, or may be conditioned by the site. In the literature of planning, there are certain similarities to the above; thus function is looked on in much the same way as above, although more emphasis is placed on this than on land use. Structure is more likely to be referred to as a spatial arrangement and there is particular concern with the type of structure which will best serve the functional needs. The use of the same terms in sociology and economics is however, quite different. In the literature of economics, there is more concern about the profitability of an activity, rather than in its distribution. The economic

literature portrays concern for the production and/or distribution, not in the spatial sense of the above two disciplines, but of materials, products, services and markets and in the optimum use of space by various activities. To a certain extent, the literature of sociology has been influenced by economics, and we find here similar concern for the 'ecological' organization of activities. In sociology, particular attention has been focused on residential land, land values and their relation to structure. In economic literature, the same concern about productivity is again evident in relation to structure; the number of floors, the proportion given over to certain uses etc., will be of importance in making space produce to the optimum. Considerable differences in terminology then are evident, and an attempt has above been made to define the terms as they are employed in different disciplines. In drawing information from different disciplines, it is important to keep these distinctions in mind, if confusion is to be overcome. What is really essential is a glossary of standardized terminology, which would be cross-referenced, but obviously this is beyond the scope of this thesis.

It is further contended, that the term 'decentralization' has from time to time been wrongly and misleadingly used. Decentralization only occurs in the view of some writers, when there is a shift of certain activities from the C.B.D., to a peripheral or other location outside the C.B.D. This is a limited interpretation of decentralization; the term must also include the planned or spontaneous growth of activities outside the C.B.D. and which have not necessarily moved in their location.

The term morphology which implies the study of composite forms in space is strictly a geographic expression, and is not found in the literature of other disciplines.

The comprehensive understanding of the C.B.D. as a complex of functions, will come only through the amalgamation of numerous techniques, which have been previously employed separately to meet a host of different objectives. There have been numerous attempts in the literature to apply techniques for analysing particular problems, but only in certain planning studies has there been a conscious effort at arriving at a synthesis of this knowledge, and thereby, a more comprehensive understanding of the functional nature of the C.B.D. Of course there are numerous reasons why such comprehensive studies have not been made - they are generally beyond the scope of one discipline to carry out, and coupled with this, there has been little attempt to draw together the work of researchers from different fields of endeavour. Moreover, the problems involved, demand that these researchers be working, with their specialized tools, towards the solution of similar problems.

What techniques should be preserved, or modified, in portraying a better understanding of the C.B.D. as a complex of functions? Which techniques meet certain objectives best? Is there a need to incorporate new techniques? These are a few of the important questions which must be answered. The techniques which are employed, however, must bring out the significant characteristics of the C.B.D. which were outlined in a previous chapter.

In the portrayal of intensity, a number of valid techniques are

available. It is contended that, a better and more complete understanding is furnished through the amalgamation of a number of these techniques. Use intensity indices (as in Murphy and Vance) must be realistic if they are employed, and must meet the specific problem in hand. The height of buildings, the proportion of lots occupied, and floor space ratio mapping will give a good indication of intensity. They are perhaps the best techniques to meet this objective. What is required is a three dimentional picture of the amount of space in the C.B.D. which is being occupied by true C.B.D. uses. The resulting three dimentional figure would take on the appearance of an irregularly stepped pyramid. There is also a relationship, of course, between intensity and the factors of land values and traffic volume. If data is available on the latter, a more comprehensive understanding of intensity can be derived, for the importance of people in the C.B.D. will be included. It is, moreover, important to analyse the relation of traffic volume and land values in relation to certain specific C.B.D. activities. When undertaken for a number of C.B.D.s, on a comparative basis, perhaps some meaningful generalizations can be made.

Although distribution of C.B.D. functions so often appears in the literature, most of the techniques have been very simple and inexact. The plotting of distribution is only the first step in the analysis of areal variations. Mapped distributions can only provide the raw material for analysis, but the very success of this depends on the use of more concise and specific measures of distribution, which are capable of quantitative statement. Few writers have even gone so far as to present a visual presentation of point distribution, which

can then be described verbally. But it is important to know also the intensity of the distribution; its nature and shape. Techniques certainly exist to measure these phenomena; so far they have had very little use in C.B.D. study. Distribution can be more effectively portrayed by density mapping on a continuous surface; or in some cases by nearest neighbour analysis. These techniques have the obvious advantage of exactness. We saw earlier in this thesis, that certain authors concerned themselves with the geometrical shapes which the C.B.D. may take on. Subjective categories, such as those of the diamond, circle, quadrate cross were the result. These categories are not only limited in geometrical range but show strong operator variance. More exact techniques (employing parameters such as area, perimeter, length of longest axis etc.) are available to us for analysing C.B.D. shape. Used on a comparative basis, these techniques will undoubtedly lead to a more complete understanding of the shape of the C.B.D.

The portrayal of more exact distributions will certainly take on more meaning, when correlated with such factors as lines of communication, and man-made barriers which may exist in the C.B.D. The overemphasis on explaing distribution in terms of the single factor, land values, is a pointer to the lack of any total concept about the central business district. Distribution, in most cases in the literature, was not adequately portrayed.

From time to time it was pointed out that there is a close association between certain activities within the C.B.D. Techniques such as coincidence in a single block are necessarily very inexact. Again there seems little reason why these associations cannot be

correlated statistically for the C.B.D.s of various sized cities. Clustering of uses in the C.B.D. is very apparent, yet we know very little about this phenomenon. We need to know much more about the types of uses which are found in close association, and in turn their relation to traffic volume and the desires and motivations of both customers and entrepreneurs. As a framework in which further analysis can take place, the clustering, randomness or uniformity in the distribution of like uses, or for that matter dissimilar uses, can be portrayed by the nearest neighbour technique.

Demonstration of the range of functions found in the C.B.D. will only come through an adequate classification. That classification should be sufficiently broad to give a valid picture of the distribution of functional elements within the built up area.

The mapping of changing functions, housed in certain structures, is a significant technique in the understanding of C.B.D. crystallization and maturity. If data on land values is detailed enough, over a considerable number of years, it can be employed as an effective tool in better understanding the latter. It will portray the fluctuations in the importance of certain sections of the C.B.D. over time, especially if land values can be analysed in relation to certain specific activities. This is perhaps one of the most valid uses of the technique.

Where data is available for a number of years, about the numbers of people entering and accumulating in the C.B.D., this will provide significant information for analysing the relationship between changing land uses, and the density of traffic movement in certain portions of the C.B.D. As C.B.D. functions are traffic generators, and

rely on traffic for survival, this is of particular significance. It is important to analyse the role of the pedestrian, at various times of the day, in relation to certain activities. How does traffic congestion affect certain functions in the C.B.D.? Does it markedly affect some more than others? Within the core of the C.B.D., how does vehicular traffic affect the habits of the pedestrian? Through correlating changes in land use patterns with traffic movement, fluctuations in land values etc. a more comprehensive understanding of the C.B.D. as a complex of functions will be derived. We do not, as yet, know enough about the generating capacity of certain specific C.B.D. activities.

It would appear that except for the gravity and potential model, there have been few techniques employed to study how people behave in relation to the C.B.D., and other outlying facilities. There have been a great number of articles written on the 'C.B.D. versus the suburbs' and how people behave in relation to each. In most of these articles there is merely indicated a list of the major factors at work; no attempt is made to devise a hierarchy of causes or to make valid generalizations. We find in these articles that people go to outlying centres because of increasing distance to the C.B.D.; because of greater mobility, they have a greater choice in where they go; because their tastes have changed or their shopping habits have altered. To the planner of the future C.B.D., it is essential that he know on what basis people make their decisions, if he is to predict future needs; the issue is complicated by the fact that policy making bodies also make decisions and behave in a certain way. The only types of study which

appears to have been able to predict future requirement with some accuracy are the very extensive works concerning transportation problems in certain U.S. cities.

If we are to fully understand the complex of functions found in the C.B.D., there is need to amalgamate the numerous techniques outlined above, as they best fit each particular facet. Then, and only then, will we arrive at some degree of synthesis concerning our knowledge of the C.B.D. Ideally, the end product of this synthesis should be a portrayal of the totality of the C.B.D. as a composite unit in space.

CHAPTER 6.

CONCLUSIONS.

This thesis has provided, both a critical appraisal of the techniques employed in C.B.D. studies, and an attempt at improvement in methodology. The latter facets of the study, were set within a broad conceptual framework, furnished through a review of the pertinent literature, and also the author's own views on the C.B.D. It is the purpose of this chapter, to summarize, and conclude on, the findings of this research, and also to propose topics which require future study.

Throughout the literature, there is an apparent lack of exactness in the techniques employed. One is left with the impression that authors have not kept pace with the development of thought on more rigorous techniques. Although there are exceptions, the majority of the studies on C.B.D.s, have dealt with the aspect of distribution. Even these studies, because of their lack of any total concept concerning the C.B.D., have tended to explain this distribution with reference to a very limited number of factors. Due to the latter, many writers meet their objectives - but only partially. This over-emphasis on distribution, has, in the majority of cases resulted in the total, or partial neglect of other essential characteristics of the C.B.D. This is particularly characteristic of the deterministic ideas on land values. Few studies attempt any real synthesis of knowledge about the C.B.D. In particular,

the disciplines of economics, and sociology, have viewed the C.B.D. within very narrow limits. No impression is gained that the C.B.D. is a composite, spatial form, a distinct and unique portion of the city. From time to time the characteristics of the C.B.D. are referred to, in passing; no emphasis is placed on the fact that it is these very qualitites which set the C.B.D. apart from the remainder of its urban environment; rarely is the C.B.D. placed within its overall urban and regional setting.

The actual techniques employed vary little from one discipline to another, although emphasis may be placed on certain ones. Land values have been over-emphasised in sociology, but have been employed in other disciplines as a tool. The disciplines of geography and planning employ a greater range of techniques, perhaps a pointer to their more comprehensive understanding of the C.B.D. Although there are similarities in concepts, each discipline has its own connotation of that concept. These connotations have been perpetuated, both by working within narrow confines, and considerable confusion in terminology, which has not permitted fruitful teamwork.

Within their proper time setting, certain authors furnished us with a better and more comprehensive understanding of the C.B.D. or at least particular aspects of it. Since the publication of the Murphy, Vance and Epstein articles, little has been achieved in C.B.D. research in the past decade. The work of Rannells, and Horwood and Boyce is an exception. We are still unable to make many valid generalisations about the C.B.D.; its size, shape and composition; its structure; its future role in the American city; does a particular type of C.B.D. emerge in

commercial cities, industrial cities and so on? With a few exceptions there have been very few comparative studies indeed. And what about the C.B.D. of Europe, and Asia, and Africa, how do they compare with the newer C.B.D.s of the Americas? Again, in theoretical studies the C.B.D. has been poorly represented. With so much emphasis today on model building and statistical techniques, this seems quite strange. But in the academic world, the pendulum of interest seems to swing quite rapidly from one topic to another; there are fads, and phases, in which interest tends to be channelled in particular directions. So it once was with C.B.D. studies.

Moreover, interest in the C.B.D. has been turned in a different direction in recent years, particularly in North America. Concern is now with the diminishing role that the C.B.D. of the future will play in American urban life. This has led to a rash of pessimistic articles which bandy back and forth the 'ills of the C.B.D.', and the 'wasting away to the suburbs'. Few of these pieces of work have led to our better understanding of the C.B.D.

Research on the various problems, and aspects of the C.B.D., can be fruitfully carried out, only through interdisciplinary endeavour. Often working against this is the lack of communication between disciplines. We need to know much more about many of the aspects outlined above, but one of our greatest needs is a standard reference in terminology. We have much to learn from numerous disciplines; the emergence of these disciplines in the common pursuit of particular problems, is a characteristic of the development of science in our time. Of course, techniques which are developed, and used by other

disciplines, must be thoroughly understood, and skillfully applied by those researchers who work as a team.

In this thesis, certain techniques have been employed in conjunction, in an effort to create a sounder methodology. It may well be that there are useful techniques employed by other disciplines, not considered here. This also is a field for future research.

It is the hope of the writer that this thesis has produced some original thought on one aspect of the C.B.D., namely the functional one.

APPENDIX.

Functional Classification.

To permit uniformity in the designation of terminology in this thesis, it has been deemed necessary to draw up a classification of urban functions.

1. Residential - a. Transient. This refers to hotels, hostels, rooms etc.
   b. Permanent Residential.

2. Commercial - a. Retailing.
   b. Wholesale.
   c. Commercial Services. The latter applies to all services which have to do with money or financial assets.

3. Industry - a. Manufacturing and Processing. The latter constitute those activities which alter the nature, form or function of materials or components.
   b. Service Industries. Constitute all those activities which are directed to maintenance, repair or improvement of physical things.

4. Recreation - All forms of recreation both indoor and outdoor.

5. Institutional - This category is made up of services performed on a non-profit basis by a person or corporation usually for the betterment of society e.g. church, school, museum, charities etc.

6. Services - Personal Services. These are services which are applicable to the body or any part of the body of the living or dead, e.g. funeral director, doctor, barber etc.

7. Business Administration - Constitutes administrative offices of businesses of any sort.

8. Transportation & Communication - Everything which is transported or communicated falls within this category. It also includes bus and rail terminals, taxi stands and so on.

9. Government - a. Administrative.
b. Legislative.
c. Judicial.

10. Public Utilities - Includes water treatment plants. Sewage disposal and the like.

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