BRANCH LIBRARY LOCATION IN THE SOUTHERN SUBURBS OF CAPE TOWN

A Study of the Influence of Certain External Factors Relating to Usage and Distance on the Operation and Location of Five Branch Libraries in the Southern Suburbs of Cape Town.

A Thesis presented to the University of Cape Town for the degree of Master of Urban and Regional Planning.

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University of Cape Town

THE INFLUENCE OF CERTAIN EXTERNAL FACTORS RELATING TO USAGE AND DISTANCE ON THE OPERATION AND LOCATION OF FIVE BRANCH LIBRARIES IN THE SOUTHERN SUBURBS OF CAPE TOWN

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CHAPTER 1-0 INTRODUCTION

1-1 Social Significance of the Public Library.

Rapidly rising cultural levels give the Public Library, as an institution, a social significance comparable with most other public services. Strongly linked on the one hand with vital educational institutions, but providing also for the recreational needs of increasing millions of people on the other, public library services are now claiming the attention not only of those closely concerned, such as professional librarians and city administrators, but also of a growing spectrum of social scientists, planners and urbanists (2). The importance of a widespread and efficient library system to a relatively advanced and progressive urban centre such as Cape Town therefore needs little emphasis.

1-2 Output and Efficiency.

Concern is being focussed by an increasing number of investigators on to the output rather than the input side of public service systems. Efficient operation is seen as a function of the benefits accruing to consumers in terms of a publicly stated and accepted series of objectives; measurement of such benefits by direct or indirect means becomes a necessary element of management. Determination of the level of a public library service, by means of input standards for instance - so many librarians, so many square feet of library and so many books per thousand of population - is regarded as inappropriate unless some effort is made to balance these costs against community participation and community benefit on the output side. Unfortunately input standards, in many cases evolved over decades of professional practice, tend to have a stability which often fails to reflect the real world of change; they continue to be used when no longer appropriate either because the preferences and needs of the community have changed or because the pattern of community participation in the service has altered.

The widespread use of input standards as a guide to action stems from an inability to identify and quantify many of the values and variables involved in what are often complex and little understood social, economic and physical interactions. This would apply particularly to library services where social variables are much more difficult to handle than those of technically based services such as water or power supply. The social sciences have been developing apace however, and the general level of understanding of social interaction based on trustworthy statistical study techniques warrants greater reliance on the results of such investigations into community satisfactions, preferences and changing behaviour patterns.

This investigation is consequently directed towards the output stage of the public library service.

1-3 Study Objectives.

This study does not deal generally with community participation in the Cape Town City Library Service. It is neither a large scale nor statistically rigorous social investigation. The author's broad objective was to throw light on the problem of the location of branch library outlets with particular reference to the effects of certain external factors, especially distance from branch libraries, on community participation in the library service; on the pattern of use, the relative incidence of library users in the branch service areas as well as the effect of one branch on another in a continuum provided by five branches situated in the Southern Suburbs of Cape Town.

An attempt is also made partially to test one or two current hypotheses or policies relating to the location of branch libraries. In this respect a particular problem has arisen in Cape Town in that a number of existing branch libraries are either too small or accommodated in outdated and inadequate premises. The City is on the verge of rebuilding a number of these and an attempt to assess some of the external influences and factors should assist major location decisions.

1-3.1 Conflicting/..

1-3.1 Conflicting Hypotheses.

The conflict between two policies has for some time now obstructed redevelopment of some of the older established branch libraries in the City. Both are apparently strongly held locally although the author's reading indicates that protagonists of the first include a large majority of leading professional librarians both here and abroad.

The first holds that a branch library outlet operates essentially as a commercial outlet having similar location criteria such as, inter alia, high accessibility within existing commercial nodes, close to public transport and, most important, related to multi-purpose pedestrian activity. Service offered at such outlets is restricted as well as floor space. Expensive sites are occupied, accessibility is substituted for spaciousness and quiet serenity; values which some regard as more in keeping with library tradition.

The second policy places greater emphasis on these last mentioned values, on the traditional image and civic purpose of the local library by linking it with other civic activities in a community civic centre. The space requirements for such a centre inevitably relegates it to the periphery of, often many hundreds of yards from, the hub of the suburban shopping centre. Such sites are normally associated with more plentiful parking but usually require a special trip rather than multi-purpose trip to the shopping centre. At present a number of such combinations of community civic centre and library are being planned in Cape Town.

A third hypothesis, outlined by Wheeler and Goldhor (1) and many others in the American context, recommends a three or four tiered hierarchy for a metropolitan public library system involving the local branch outlet at the base restricted almost entirely to borrowing (possibly augmented where necessary by lower ranking mobiles or book depots), with sub-regional libraries offering a wider range of services including reference and information as a middle tier. At the top of the pyramid would be the central metropolitan library offering a full range

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of services including direct links with major national and specialised libraries.

Differing from this hierarchical system is a recent suggestion, at present under investigation by the City Librarian, that the service areas of the existing branch libraries in the Southern Suburbs are too small and that larger libraries of the Wynberg type, located further apart and offering a wider range of services, should be substituted for the existing string of smaller branch outlets.

1-3.2 Specific Objectives.

It is beyond the scope of a study of this nature to test all these hypotheses thoroughly. A study of external factors should, however, provide some insight into their relative merits.

The first objective of study is therefore to investigate, by means of a survey of branch library users, the service areas of a continuum of existing outlets in the Southern Suburbs of Cape Town between Rondebosch and Muizenberg; to measure some aspects of community participation, especially the effects of distance from the outlet, by investigating the incidence of users within the service areas and the level of their participation; to provide some indication of the preferences of library users in respect of library size and character, transport modes, and multi-purpose trips which include a local library visit. It is hoped that construction of a simple branch outlet model together with service area delimitations will assist policy decisions on an effective size for branch outlets. The existence of the larger and relatively more specialised Wynberg branch within the study area should also help to clarify the possibilities of a hierarchical system of outlets strongly indicated by analogy with the supply of other urban services.

A second objective will be to develop a simple, carefully designed survey method which, it is hoped, will encourage not only the application of similar output studies to other parts of the City and elsewhere but also the repetition of such studies over time to establish trends of change. For this purpose a standard questionnaire has been developed in collaboration with the City Librarian and the survey procedure specified in some detail. The whole procedure should demand the least possible

effort/..

effort from normally overworked library staff. This methodology would be designed not only to serve the first objective defined above but also to provide a general analysis of library usage which would interest and assist librarians to make decisions on other aspects of branch library operation even if only by providing a descriptive picture of the pattern of branch library use.

1-4 Previous Studies.

The author was able to follow up only very few of the numerous references to studies which might have been similar to the one outlined above. These references included an annotated bibliography (see (2), "The Public Library and the City") containing 64 items dealing with library problems in metropolitan areas. Judging from the short summaries, 5 might well have been based on similar data although this was not specifically mentioned.

In this necessarily restricted search the author found only one investigation, of the Southampton library service (13), which dealt specifically with the spatial distribution of a sample of library users.

In his review of four recent public library branch location studies undertaken by city planners in the United States (23) Guy Garrison comments that the reports and recommendations were based almost entirely on input standards recommended by library authorities without much attempt to measure local usage. In one report, on the Dayton area, a general proposal for branch service areas was a 1½ - 2 mile elipse, elongated along major thoroughfares, containing a minimum population of 25,000 persons. Whether this was based on a local study is not clear but it agrees fairly well with the author's conclusions. In general he states that "the almost exclusive orientation of city planners towards physical planning, together with the lack of a well defined philosophy within the library profession on the role of branch libraries in the changing city (particularly in central zones of transition - author) results in an incomplete approach to planning for library extension."

Local librarians were not aware of any South African studies dealing with the spatial distribution of users or the distribution of use intensities.

1-4.1 Location/..

1-4.1 Location in Shopping Centres.

With regard to the vital need to locate branch libraries in suburban shopping centres at points of optimum pedestrian activity, the author relies heavily on the supporting evidence of past studies reviewed by Wheeler (15) and considers this virtually unassailable. In this 1967 review of his original paper (14) the earlier conclusions remain unaltered. The most important of these conclusions are that : -

"The Public Library, to serve most people, should be where most people congregate. That continues to be downtown. 'While the suburban shopping centre development has continued unabated, the Central Business District still attracts multitudes of people, and there are more people there than in any other single part of the city', says a city planning sociologist who has continuously studied and reported developments in this field for some 35 years. Front foot valuations corroborate this opinion since they are higher there than anywhere else in the city."

"The basic factors as stated in the foregoing paragraph lead to the inevitable conclusion that the main public library building in a city should be based in, or kept in, or rebuilt in, the heart of the downtown business and office district."

"Similarly, branches should be, not (necessarily) where parking is easiest, but where the busiest crowds of people are, generally in the heart of the outlying shopping centres or retail districts which bid fair to continue in popularity, and not at some distance away from them."

1-5 Limitations of Study.

The author's investigation was well under way when the responsible Committee of the City Council called for a report on the future development of the City Library Services in the Southern Suburbs with particular reference to the distribution of populations; in other words, for a development plan for library services in these areas.

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This thesis study deliberately ~~in~~a voides so wide a field, however, since many factors relevant to the preparation of such a development plan fall outside the ambit of city planning; factors internal to the library service, for instance. It must therefore be emphasised that only a restricted number of factors, virtually all external to the library were included in this study. There are clearly many other factors too, some more important than others, both internal and external (a whole range of socio-economic factors, for instance), which are also relevant to branch library location but which could not be included in a restricted study of this nature. All these factors are to some extent inter-related and conclusions drawn from a limited set of factors studied in relative isolation should thus be treated with due caution.

As a result of a request from the City Librarian the scope of enquiry was widened in certain respects, particularly in an attempt to estimate potential populations for various areas within the Southern Suburbs. The concluding chapters of this report cover, inter alia, tentative location proposals for a number of branch libraries in the Southern Suburbs.

CHAPTER 2-0 DATA COLLECTION

2-1 Sources.

Data for this study ~~was~~ were obtained from a number of sources. First was a rapid interview questionnaire survey conducted in five Branch Libraries; Rondebosch, Claremont, Wynberg, Plumstead and Muizenberg. A second source was the regularly kept statistics of book issue and costs obtained from the Cape Town City Libraries. Other sources include land use surveys, zoning proposals, population figures from the 1960 Census, estimates of potential populations calculated and prepared by the Provincial Planning Department, and the current Voters Roll. Finally a good deal of information and background material was obtained from various publications dealing with library operation, administration and policy. It is seldom clear from these texts, however, to what extent the quoted statistics are comparable with information gathered locally. Comparisons have therefore been avoided.

By/..

By far the most important source of information was the questionnaire survey directed by the author but carried out, in the main, by the branch library staff. The author's thanks are due to them, to the City Librarian and his senior staff for willing and prompt collaboration and advice.

The following paragraphs deal in some detail with the chosen survey method, the validity of the questionnaire, the reliability and possible bias of inferences drawn from the sample about the 'population' surveyed, and finally, with the methods used to organise this data into meaningful forms.

2-2 Questionnaire Survey Method.

The survey method finally chosen was adapted from one often used for shopping centre and other surveys where answers to a few direct questions are needed at minimum cost in time and money. Briefly, the technique consists of choosing a series of relatively short time periods during the week's activity so as to provide a reasonably representative cross section of this activity. Respondents for rapid interviews are selected at random during these periods to provide samples large enough for fairly accurate inferences to be drawn about the 'population' surveyed. This could be described as a stratified sampling technique, the factor stratified being the time of week. This sampling and survey method, though very well suited to the author's need, has its limitations.

Firstly, since each interview must be completed in about two minutes to obtain a reasonable sample in a short period, the questionnaire (see Appendix B) must be carefully designed with only a few easily answered questions. Answers must be selected from a prescribed set for each question and four or five of these should, if possible, cover all possible answers. These conditions clearly restrict the scope of the questionnaire. Virtually only factual questions may be included; opinions are difficult to handle in a rapid interview even when treated as a preference between two given alternatives. An advantage is that such questions normally have a high validity since they must be simple, direct, unambiguous, and mostly factual.

Secondly/..

Secondly, since the survey was conducted in five libraries during the same periods on the same days, a number of different interviewers had to be used. The size of each sample depended on the speed and technique of the interviewers, neither of which could be standardized. Sample sizes therefore differ considerably and are not comparable in absolute terms, either between libraries or between the periods of survey. Proportions within each sample, however, are comparable both between libraries and between time periods. The accuracy of such results is also subject to the size of the samples as will be explained below. To minimise the effect of different interviewers on the validity of the answers given, a series of notes to interviewers was prepared (see Appendix B).

The questionnaire was prepared in consultation with senior library staff as well as an adviser experienced in the use of this method. The time periods were also selected in this way to give not only a fair representation of a week's activity in a branch library, but also the best chance of obtaining the largest possible sample. One hour periods were selected during the morning, afternoon and evening sessions on Monday and Thursday and the morning and afternoon sessions on Saturday. Early in the survey, however, when it became clear that samples collected during one hour were rather small, the period was extended to 75 minutes.

A random sample of adult visitors to each library was obtained for each time period by approaching the next to leave the exit desk after completing an interview. Times taken for interviews based on the attached questionnaire varied between 1½ to 3 minutes.

There was unfortunately insufficient time to follow the normal practice of conducting a pilot survey using this method and discussing details of the questionnaire with those most concerned, the branch library staff. The questionnaire could no doubt have been improved in this way.

A pilot survey was in fact carried out, using another sampling method. A random sample of 300 was extracted from the card inventory of Claremont Branch members and these were sent a reply paid postal questionnaire. 50% replied over a period of nearly four weeks; a fairly good result for a postal questionnaire. A 50% response does

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however, introduce a significant and unknown bias and results from such a sample are statistically unreliable. The method ultimately chosen was not only more reliable, but also quicker. It worked smoothly in practice and cost little in either time or money; only about 10 hours of one person's time were required at each branch.

2-3 Validity of the Questionnaire.

Validity is the term usually applied to the effectiveness of the questionnaire and method in obtaining comparable answers as between respondents as well as answers which are relevant to the terms of reference of the study. The rapid interview questionnaire virtually ensures a high level of validity since only a few mainly factual and non controversial questions can be included and these must be carefully chosen to provide only the most pertinent information. Moreover, for quick answers, questions must be straightforward and precise, with a limited range of answers. They should also avoid possible embarrassment which, in turn, encourages frank answers.

With one exception, all the questions included conformed fairly well to this specification. In the case of library size preferences it was virtually impossible in so short a time to convey all the implications of the two alternatives to every respondent and it cannot be said with certainty, therefore, that each respondent was answering the same question. Moreover, after discussing the reactions to this question with a number of interviewers further doubt was cast on the validity of the answers since there was a tendency to identify the type of library preferred with the one to which the respondent was accustomed. Some of the walkers to the Wynberg library, for instance, changed their choice from "large" to "small" when reminded to imagine the Wynberg Library to be two miles from their homes instead of half a mile. The general impression, however, was that the majority of respondents had a reasonably good grasp of the important implications. Results from this question do, therefore, have a degree of validity but one which is perhaps not as high as for the rest of the questionnaire.

2-4 Reliability/...

2-4 Reliability, Bias, Confidence Intervals and Levels of Significance.

Short explanations of these statistical terms are given in Appendix A together with Confidence Interval Tables.

2-5 The 'Population' Surveyed.

Reliable results can be obtained only in respect of the 'population' represented by the sample. It is therefore necessary to define this 'population' and to bear the definition in mind whenever survey results are interpreted.

The sample was drawn from adult White persons visiting each of five branch libraries to borrow books during the week June 2nd to June 7th. Registered members of the library who never make use of their membership are therefore excluded as are members whose books are habitually changed for them by someone else. In the latter case, however, they are represented 'by proxy' and one of the questions was designed to measure this practice. Since the study is of library usage, those in the first category are of little interest, but those in the second category can be allowed for in the analysis, if necessary, by applying an appropriate weight to the proportion in the sample who borrowed more than the three books allowed to each member.

Children and others under the age of approximately 18 years are also excluded from the 'population' since not only are they a relatively small percentage of all White users (about 15%) but more importantly, their usage is subject in most cases to that of their elders.

Also excluded are those who visit the library to refer to books or to read periodicals; only persons taking books away from the library were sampled. It is not considered that this exclusion detracts from the value of the study since book lending is by far the most important, and sometimes the only activity of branch libraries.

2-6 Sampling Procedure.

A random sample, in which every member of the 'population' has an

equal/..

equal chance of being included, will tend to give reliable results but is virtually impossible to obtain rigorously without first defining the whole 'population', randomly sampling this 'population',and then ensuring that all the sample is interviewed. Since such a procedure was not feasible for this study, reliance was placed on a combination of stratification and random sampling to provide a representative sample of the defined 'population'.

On the advice of the Principal Branch Librarian, time periods which should yield a reasonably representative cross section of library users were selected during one week. The hours and days selected were as follows:

Monday 2nd June	10.30 a.m.	- 11.30 a.m.
	3.30 p.m.	- 4.30 p.m.
	7.15 p.m.	- 8.15 p.m.
Thursday 5th June	10.30 a.m.	- 11.45 a.m.
	3.30 p.m.	- 4.45 p.m.
	7.10 p.m.	- 8.25 p.m.
Saturday 7th June	10.30 a.m.	- 11.45 a.m.
	3.30 p.m.	- 4.45 p.m.

The Muizenberg and Plumstead Branches are closed on Saturday afternoons and the latter on Monday morning as well. The evening sessions were slightly adjusted to suit different opening hours. Bad weather occurred during only two sessions on the Monday but apparently did not have an appreciable effect since the issue on that day in all five libraries was a little above the annual average which is normal for winter months.

The actual sampling method, as explained above, is a quasi-random one normally regarded as satisfactory. The sample taken should consequently yield adequately reliable results without appreciable bias in favour of any group of users.

2-7 Accuracy of Results: Confidence Intervals.

Since confidence intervals depend in the main on sample sizes, they will vary considerably. The intervals also vary with the proportion of the sample having any particular characteristic. In analysing the

results/..

results from separate branches care should therefore be taken not to draw conclusions which could be upset by variations of proportions within sub-samples such as those shown in cross tabulations of say, car users by library size preferences. For this reason, cross tabulations given in this report refer in the main to the whole sample or large sub-samples; percentages are not shown where the margin of error would be too great.

Accuracy is improved in the analysis of the effects of distance on various user characteristics, by using accumulated samples wherever possible in preference to zonal samples.

For the purposes of this study a significance level of 5% is considered adequate.

2-8 Data Processing.

One of the objectives of this study was to evolve a survey procedure which, with local variations, might prove useful not only for other similar investigations in the City or in other cities but also for repeat studies to establish trends of change. To be satisfactory in this respect the method recommended should be easy, economical in staff, time and money and give reasonably reliable results. The procedure should also include a means of processing data into meaningful intelligible forms.

In order to achieve the latter objective a computer program, written in FORTRAN by the author, allows the computer processing of survey data input in the form of punched cards and output as a series of printed cross tabulations or contingency tables appropriate for the study. Use of the author's computer program proved to be a valuable time saver in the long run but was somewhat inflexible since the slightest addition to or change of the printed output often requires extensive alteration of the program and recompilation. Changing the questions creates even more complication and much of the rest of the program has also to be altered as well as output statements. More flexible all-purpose programs are probably available through computer bureaux but use of these might prove costly.

Another advantage of the computer program was that a whole series

of/..

of cross-tabulations could be quickly processed and printed in exactly the same form for comparisons between various sub-groups of the sample. For instance, men with women, the smaller branch libraries combined, with each branch library separately; the initial split being done by the sorting machine. As part of a standard, quick and simple method, suitable for those not familiar with processing by computer, this procedure is nevertheless considered too inflexible, unless much larger samples are involved.

A listing of the computer program used to process the data on an ICL 1902 machine is given in Appendix B. The program was compiled for the computer by use of XFAM (Mark 3), the magnetic tape version of the 1900 series Fortran Compiler.

The printed output takes the form of 24 cross-tabulations descriptions of which can be found next to Code "C" in the program listing. 120 character paper is the minimum width required.

For samples of the size taken in this study, even the combined sample, it might well prove more convenient to rely entirely on punch cards and a modern card sorting machine. The author used such a machine to obtain additional cross-tabulations not provided for in the computer program and was impressed by the ease and speed of operation. Provided the sorting categories do not exceed 10, are coded and placed in a single column on the card, information for a 10 by 10 cross-tabulation (seldom so large in practice) can be extracted in less than five minutes from a batch of 1000 cards. The machine will also do the tedious job of counting the sample size in each cell of the cross tabulation.

CHAPTER 3-0 DATA ANALYSIS.

This chapter presents an analysis of data obtained from various sources, and attempts to translate numbers into a meaningful description of the way in which five branch libraries are used in terms of the external factors included in the study. This description is largely impressionistic since, apart from taking cogniscence of confidence intervals, other statistical tests have generally not been carried out.

3-1 Outline/..

3-1 Outline of Presentation.

The analysis will be presented in the following manner.

First will come a numerical description of the samples taken during the survey followed by a comparison with metropolitan averages where possible.

Relationships between distance of home from library and various user characteristics will then be dealt with including a delimitation of service areas and an examination, in relative terms only, of the incidence of users within service areas.

Rough estimates of existing and potential populations will be given followed by a short comparison of male and female users. Finally some operating and cost comparisons between the five branches are presented.

The composition of the questionnaire is discussed in some detail in Appendix B.

Further interpretation of the survey data is presented in Appendix C since this is lengthy and not in all respects relevant to the central theme of the enquiry. A good deal is relevant however, and most of it will, the author hopes, prove interesting to librarians. Appendic C, then, comments on characteristics (excluding the distance affects) displayed by the whole sample as well as those of Wynberg Branch compared with a combination of the four branches. Each branch is then dealt with separately by describing possible specialities only.

3-2 Numerical Description of Samples.

Table 3 below gives the size of the sample taken at each branch library, the four smaller branch libraries combined (excluding Wynberg), and the total. Also included are the proportions of males and females in each of these samples and of the three age groups as estimated by interviewers. Proportions for the same categories are given for the White population in the 01 Economic Region at the time of the 1960 Census, excluding those under 18 years of age.

Table 3/..

TABLE 3

Library	Sample No.	Adult Member-ship x 0.85*	% Male	% Female	% 18-30 yrs.	% 30-50 yrs.	% 50 yrs.+
1. Rondebosch	174	4,900	32	68	19	44	37
2. Claremont	172	4,600	33	67	13	61	26
3. Plumstead	138	2,400	39	61	23	50	27
4. Muizenberg	165	2,000	42	58	23	48	29
5. Wynberg	186	8,200	40	60	30	43	27
Total 1 - 4	649	13,900	36	64	19	51	30
Total 1 - 5	835	22,100	37	63	22	49	29
01 Region Av.	-	-	47.0	53.0	27.5	38.9	36.6

(5) * 15% reduction for inactive members.

3-3 Comparisons with Metropolitan Populations.

There is a marked difference in the proportions for both sex and age between the total sample and the 01 Region averages; age and sex combined provide an even more significant discrepancy. The sex anomaly is confirmed by the randomly selected sample of 300 from the Claremont Branch membership inventory (64% female and 36% male) and is unlikely, therefore, to be caused by sample bias.

Assuming then that the age and sex proportions in the total sample are reliable, and using the ratios of these proportions to those of the 01 Region as an index for over- or under-representation among library users, the extent of this anomaly is shown graphically in Figure 1 for male and female by age group and vice versa.

By sex, the diagram shows an under-representation of all male age categories, especially in the middle and younger age groups, while there is a correspondingly opposite tendency among females. By age group, both the younger and the older groups are under-represented, the males in the latter hardly at all. Middle age females, however, are heavily over-

represented/..

represented in the sample. This malrepresentation of the White population among library users is partly explained in Appendix C (Time of survey cross tabulations), but there are sure to be other reasons, relating to differing needs and opportunities, which fall outside the scope of this enquiry.

Regardless of causes however, this anomaly has obvious implications for library policy. The data indicates an under-use of Library facilities mainly by two groups, men and the younger age group. It may well be desirable to stimulate their participation. Differences in the characteristics of men and women which might assist the formulation of such policy are discussed later in this chapter.

The employment characteristics of the sample provide another comparison with the metropolitan (01 Region - 1960) proportions of economically active and inactive persons if, as a rough estimate, it is assumed that all Whites under the age of 18 years are not economically active. Of the remaining population, both male and female, 61% in the Region were economically active compared with 48% in the sample. For males the proportions are 88% and 79% respectively, and for females, 36% and 31%. This marked over-representation of economically inactive males and females among library users is not unexpected but may nevertheless have important implications for library policy. The proportion of the sample who are housewives (39%) seems high but cannot be tested by similar comparative means.

3-4 Usage in Relation to Distance.

Perhaps the most important single external factor contributing to the pattern of usage of branch libraries is distance; distance between user and branch and between branches. It is one of a complex of factors which influence the accessibility of a branch to members and potential members; probably no less influential than the concentrating effect of commercial and employment centres. The relationships between distance and usage, within limits imposed by data collected, are therefore dealt with in some detail.

The following analysis will not attempt an explanation of these relationships which would involve a whole series of factors not covered by

this/..

this investigation. Generalizations, too, must rest on further comparative and supplementary studies; so far as the author is aware, none has yet been carried out in South Africa. Even in Cape Town the pattern is likely to differ considerably for those branch libraries serving non-Whites. A description of the pattern which emerges should, nevertheless, assist in the formulation of a location policy for the Southern Suburbs.

This descriptive approach will attempt, by means of a simple method, to delimit the service areas of the five branches studied. Thereafter the distribution of users in terms of residential areas will be discussed. Variation of the factors covered in the questionnaire by distance and a comparison between Wynberg and the four other branches in this respect will follow. Finally some implications for a location policy arising out of this analysis will be discussed.

3-4.1 Spatial Distribution of Sample.

The residential addresses of respondents were obtained and plotted on a map of the Southern Suburbs to the scale 1: 12,500. After each address was plotted the relevant questionnaire return was coded in terms of a series of concentric areal zones by distance around each branch library. The first four zones are at quarter mile intervals and the next four at half mile intervals. The ninth zone is one mile wide and the tenth was reserved, in the case of each branch, for the very small percentage of respondents who live at a considerable distance from the library of their choice. The nine zones therefore give a range of four miles which is sufficient to cover 96% of the whole sample. The distribution of the total sample by distance is shown graphically in figure 2.

All graphs showing relationships by distance referred to in this Chapter (except use intensity profiles) make use of accumulated proportions of various characteristics since, in this way, the greater accuracy afforded by increasing sample size is obtained.

3-4.2 Branch Service Areas.

4% of the sample is very widely spread; far enough, in fact, to be ignored for purposes of service area delimitation. A further small

percentage/..

percentage is also dispersed to such an extent that inclusion in the sample for the purposes of delimitation would give a false impression, particularly for the small branches, of widely spread service areas with very large overlaps. Evidence provided by the distribution curves (figs. 2 and 3a) belies this conclusion. It was necessary, therefore, to define a service area, somewhat arbitrarily, to give areas which would indicate a fair degree of spread of users without at the same time contradicting the obvious compactness of the large majority. The following definition was therefore accepted as a reasonable compromise :

> a branch library service area is the least area containing 90% of the 'population' as defined in Chapter 2, and as represented by the relevant sample.

On this basis then, the service areas of the five branches were estimated as shown on Map 1. Also shown are the potential limits of these service areas; on the west the mountain and forest reserves and on the east the non-White Group Areas proclaimed at present.

A glance at the map reveals an essential difference between Wynberg and the rest, particularly since a small but appreciable proportion of the Claremont, Plumstead and Muizenberg users also make occasional use of Wynberg. The Wynberg service area is sub-regional in character including Bergvliet in the south, virtually the whole of the Claremont and Plumstead service areas, and restricted in the north by distance and competition from the Rondebosch Branch whose relatively high book issue is attributable, at least in part, to its distance from Wynberg. In the west the limit of the Wynberg area is the sparsely populated portion of the Constantia Valley and, in the east, the Group Area boundary. Internally the Wynberg Branch is equipped for this sub-regional role, although perhaps not as well as it might be, by having a more extensive book stock, both in quantity and quality, together with other services including relatively large reference and gramophone record sections. Its location almost at the centre of existing development also assists.

The other four branches on the other hand clearly show their suburban character. The substantial overlap between Rondebosch and Claremont might indicate that these two branches are too close together but analysis of use intensity does not support this view. The small Muizenberg

service area includes virtually all the development within range. Rondebosch's closest northern neighbour, the Mowbray Branch, probably has little influence on Rondebosch usage since it is small with a book issue just over one quarter of that of Rondebosch.

3-4.3 Distribution by Use Intensity.

The two dimensional description of the spheres of influence of the five branches by service area delimitation does not provide an adequate picture for decisions relating to spacing of branches, particularly those of the small type. It is therefore necessary to attempt some analysis of the intensity of use as well, and the variation of this intensity with distance.

Unfortunately there is no available information, for the relatively small areas required, of the existing distribution of population or residential densities. Since there has been considerable development and redevelopment in the Southern Suburbs since the 1960 Census, this data was considered too inaccurate. The collection of up to date figures in this respect would constitute a study on its own and could not be undertaken as part of this investigation.

Another possible source of information on existing populations, the Voters Roll, was also investigated. Unfortunately, however, the smallest published areal sub-units are polling district which are too large. Information does exist for much smaller areal units but this is not available at present due to revision of the Roll. Incidentally, this method of estimating population within small areas, suggested by a library study carried out in Southampton (13) could prove quite useful (say for shopping centre study); fairly accurate allowances could be made for the population fraction from 0 to 18 years of age and for non-registration. Existing and potential populations are further discussed below.

Residential area was therefore selected as the best available unit for calculation of library use intensities which thus reflect residential densities. This should not be a serious handicap however since, with few exceptions, most of the general residential development in the form of flats is concentrated around the shopping centres which are natural

location/..

location foci for branch libraries for other important reasons to be discussed in Chapter 4. It was considered necessary, however, to take into account such factors as the frequency of use and the number of books borrowed since these would indicate not only greater use within the sample but also use "by proxy."

Taking these factors into account a usage index was calculated as described in Appendix D. This index was then plotted on distance scales, north-south and east-west of each branch, by plotting the index values calculated for each 90 degree zone quadrant at the distance of the mid-zone point from the branch library site.

The unit of area used was the residential acre. Non-residential areas were identified from recent aerial photographs, from land use surveys recently carried out by the City Engineer's Department, and by a windscreen survey where doubt existed. These were then subtracted from the zonal areas to give the residential acreage for each zone quadrant. The resulting diagrams are shown continuously on Map 2 for the north-south quadrants, and on Map 3 for the various east-west quadrants.

The maps show that all libraries, including Wynberg, have marked intensity peaks which fall off very rapidly with distance. The Wynberg profiles however do reflect the spread of this branch's influence at a relatively low intensity; a result not unexpected of a sub-regional function offering specialised service compared with other branches. They also indicate the dual function of this branch as a purely suburban library as well.

The peaked character of the use intensity profiles for all branches, including that of Muizenberg which is isolated from competition, underlines the need for these facilities to be closely spaced for effective coverage. The overlap between the Claremont and Rondebosch service areas, for instance, loses significance when it is noted that this occurs in areas of low intensity for both branches although their proximity is doubtless partly responsible for the sharpness of the peaks. It would be enlightening to compare the shape of these curves with those of an isolated branch which, unlike Muizenberg, has a normally shaped service area. The Plumstead Branch curve, however, shows only a limited tendency to spread in the direction away from Wynberg.

"Shoulders"/..

"Shoulders" on most of the profiles probably indicate a region of medium intensity while the effect of high residential densities near the branch library outlets is a rapid increase to peak intensity close in.

The east-west curves do not peak so markedly and spread much further. The lower peaks are probably a consequence of the elongated nature of flat development along the Main Road while the wider spread of medium intensities reflects the lack of competition from other branches in these directions. Claremont is a notable exception in so far as its peak is concerned. In this case, however, the major flat concentration is mainly on the west side and not along the Main Road.

Low points immediately east of the peak, in the cases of Rondebosch, Claremont and Plumstead, could be due to the effect of the suburban railway line which apparently reduces the intensity of use immediately to the east as compared with further east where car trips probably become more acceptable.

3-4.4 User Characteristics by Distance.

Since a qualitative difference between the Wynberg Branch and the other four smaller branches had already been partly established, data from the questionnaire on user characteristics for Wynberg and the rest were separately processed and are compared graphically in Figure 3 (a to f). Figure 3(a) also shows the distribution by distance of the Wynberg sample (186 respondents) as well as that of the combined four branch sample (649 respondents).

All these graphs show accumulated proportions of the various characteristics within the sample, plotted against the radius of the appropriate circular area with the branch site at its centre. This distance was limited to 2½ miles since the corresponding area, even in the case of Wynberg, includes over 80% of the sample and the accumulated proportions at this range were already very close to the total sample averages.

Erratic variations in the Wynberg sample proportions close in (within ¾ mile) are probably the result of small sample inaccuracies. In all cases the curves tend to smooth out as the sample size increases.

Figures/..

Figures 3(a) and 3(b) indicate a lower frequency and intensity of use of the Wynberg Branch compared with the rest. There is a tendency, common to both however, for those living further away to visit less frequently but to borrow more books per visit.

The transport mode curves - Fig. 3(c) - show an expected increase in car usage within the large Wynberg service area. It is interesting to note, however, that this preference for car travel also applies to close range trips, the point at which car users and walkers are in equal proportions being much further out for the small branches than for Wynberg.

The use of multi-purpose trips and the practice of family visiting - Figs. 3(d & e) - show virtually no correlation with distance either for Wynberg or the rest; the slight increase of single purpose trips and family visits with distance indicated by both sets of curves is probably not significant.

The library size preference curves - Fig. 3(f) - show a marked difference between Wynberg and the rest although the trend for small library preference to diminish with distance is common to both.

3-4.5 Implications.

The main implication of these variations with distance, as well as the branch service areas and especially the use intensity profiles, is that the two library types, exemplified here by Wynberg and the rest, should not be regarded as mutually exclusive but complementary. The choice of a system, for instance, which has only the larger type of library located at say 4 to 5 mile intervals, would probably have a serious impact on existing usage. This is discussed in greater detail below, but as far as characteristics described above are concerned, use intensity would generally be lower, drivers would be favoured against walkers as would those living further away against those closer in. The interests of those preferring smaller branches, constituting a substantial proportion of existing users, would be virtually disregarded. The use of family visits and multi-purpose trips would be largely unaffected providing that, for the latter, the library were located in a major suburban shopping centre. This would, of course, involve large and expensive sites.

3-5 Male and Female Users.

Comparisons with metropolitan average proportions indicate an appreciable over-representation of females in the library user sample. The total sample was therefore split and processed separately by sex in an attempt to identify any special pattern of use which might assist in formulating library policy with a view, for instance, to increasing male participation or to protecting the interests of female readers.

There were 311 males and 524 females in the total sample. The accumulated proportions of each sex are shown related to distance in Figure 2. Women were found to be concentrated closer to branch library sites, 60% being within ¾ mile and 86% within 1½ mile compared with 50% and 76% for men. Women visit the library as frequently as men but the latter tend to take out more books; 44% for 'three and over' compared with 39% among women. Men are more likely to use their cars for library visits (66% to 56% for women) but are much less likely to use the same trip for other purposes (22% to 51% for women). The sexes do not differ much when it comes to family visiting, but more woman prefer small libraries (48% to 34% for men).

There are naturally many more men in employment than women (79% compared with 31%); 61% of female respondents are housewives not otherwise employed. As a result male users exceed female only during the evening sessions; the proportions during Saturday sessions approximate those for the total sample.

Proportions within the three age groups are roughly the same for both sexes and also approximate those of the total sample, but not the metro average. There is however a stronger positive correlation between age and visit frequency among men.

Male walkers and car users are both markedly, and almost equally, in favour of single purpose trips, while the majority of women walkers, and a large proportion of all women, use the shopping centre for other purposes as well. Even employed women tend to make simultaneous use of the shopping centre more often. Shopping is not left entirely to women, however, since a majority of those men able to attend the morning sessions also do some shopping. Women are more likely (53%) than men (36%) to be accompanied by family during the evening sessions favoured for this practice.

Perhaps/..

Perhaps the most important implications of the above analysis are that male visits are concentrated in the evening sessions when car use, and especially single purpose trips, are the mode. The need for good accessibility, within shopping centres, is much more important for women than men for whom longer trips are more acceptable and who, for this reason, inter alia, have a stronger preference for large libraries.

3-6 Existing and Potential Population.

Map 4 shows the area between the eastern and western limits of White occupation sub-divided into a number of planning districts selected by the Provincial Planning Department for their studies of the Cape Town Metropolitan Region. Some of these areas are truncated by the boundaries referred to above. Within each district two population figures are shown. The upper refers to the number of Whites in occupation at the 1960 Census and the lower is an estimate of the potential population (22) which the district could carry if development occurs in accordance with existing land use zoning. This estimate includes an adjustment for under - or over-provision in the existing Town Planning Scheme for schools and public open space in accordance with current standards. These estimates of potential population should be regarded as only a very rough guide to future development since not only is existing zoning to some extent out of date, but large areas are virtually undeveloped or occupied at very low density. Estimates of population must assume future densities which may well be exceeded.

The difficulties involved in estimating existing populations in small areas have been discussed in Chapter 3-4.3. The attempt has nevertheless been made and rough estimates of the 1970 as well as potential populations for the service areas of the Claremont, Rondebosch and Plumstead branches (see Map 1) are given in Table 7 below. 1970 population is estimated by applying a growth factor of 1.6% per annum (a little more than the 1951-1960 01 Region urban growth rate for Whites) to the 1960 population obtained by adding figures for the appropriate Census enumerators' districts. The potential populations were obtained by adding together, and sub-dividing where necessary, estimates for the Provincial Planning Districts.

Table 7/..

T A B L E 7

POPULATION ESTIMATES

Service Area	1970	Potential
Rondebosch	29,000	39,000
Claremont	31,000	50,000
Plumstead	21,000	43,000

Apart from the basic inaccuracy of all these estimates, the broad distribution of population is probably much less important than use intensity, small areas of high residential density and the concentrating effect of shopping centres, to a library location policy concerned with effective coverage by branch outlets. These problems will be considered in Chapter 4.

3-7 Branch Operating and Cost Comparisons.

Operating and cost comparisons for the five branches studied are given in Appendix C. Table 4. Although the author does not regard cost per issue as a valid measure of efficiency in terms of many of the generally accepted public library objectives, it does provide cost comparisons related to output in terms of a statistic universally recorded by public libraries.

The author's only purpose in examining costs was to ascertain whether the performance of one or more branches is far enough below par to suggest relocation or even elimination. The unit local costs per adult issue in Table 4 show three libraries deviating appreciably from the average of 6.8c per issue. The relatively low figure for Rondebosch is due partly to the fact that no rent or loan charges are included since it is located in an old municipal building. The slightly higher figure for Wynberg probably results from the extra costs of providing a wider and more specialised range of services. The substantially higher unit costs for Muizenberg is probably due to under-use of that branch as a result of its relative isolation within a small service area; planned expansion of Muizenberg's residential areas, however, will probably increase the use of this branch and reduce unit costs. The effect of adding the annual cost of new books is not known but might well accentuate these differences. As expected, the figures for unit total costs per adult

issue/..

issue show only slight variations thus indicating the masking effect of including overhead expenses.

The variations between branches are not of an order which might indicate the need for any drastic changes on this score alone. To allow comparison with future studies the method of distributing costs is set out in Appendix E.

CHAPTER 4-0 A LOCATION POLICY FOR THE SOUTHERN SUBURBS.

4-1 General.

What are the implications of the above analysis for the location of branch libraries in the Southern Suburbs? Does this interpretation of the survey and other data throw light on the controversial issues mentioned in Chapter 1?

The search for location criteria which these questions imply should of course rest not only on the pattern of existing usage, but also on the need to promote the generally accepted objectives of a public library service as well as on the internal requirements of efficient administration and available resources. Examination of these latter aspects is not part of this investigation and such criteria as are suggested in this chapter thus reflect a limited spectrum of factors; limited not only by the terms of reference of the investigation but also by the author's restricted resources. The concluding chapter of this report contains some observations relating to these broader aspects of library policy which must affect branch library location as well as some suggestions for further study and research.

Nevertheless, whatever the need for elaboration in the light of general library policy, the external factors partially examined in this investigation - user habits with social origins as well as purely physical factors such as distance, accessibility and concentration - are vitally important for effective library service since they strongly influence the use to which it is put.

The recommendations of certain eminent professional librarians are referred to in the following discussion. Since these are invariably backed by long lists of studies and investigations in many environments,

it is assumed that they have general application. Inferences and deductions from data collected during this investigation would on the other hand, have only local validity unless supported by similar investigations conducted elsewhere.

4-2 Location on 'Main Street'

The overriding importance of combined shopping and library trips which emerges from American studies (1,14 & 15) was not demonstrated in this investigation. By and large as many single purpose as multi-purpose trips were made. This does not, however, invalidate the emphatic and widely held view of librarians and some planners that the best site for a library, whether branch or central, is on 'Main Street' where peak pedestrian flows in suburb or city are to be found. The author considers this opinion valid for at least four reasons :

1. The almost overwhelming evidence, marshalled in particular by Joseph L. Wheeler (14 & 15) of the increased efficiency of library outlets so located. Many cases are cited of branches moved either onto or away from 'Main Street' where large gains or losses were substantiated by before and after statistics.

2. The investigation of branch libraries in the Southern Suburbs does indicate a very substantial proportion of multi-purpose trips. (65% of all day-users, except Saturday afternoons, who visited during sessions taking up 80% of the available 'open' time). It is not unlikely, therefore, that losses from this group of users would also be substantial if branches were re-located out of range of shopping centres. The sharp effect of a mere ¼ mile near the peak is clearly demonstrated by the use intensity profiles. Gains, on the other hand, are not made from existing users but from potential users who are not covered by this investigation. But what better location could there be for attracting potential users than one which is constantly in view of as many people as possible?

3. In/..

3. In the Southern Suburbs, and doubtless this applies elsewhere, the densest residential concentrations are normally found close to the suburban shopping centres and the very marked effect of these concentrations on the intensity of library use is also demonstrated. Walkers, one third of all library users and almost 60% of all users within a ¾ mile radius come mainly from such concentrations.

4. Location in shopping centres is also advantageous to those making single purpose trips to the library since most of the important local transportation routes, especially roads, converge onto these centres of commercial activity.

Despite the apparent difference in usage between the Southern Suburbs and many branch libraries in the United States in respect of multi-purpose trips, other considerations thus also point convincingly to a site as close to the hub of commercial activity as possible. Support for this view is contained in "A Survey of Library Users in Southampton" (13). In the South African context too, the Johannesburg Public Library Report (1960/61) had this to say about the relocation of one of their branches.

> "(The Yeoville Branch) was a pleasant place, with adequate staff and stock..... in the middle of a built-up residential area, near at least three schools, but the hope that it would be a very busy branch was never realised..... The answer was, that it was up a slight hill, four blocks away from the busy shopping centre, and so just too far out-of-the-way for people to visit. In the year since the move to the new premises, Yeoville has become a major branch; the staff of three has had to be increased to five: 3,376 new members were enrolled, and the circulation figure was almost double that of the previous year."

Research would probably bring many more such examples to light.

Criterion 1: The conclusion, then, is that a branch library site

should/..

should be as close as possible to the focus of a relatively important suburban shopping centre, and preferably closely associated with a substantial high density residential area.

4-3 Importance of Parking.

The availability of parking is undoubtedly important for any activity involving wide use of the private car. The author generally agrees with Wheeler's view (15) however, that since parking difficulty seldom deters business entrepreneurs from locating centrally, and since the function of a branch library is little different from, say a book-store, or any other service outlet, lack of parking is no reason to site a library half a mile away. Parking is a general problem requiring the best possible solution for the whole shopping centre.

The author considers, nevertheless, that parking is more important for branch libraries than for a central city library where all day parking, often a fair distance from final destinations, is the norm. Centrality, in the suburban context, could therefore be sacrificed, to some extent, to satisfy the needs of the car. Sites adjacent to car parks which are one block, or perhaps even two for large car parks, away from 'Main Street' should be acceptable particularly if the site is on a convenient pedestrian route from car park to shops.

Criterion 2: Branch library sites should, if possible, be close to parking provided this does not involve a location more than one or two short blocks from the main shopping thoroughfare.

4-4 Branch Library Spacing.

Criterions 1 and 2 narrow the location alternatives considerably. For a large urban sector such as the Southern Suburbs, however, it is obviously necessary to seek further qualifications. Guidance on the spacing of branches is needed and this depends primarily on two aspects of library policy, both related to the level of service to be provided.

First, is the definition of a system of library outlets capable of offering a combined service which will efficiently meet both the specialised and popular demand generated by the population of the whole metropolitan area.

Second/..

Second, is the degree of coverage which such a system should provide for any selected time period, depending not only on estimated demand but also largely on the resources allocated to libraries in competition with other public services. For these purposes it is assumed that the existing level of service within range of the five branches under consideration is acceptable for the present and foreseeable future.

4-4.1 A Hierarchy of Service Outlets.

In large urban areas the supply of most services normally displays a characteristic pattern. Basically a result of organic development, this pattern is generally accepted by planners in most fields as rational and efficient.

The system which has been described by many observers comprises, in broad terms, two or more types of outlet or supply point. At the top of a pyramid-like structure are outlets providing the widest range of goods and services. Since they serve the whole metropolitan region and beyond, they merit a location easily accessible to all in the Central Business District of the region. For a library service this function is usually fulfilled by a single Central City Library.

The rest of the structure is hierarchical with perhaps two, three or four levels within each of which are outlets of more or less the same size, serving more or less equal areas or populations and providing similar levels of service. Areas served by higher ranking outlets would include those served by lower ranking ones. All outlets in the system are complementary since, where those of different rank operate in the same areas, their main functions are different in that the higher ranking cater for an additional and more specialised demand. Higher ranking outlets often perform lower ranking functions as well.

There appears to be no reason why public library service outlets should not be planned on these lines. This investigation provides evidence, (the service area delimitation and use intensity curves for instance), that the five libraries studied do, in fact, operate at two distinct levels. Moreover, a similar structure is recommended by Wheeler and Goldhor (1), in their authoritative work on public library administration, as being appropriate for a large urban area. The annotated bibliography in "The Public Library and the City" (2) contains

references/..

references to many similar recommendations.

4-4.2 Local Branches.

Hierarchical systems of service outlets have been outlined because of a suggestion that larger libraries spaced at greater intervals might well be more efficient and economical than the present distribution of branch outlets in the Southern Suburbs. In the author's opinion such a choice arises only at the level of local outlets and the sub-regional function which Wynberg Branch evidently performs should not be allowed to confuse the issue. Wynberg does, in fact, serve as a local outlet as well but could probably perform this function adequately at a much reduced level of service. Its function as a sub-regional outlet is considered very important however and will be dealt with below as a separate component of a system for the Southern Suburbs. The following observations and suggestions thus apply only to local or suburban branches.

4-4.3 The 4-Branch Model.

Since it is assumed that the existing level of service in the Southern Suburbs is at least quantitatively adequate, guidance on the spacing of local outlets can reasonably be sought from existing usage. A common practice in analysis of this nature is to try to construct an idealised model using available data and then to draw inferences from the model which might be useful as a guide to planning. The use intensity profiles provide the best basis for such a model since, although they are clearly affected by local conditions, the profiles for the local outlets broadly display the same characteristics. Furthermore, these profiles provide a more meaningful picture of the functioning of such outlets than service areas or population estimates.

Since the Wynberg profiles present a combination of sub-regional and local function they were excluded and those of the four remaining branches were combined by weighting the usage indices for the various zone quadrants. The weighting was done by multiplying each index by the ratio of the relevant branch book issue to the 4-branch book issue and adding the results together. Figure 5 shows the east - west and north - south profiles so obtained as well as use intensity contours in plan view.

Assuming/..

Assuming that the three dimensional cone-shaped form defined by the use intensity contours represents the total usage of an average local outlet in the Southern Suburbs, these curves do suggest a very simple model which could be used as a rough guide for the spacing of local branches. The plan view is approximately eliptical in shape with the minor axis on the north-south line reflecting the affect of competition between branches. Distortion on the west side is due mainly to topographical restriction of development at Rondebosch and Muizenberg but also to the effect of competition from Wynberg on the Plumstead Branch. In general, however, if a fairly uniform network were being considered, a roughly circular shape would probably be normal.

The 'volume' of this conical form which lies directly above any selected portion of the base area (measured in terms of the average residential acreage of each zone) should provide a rough measure of the usage within this area as compared with the total usage represented by the total 'volume' of the form. Calculated on this basis 66% of the total usage generated by an average branch lies within a radius of ¾ mile from the branch while 82% lies within 1 mile and 97% within 1½ miles.

Over-elaboration on the basis of this admittedly crude model would not be justified and the author suggests that, in the absence of more refined guide-lines, the following two simple criteria provide an objective and rational evaluation of the existing usage.

Criterion 3: That a circular area with a radius of between ¾ mile and 1 mile from a local branch be regarded as the exclusive sphere of operation for that branch. Such outlets should therefore be between 1½ and 2 miles apart.

Criterion 4: That a reasonable level of service is available outside this limit as far as 1½ to 2 miles from the outlet. This would apply particularly between branches where these areas overlap.

4-5 Mobiles in Support.

If these criteria are accepted it follows that the establishment of a new outlet of some sort should be considered in areas beyond a range of 1½ miles from a local branch (stretched perhaps to 2 miles where

competition/..

competition from another branch is absent). Wheeler and Goldhor (1) warn, however, that inadequately supported branches in fixed accommodation are normally uneconomical and can seldom provide a better level of service than lower ranking outlets such as the more economical mobile depots.

Such conditions will probably be found on the outer edges of this White-occupied corridor between forest reserves and the non-White Group Areas; only restricted shopping facilities and flat development are likely in these areas. Mobile units might therefore be effectively used to supplement the service provided by permanent branches in areas inadequately served by a spine of such libraries located along the Main Road and railway line.

The higher income groups who will probably occupy the western periphery of the Constantia Valley apparently show little interest in the library service (very few respondents come from comparable areas such as the Hohenhort Valley, Bishopscourt and Wynberg Hill).

4-6 Wynberg - A Sub-Regional Branch.

The service offered by local branches is adequate for most users. In a large and growing metropolitan area, however, the library service cannot rely entirely on its main central library to provide the whole metropolitan population with the wide range of specialised and quality services which is an essential part of the public library function. An appreciable proportion of jobs as well as homes are now located outside the city centre and this trend continues. Specialist library service should therefore also be decentralised to some extent. The needs of the outlying areas are probably more modest than those of the central city, however, and facilities needed at sub-regional branches would be such that they would naturally form a level of lower ranking outlets as compared with the Central Library.

The author's investigation did not provide any information which could be used to assess the demand for such specialised service in the Southern Suburbs, but it is suggested, as judged from the size of the Wynberg service area, that one such sub-regional outlet would be

sufficient/..

sufficient to serve the Southern Suburbs. Wynberg Branch is centrally located within the whole area and associated with a major shopping centre. It already provides widespread service which approximates a sub-regional function. It is the author's personal view, however, that if Wynberg is to serve the specialised needs of the whole of the Southern Suburbs, its level of service should be improved substantially when the opportunity presented by the construction of the Wynberg bypass materialises.

The total potential population for the whole area under consideration is estimated at some 275,000 persons which, by American standards, would warrant provision of a major sub-regional branch equipped, to some degree, with most of the facilities normally available at a central city library.

4-7 The Civic Centre cum Library.

The two branch location criteria, over which there is the greatest degree of unanimity among both librarians and planners (1, 2, 12-15, 17-21) would seldom be satisfied if libraries were combined with suburban civic centre projects. These are almost invariably located some distance from the centre of commercial activity on relatively spacious sites and are almost deserted during the day. Libraries and civic centres play essentially different roles in the life of the community and combination of the two should not be allowed to provide an easy way out of the difficulties and initial expense of acquiring well located library sites.

In particular neither the Claremont Civic Centre nor the proposed Rondebosch Centre provide satisfactory sites for branch libraries. To move further afield, the proposed Sea Point Civic Centre Complex provides another example of a library to be located far from the heart of the most important shopping and the densest flat development.

4-8 Further Comments.

The four local branch location criteria suggested above, as well as the proposed expansion of the Wynberg Branch as a sub-regional outlet, rest not only on the service area delimitations and use intensity profiles, but also on the analysis of user characteristics by distance and, in many respects too, on the general analysis of the results of the questionnaire survey presented in Appendic C.

The/..

The importance of the relatively small local branch to the majority of library users is underlined again and again in these analyses. The frequent use of local outlets by a spatially concentrated body of readers, many of them elderly, many no doubt without private transport, and many who may need the library to strengthen tenuous links with society at large, all emphasise the vital need for short range accessibility.

Familiarity with congested highways should not lead to the mistaken conclusion that all families have cars, or that a library which is within range by car is accessible to everyone. It has been estimated by the Automobile Manufacturers Association of Detroit (16) that, even in affluent America, 23% of all households did not own a car; that 46% of all households with incomes under $3,000 had no car; that 48% of all households headed by persons over 65 years of age had no car; that 24% of all individuals over the age of 20 were not licensed to drive (estimates for 1964).

The ratio of White owned cars to White population in South Africa is below the American average and there is consequently every reason to believe that a substantial proportion of the White population would be deprived of a library service if branches were inconveniently located or located too far apart.

CHAPTER 5-0 TENTATIVE BRANCH LOCATIONS IN THE SOUTHERN SUBURBS.

5-1 General.

The suggested locations for branch libraries shown on Map 5 generally satisfy the criteria suggested above and could, with other facilities of a lower order, eventually provide a service over the whole area more or less equivalent to the level now enjoyed by the northern portion. The fact that virtually no change to existing locations is recommended despite the probable rebuilding of at least three of the branches within the next few years, is not surprising since the criteria practically eliminate alternative general locations for existing branches. No attempt has been made to pinpoint sites, except where these have already been suggested by others, or to estimate the sizes of libraries required; both these aspects are beyond the scope of this investigation.

It/..

It is perhaps worthwhile repeating that the location criteria used rest basically on the function of local branches as equally ranking units within a hierarchy of library outlets. In this sense, all the branches with the exception of Wynberg perform essentially similar functions and provide essentially similar service. Short comments on each branch location follow.

5-2 The Rondebosch Branch.

The existing Rondebosch Branch is fairly well located but is unsatisfactory accommodation; the approach is poor, space is inadequate, and the adult section is on the first floor. It is generally agreed that a new library is urgently required and since a new civic centre is to be sited elsewhere at some future date it is unlikely that the Town Hall will be demolished immediately to make way for a library on the existing site.

In any event, library operation would benefit from a site more closely associated with the shopping centre and it has been suggested that such a site, a short distance to the north, between the Main Road and the Liesbeeck River might become available. Map 5 shows the approximate position of this site.

5-3 The Claremont Branch.

New accommodation for the Claremont Branch is probably even more urgently required than for Rondebosch. Its present accommodation, though well located on the Main Road, is very cramped and on the first floor of an old building. A number of alternative sites have already been investigated and the one favoured is located near the hub of shopping and is easily accessible from both the Main Road and proposed Main Road by-pass. It is adjacent to a large parking area no more than one block from the Main Road. The suggested location is also shown on Map 5.

5-4 The Wynberg sub-Regional Branch.

The present accommodation of the Wynberg Branch is an attractive free standing building located within 1½ blocks of the Main Road shopping

and/..

and close to large parking areas. This library, however, is affected by the proposed Wynberg Main Road bypass which is likely to be constructed within the next few years. After its construction the main parking areas will be west of the bypass which will be raised at this point to provide ground level through access for pedestrians from car parks to shopping centre.

, The most satisfactory site for the Wynberg Branch would be on this pedestrian route between the bypass and shopping facilities. Since this branch is proposed as the main sub-regional library for the Southern Suburbs, however, it will clearly require a relatively large site, difficult to obtain in such a position. It has been suggested therefore, that the new library be built in the north east corner of Maynardville on Church Street and next to a large parking area. This site is about 2 blocks from the intersection of Church Street and the Main Road which is probably the busiest intersection in Wynberg. In the circumstances, and considering the special needs of the Wynberg Branch, the site as shown on Map 5 is considered the best available.

5-5 The Plumstead Branch.

The Plumstead Branch is at present well located a short distance off the Main Road near the centre of the small Plumstead shopping centre. It is rather close to Wynberg however, with a substantial overlap within the range of ¾ mile from each. It is, nevertheless, closely linked with existing flat development and local arterial roads and there appears to be no reason at present to alter its location.

The potential population in the Plumstead service area is likely to increase considerably (see Table 7) and, in due course, it will doubtless become necessary to increase the size of this branch. At this later stage it is also likely that development of areas zoned for flats will result in the centre of gravity of such development moving southwards and westwards. Expansion of the commercial activity is also likely to be westwards and to some extent southwards. It is suggested therefore, that a site for the future Plumstead Branch should be secured somewhere on the west frontage of the Main Road between Adelaide Road and the proposed intersection of Victoria Road, Gabriel Road and the Main Road. This location, shown approximately on Map 5, would also improve the relative

positions/..

positions of the Plumstead and Wynberg branches without materially affecting the position of Plumstead within its own service area.

5-6 The Muizenberg Branch.

The Muizenberg Branch is also well located. Information obtained from the survey and other studies indicate that it is under-used but plans for the development of a large housing estate to the east are likely to increase the support for this branch substantially. The existing library is located on the line of travel between these areas and the shopping centre.

Consideration should nevertheless be given to the benefits which might accrue from relocating the branch closer to the shopping centre to take advantage of the pedestrian flows along the proposed promenade and pedestrian railway overpass to the newly developing shopping and flats west of the line. A possible location would be in association with the proposed tower block project at the western end of the beachfront promenade.

5-7 Two Proposed Local Branches.

There is a wide gap between the Plumstead and Muizenberg Branches due largely to the very narrow corridor of White occupied territory within the city limits; from Plumstead Southwards virtually all development west of the Main Road is presently controlled by the Divisional Council of the Cape. The following suggested locations of two additional branches ignore this political boundary, not only because it is likely that these residential areas will sooner or later be incorporated within the city, but also because it would be irrational to allow local authority jurisdictional areas to govern the development library services. The other political boundary (Group Areas) is a real one functionally because it is State and Provincial policy to provide the non-Whites with separate facilities.

Development south and west of Plumstead is still insufficient to justify the provision of additional branches immediately. The Bergvliet and Meadowridge areas fall virtually entirely within range of 1½ miles from Plumstead and existing population is not sufficient to support a

separate/..

separate branch. Development of areas further to the south, having a high population potential, is at present restricted by the difficulty of providing adequate sewerage services. It is expected however that this limitation will soon be removed when fairly dense housing development will probably take place rapidly. To cater for this development two future library sites are suggested. The first is at the northern end of the Heathfield shopping centre and the second is associated with the existing shopping centre on Tokai Road where likely expansion will include office blocks and a fairly large area of flat development.

Two other locations were considered. One, at the proposed new Alphen commercial centre and the other at the existing Southfield centre on Victoria Road near the Cape Flats Line.

The former is likely to be patronized by those living in low density and high income residential areas to the west where potential populations are low, as well as by those to the east who are well within range of the Wynberg and Plumstead Branches. There is unlikely therefore to be adequate support for a Branch located at Alphen.

The author can find little justification for the proposed new branch at Southfield since this small shopping centre is located less than a mile from Plumstead in an area at present well served by both the Wynberg and Plumstead Branches. There is little doubt in the author's mind that the resources to be utilised for the proposed Southfield Branch would serve a better purpose if used to ensure the future of the Plumstead Branch and to provide peripheral services of a lower order where these are required.

5-8 Mobile Depots.

It will be noted from Map 5 that there are areas both in the west and east which are outside the 1½ - 2 mile radius circle considered to approximate the limits of a local branch activity. Residents in the west are likely to have high mobility and to be attracted in the main to the Wynberg Branch; the provision of mobile depots in these areas is probably unwarranted. On the east, however, it seems desirable to supplement the services provided by local permanent branches by a mobile service which might well operate efficiently from Wynberg.

5-9 Comment/..

5-9 Comment

In the author's opinion the system of branch outlets suggested above provides a rational application of the criteria developed. Branches are located about 1½ miles apart in association with well established, though in some cases small, shopping centres. Areas of proposed or existing flat development (shown coloured yellow on Map 5) are within short range of each. Wynberg fits into this system as a local branch and is well located for its primary function as a sub-regional branch. The suggested relocation of Plumstead is debateable as is the possibility of inadequate support for the suggested Heathfield Branch which is so close to the Group Areas border. In the latter case consideration was given to a possible site within Bergvliet; the Heathfield shopping centre was preferred however, because it is well used by Bergvliet residents and is also close to areas likely to be developed with flats.

It should be noted, that some of the general residential areas coloured yellow are not so zoned at the moment. The possibility of their development for general residential or commercial purposes is likely to be considered, nevertheless, once sewage disposal difficulties have been overcome.

CHAPTER 6-0 SOME GENERAL CONCLUSIONS.

The author paid the penalty of stepping outside his field for this thesis study by having to do a considerable amount of 'background' reading in order to acquaint himself, to some extent at least, with the basics of librarianship.

While undertaking this rewarding exercise the author was often tempted to apply thinking commonplace in his own and allied fields to the strange but well-trodden field of librarianship; clearly a hazardous procedure but one which occasionally bears fruit. As a result the author offers the following general conclusions which occurred to him during the course of this study and which may prove useful to others.

6-1 Broad/..

6-1 Broad Objectives and Priorities.

Virtually every recommended text studied by the author (admittedly a narrow sample but including authoritative opinions and official statements of Library Associations of New Zealand, South Africa, Britain the United States and Canada) lists and discusses a series of broad social objectives. While there are some differences of course, the impression gained is one of surprisingly solid unanimity in an era of rapidly changing social relationships.

These objectives are not always consistent, however, and can, in certain contexts, become mutually exclusive. Nearly every situation requires the weighing of one against another, particularly in respect of the apportionment of limited financial resources. Yet few of these texts make more than passing reference to the crucial problem of assigning priorities or give much guidance on the principles involved.

Admittedly different situations or changing circumstances will require revision of priority orders but there are many typical situations to be found in the South African context which could be selected and examined with a view to recommending priorities as a useful general guide to librarians. This is suggested as a fruitful avenue of research.

6-2 The "Systems" Approach and Measures of Efficiency.

One of the by-products of the American space and defence programmes is the increasing use in fields of human activity of what is currently called "systems analysis". More easily adapted to technology, it is now being applied, admittedly in a limited way, even to the less exact social sciences. One of the central concepts of this approach is that objectives should be more closely defined so as to facilitate measurement of the effectiveness of practical programmes or alternative programmes in terms of these objectives.

The need for such assessment has, of course, been long recognised but the means of measuring the complexity of factors involved in human relationships have so far been inadequate. Much progress in this respect has been made in recent years, however, and, while it is not suggested

that/..

that the "systems approach" could possibly be rigorously applied to a public library service, study and research directed towards a closer definition of public library objectives as well as the evolution of a systematic approach to the measurement of service effectiveness and efficiency, in terms of these objectives, would assuredly have beneficial results. At worst, this approach would foster a greater awareness of the importance of general aims, not simply as a vague guide to action, but as essential elements of the process of development and as useful management tools.

For instance, a measure of efficiency widely used apparently by American librarians is the cost per book issue or unit of circulation. While this may give some rough idea of the relative efficiency of branches operating in similar environments it gives virtually no indication of their effectiveness in terms of even the most limited set of service goals. If investments are recommended on this basis alone public library objectives are liable to be overlooked. The author does not believe this to be the case, but is a little surprised that no better tool has been evolved for general use.

6-3 The 'Marginal' User or 'Marginal' Non-User.

In terms of the abovementioned measure of service, expansion means only a larger issue and efficient expansion means a larger issue at lower unit cost. Few librarians would accept this definition, of course, but in terms of more than one broad objective, expansion might also be defined as a higher proportion of 'quality' reading even at the cost of a drop in circulation or membership. This definition would probably be unacceptable as well since a person's reading quality cannot be improved when he hardly reads at all.

It is consequently vital for a public library to expand, in part at least, by holding or attracting the 'marginal' user or 'marginal' non-user (to borrow an economic term).

A 'marginal' user could be described as a person who either decides to use, or to stop using, one or more of the facilities offered by the Public Library as a result of some change in the internal or external operating characteristics of the Library.

External/..

External factors would include a general or individual rise in income or educational standard, a change of residence or residential development, library relocation, an improved road system, etc. Among internal factors would be an increased library budget, expanded or additional services, longer or amended opening hours, improved public relations, etc.

If then, the 'marginal' user is so important, can he be identified by his dominant characteristics? A single set of characteristics would hardly suffice; there are more likely to be a number of types for each category of service rendered. It should greatly assist the drafting of desirable expansion programmes if, through research, the significant types of 'marginal' user could be defined with special reference to library objectives.

An experienced librarian might well be able to answer these questions, but the temptation to assume too much from the characteristics of existing users should be resisted. User surveys are unlikely to provide valid answers; experience in other fields, particularly marketing, indicates that the 'marginal' user is not necessarily average.

'Marginal' users thus deserve closer attention. Reliable survey methods are needed to gather information on their habits and preferences, on relevant socio-economic factors and on 'marginal' types who would best serve a selected set of library objectives, as well as the priorities appropriate to any particular context.

The survey under review demonstrates, for instance, that the number of male, especially employed male users is below the population average. It follows that there are likely to be relatively more 'marginal' non-users in this category than among, say, unemployed housewives. It has also been shown that, for obvious reasons, men are heavily over-represented compared with the sample average during the evening sessions. If the desirability of encouraging library use by employed men is accepted, then longer evening sessions, even at the expense of daytime opening, would be justified particularly as this would also encourage other desirable practices linked with evening sessions.

6-4 Branch Identity.

It is evident that each suburban branch library has, in a sense, its own identity; a distinction recognised by most of its users. Factors involved are manifold but probably include library size, staff, accommodation, location, character of its service area and the population served. Decisions relating to the extension, curtailment or even elimination of such individual outlets should not therefore rest solely on measurable quantities and trends such as the book issue or the unit cost of operation.

Statistics indicate, for instance, that the Rondebosch Branch is a particularly healthy one. One might therefore be tempted, without making a careful study of the reasons for this, to assume that Rondebosch is ripe for expansion and that its services should be extended to approximate those at Wynberg. This could, however, be quite the wrong thing to do since the branch's function might change radically to impair the 'local library' attraction it now possesses. Alternatively, there may be no warrant for a sub-regional facility so close to Wynberg and such expansion would not only be uneconomical, but would dilute the use of Wynberg as well.

6-5 Limitations of Study.

The author's purpose in commenting briefly on the above matters is mainly to point to possible avenues of research and to mention some of the difficulties he encountered in coming to grips with the theme of this study. The opportunity is also taken to emphasize the shortcomings of this investigation as a vehicle for the preparation of a development plan to which these matters, inter alia, are relevant.

Bearing these limitations in mind the survey has, nevertheless, been successful in providing the data base for a wider insight into operational conditions and into some aspects of the social environment within which the branches function.

Date: 15th October, 1969.

A.E. THORNE.

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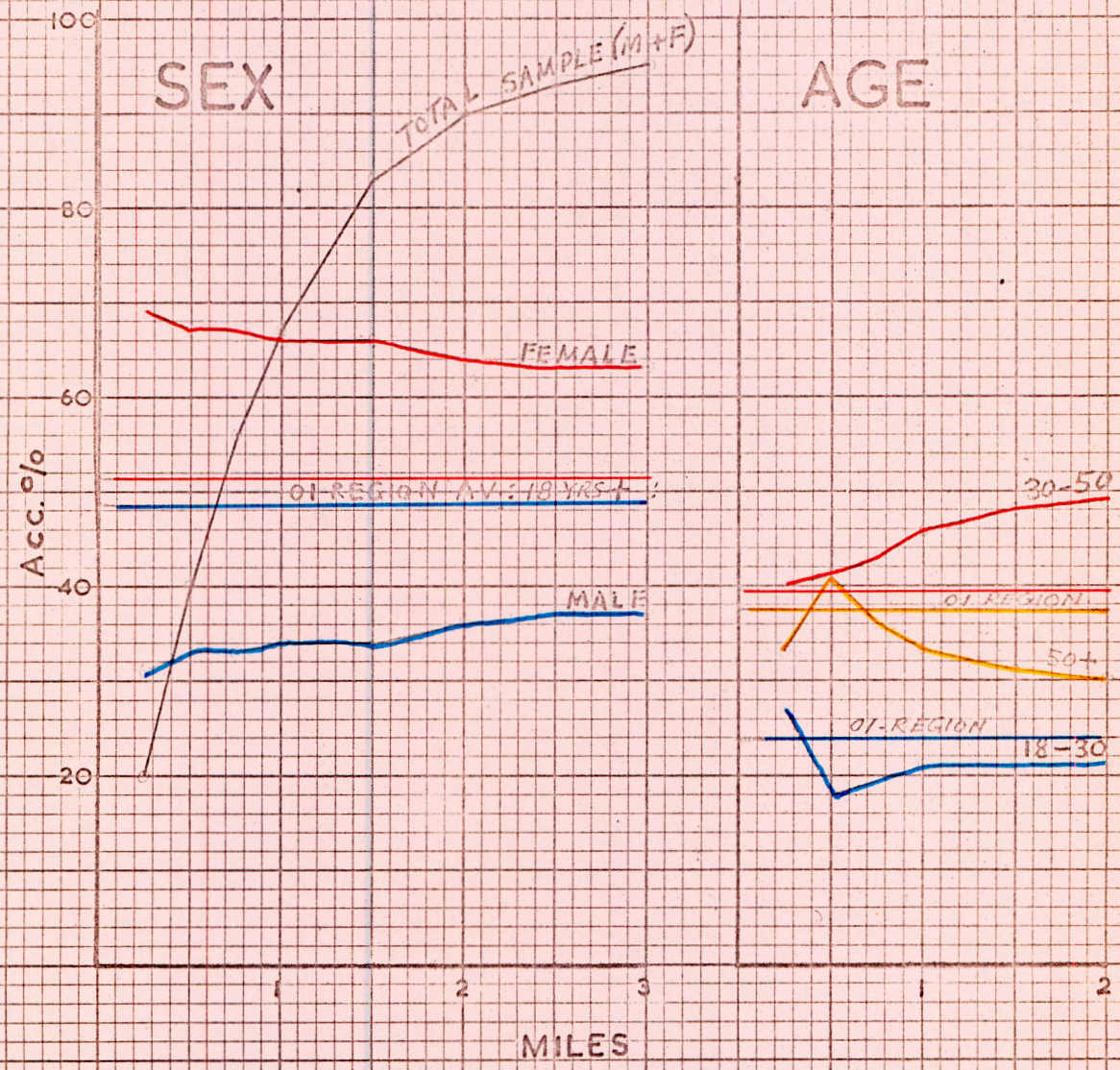
FIG. 2
TOTAL SAMPLE Nº = 835



RATIO: $\frac{\text{SAMPLE \%}}{\text{01 REGION \%}}$

FIG. 1

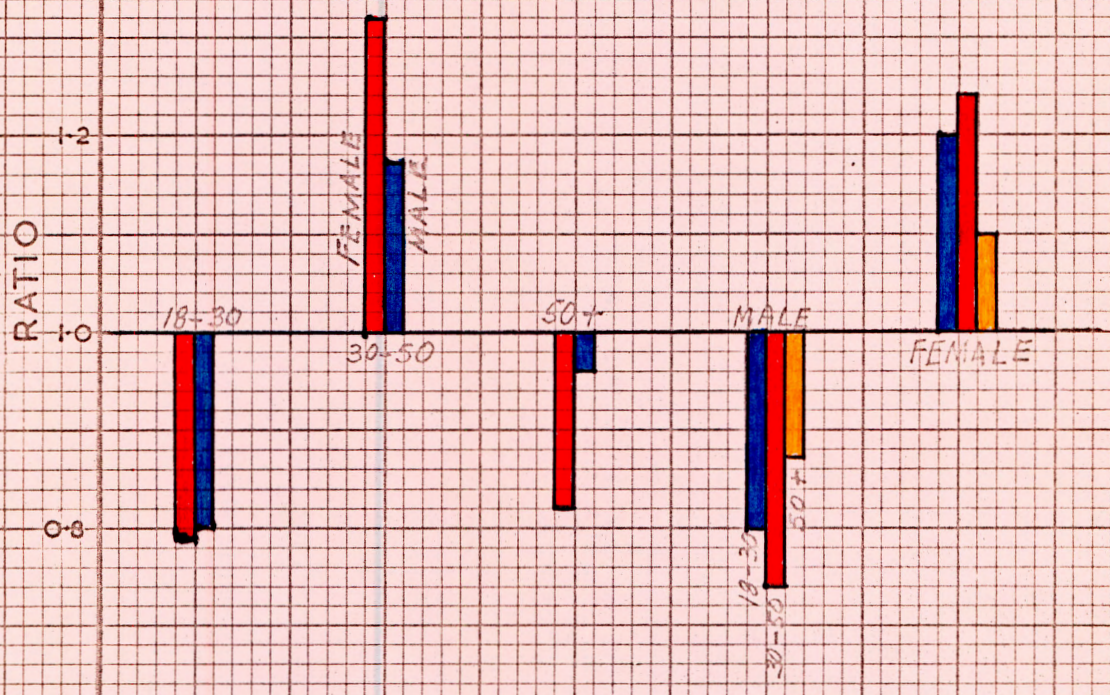
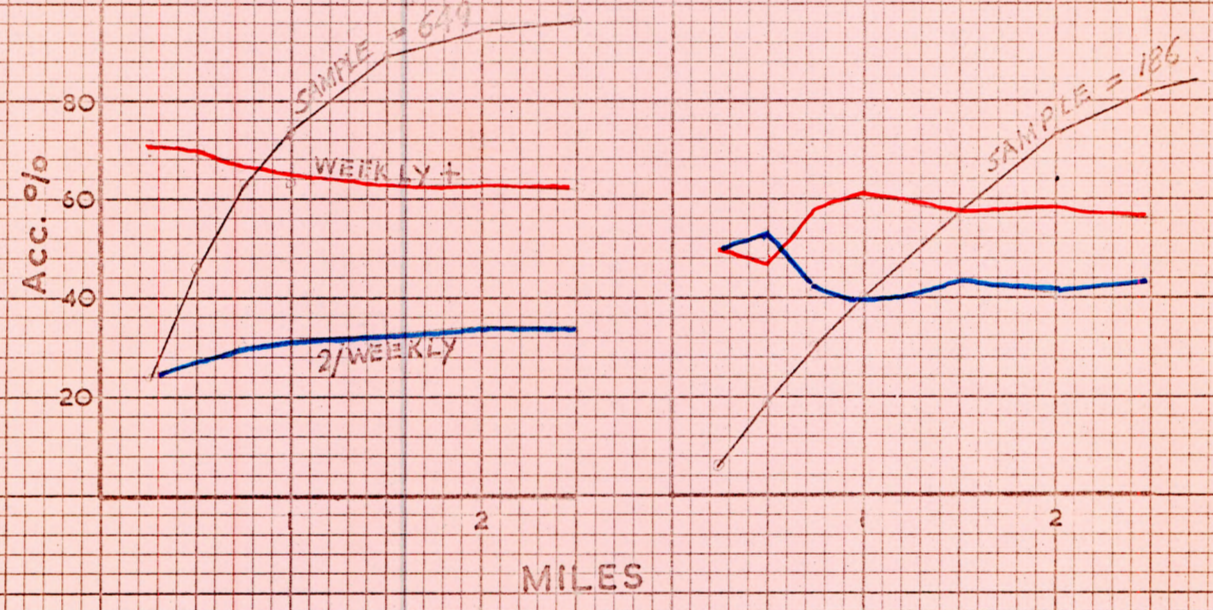


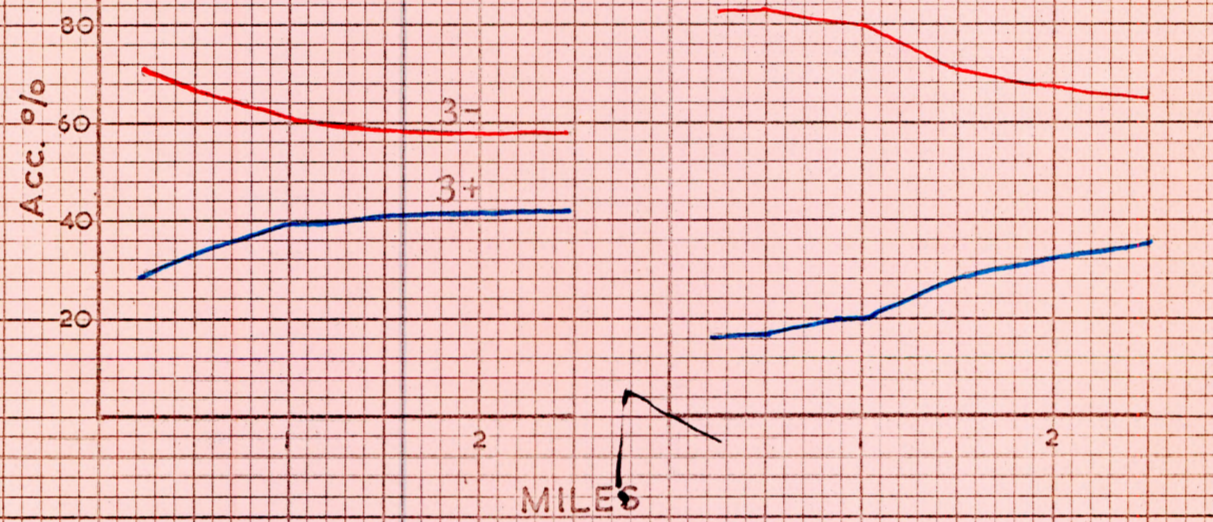
FIG. 3

THE REST WYNBERG

(a) VISIT FREQUENCY



(b) No. BOOKS BORROWED



(c) TRANSPORT MODE

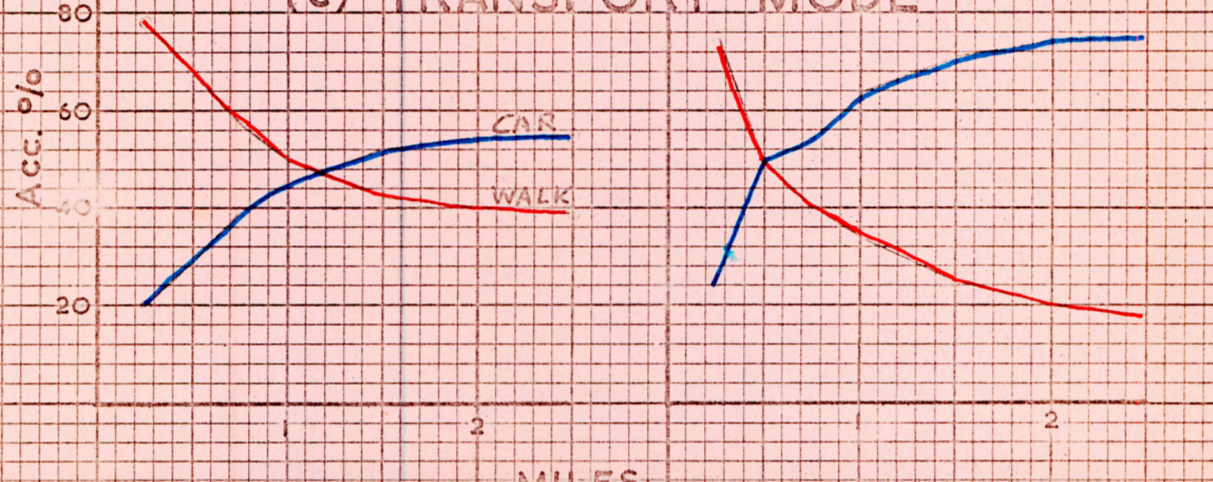
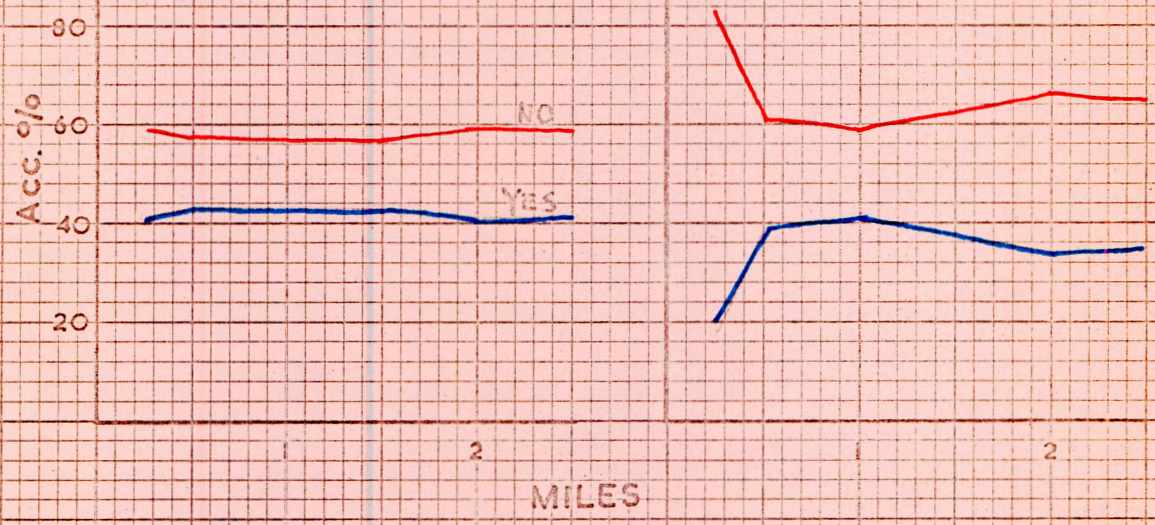


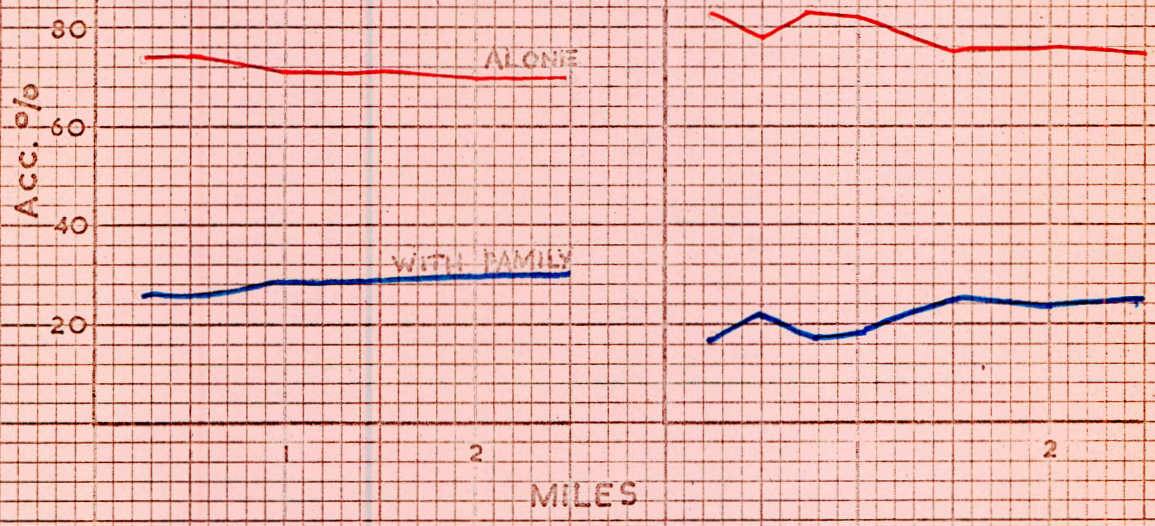
FIG. 3

THE REST WYNBERG

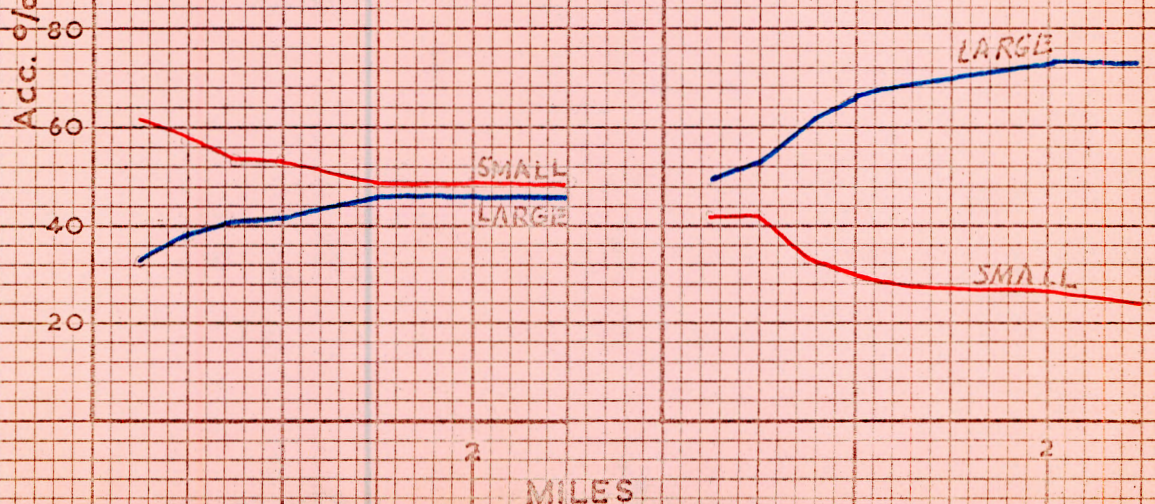
(d) MULTI-PURPOSE TRIPS



(e) ALONE OR WITH SOME FAMILY



(f) LIBRARY SIZE PREFERENCE



APPENDIX A

RELIABILITY, BIAS, CONFIDENCE INTERVALS AND LEVELS OF SIGNIFICANCE

The reliability of results from a sample survey depends on the accuracy with which the sample reflects the 'population' as a whole; the extent to which it is representative of this 'population'.

Bias is introduced into the results from a survey when one or more sections of the 'population' are over-represented in the sample. Results are likely to be biased in favour of this group.

The confidence interval refers to the spread of a particular result which is likely to occur through chance variations when a number of fully representative samples of the same size are taken from the same 'population'. The confidence interval will also vary for different levels of significance required of the particular result. If, for instance, an investigator is prepared to accept as true, a result which will occur at least 95 times if the same experiment is repeated 100 times then he would be satisfied by a 5% level of significance.

A fully representative sample, then tends to give reliable results. Bias reduces reliability which can be restored if the extent of the bias is known and compensated for; more often than not a very difficult procedure. The confidence interval of a particular result depends largely on the size of the sample and the proportion within the sample, but also to some extent on the size of the 'population' from which the sample is taken. Table 1 gives confidence intervals for various sample sizes and various proportions of a sample taken from an infinite or very large 'population'. A reduction in 'population' size has the effect of narrowing the interval for the same sample size. This variation of the interval with sample size and proportion within the sample can best be illustrated by an example.

Sample sizes taken at each library approximated 150 while the total sample was 835. Assuming that, in both the branch sample and the total sample, the proportion of car users was 50%, it will be seen from Table 1 that the confidence interval (twice the margin of error) for the

sample/..

sample of 150 is 50% + or - 8.2%. In other words, for a significance level of 5%. 95 samples out of 100 taken from this 'population' will show a proportion of car users lying between 41.8% and 58.2%. For the sample of 1000, however, the interval would be + or - 3.2% giving limits of 46.8% and 53.2%. The margin of error is therefore less than half that of the smaller sample. Had the proportion been 90% or 10% rather than 50%, the margin or error for the large sample would have been further reduced to + or - 1.9%.

The correcting effect of the smaller 'populations' which usually correspond with smaller samples should not be relied on and is usually neglected. Where sample sizes are small and proportions are below 20% confidence intervals should be taken from Table 2 since in these regions the normal approximation to the binomial confidence limits is inaccurate. In this case the correction can be made for 'population' size by multiplying the + or - margin of error by $\sqrt{1 - \frac{n}{N}}$ where n is the sample size and N is the 'population' size. Assuming a sample size of 150 and a 'population' of 1500, this factor would be 0.95, hardly a significant reduction.

TABLE 1

PROBABLE PERCENTAGE MARGIN OF ERROR (+ or -)

Results will fall within these limits in 95 out of 100 cases

Number of interviews in sample	PERCENTAGE REPLY									
	95% or 5%	90% or 10%	85% or 15%	80% or 20%	75% or 25%	70% or 30%	65% or 35%	60% or 40%	55% or 45%	50% or 50%
100	4.4	6.0	7.1	8.0	8.7	9.2	9.5	9.8	10.0	10.0
150	3.6	4.9	5.8	6.5	7.1	7.5	7.8	8.0	8.1	8.2
200	3.1	4.2	5.1	5.7	6.1	6.5	6.7	6.9	7.0	7.1
300	2.5	3.5	4.1	4.6	5.0	5.3	5.5	5.7	5.7	5.8
400	2.2	3.0	3.6	4.0	4.3	4.6	4.8	4.9	5.0	5.0
500	1.9	2.7	3.2	3.6	3.9	4.1	4.2	4.4	4.5	4.5
1,000	1.4	1.9	2.3	2.5	2.7	2.9	3.0	3.1	3.1	3.2
1,500	1.1	1.5	1.8	2.1	2.2	2.4	2.5	2.5	2.6	2.6
2,000	1.0	1.3	1.6	1.8	1.9	2.1	2.1	2.2	2.2	2.2
3,000	0.8	1.1	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.8
4,000	0.7	0.9	1.1	1.3	1.4	1.4	1.5	1.5	1.6	1.6
5,000	0.6	0.8	1.0	1.1	1.2	1.3	1.3	1.4	1.4	1.4
6,000	0.6	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.3	1.3
10,000	0.4	0.6	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.0

TABLE 2

CONFIDENCE INTERVALS

(Small Samples and Proportions)

Level of Significance: 5%.

Proportion in Sample	Confidence Limits for Sample of					
	100	200	300	400	500	1000
2%	0.2- 7.0%	0.6- 5.0%	0.9- 4.2%	1.0- 3.8%	1.1- 3.6%	1.3- 3.0%
3	0.6- 8.5	1.1- 6.4	1.5- 5.5	1.6- 5.2	1.8- 4.8	2.1- 4.2
4	1.1- 9.9	1.7- 7.7	2.2- 6.8	2.4- 6.4	2.5- 6.0	2.9- 5.4
5	1.6-11.3	2.4- 9.0	2.8- 8.1	3.1- 7.6	3.3- 7.3	3.7- 6.5
6	2.2-12.6	3.2-10.2	3.6- 9.3	3.9- 8.8	4.1- 8.4	4.6- 7.6
7	2.9-13.9	3.9-11.4	4.4-10.4	4.8- 9.9	5.0- 9.6	5.5- 8.7
8	3.5-15.2	4.7-12.6	5.2-11.6	5.6-11.1	5.8-10.7	6.4- 9.8
9	4.2-16.4	5.5-13.8	6.1-12.8	6.4-12.2	6.7-11.8	7.3-10.9
10	4.9-17.6	6.2-15.0	6.9-14.0	7.2-13.4	7.5-13.0	8.2-12.0
11	5.7-18.8	7.1-16.2	7.7-15.1	8.1-14.5	8.4-14.1	9.2-13.1
12	6.4-20.0	7.9-17.3	8.6-16.2	9.0-15.6	9.3-15.2	10.1-14.2
13	7.2-21.2	8.7-18.4	9.4-17.3	9.9-16.7	10.2-16.2	11.0-15.2
14	7.9-22.4	9.5-19.6	10.3-18.4	10.8-17.8	11.1-17.3	11.9-16.3
15	8.7-23.5	10.4-20.7	11.2-19.5	11.7-18.9	12.0-18.4	12.9-17.4
20	12.7-29.2	14.7-26.2	15.6-25.0	16.2-24.3	16.6-23.8	17.6-22.6

APPENDIX B

THE QUESTIONNAIRE

The questionnaire (copy follows), the same for each library, was designed to produce information from the sample relating to thirteen different characteristics, ten to be provided directly by the respondent and three by the interviewer.

The first was the time of visit; morning, afternoon and evening on an ordinary week day as well as morning and afternoon on a Saturday. Significant variations in the occurence of different characteristics during these periods was considered likely.

Question 1 was included to establish the extent to which one library was exclusively used by respondents, and Question 2 to establish which of the adjacent libraries were used, if any. The Central City Branch was added as a likely alternative for those working in the central city.

Question 3 relating to the frequency of library visits was included because the characteristics of frequent users would presumably be of greater importance for branch library policy than those of other users. Question 4 on the number of books borrowed was added to round off and clarify this aspect.

Question 5 on the transport mode used for library trips is a very significant one for any study dealing with distance. It should also yield interesting relationships with other characteristics.

Question 6 dealing with multi-purpose trips to the library has obvious and important implications for location policy.

Question 7 was included to give some measure of the extent to which library visiting is a family activity as this is thought to have some social significance. It would also give some indication of the visits made "by proxy."

Question 8 was added to throw light on a controversial issue of importance in the drafting of a development plan for branch libraries in the Southern Suburbs. In practice, as explained above, the validity of results from this question is, to some extent, doubtful.

Question/..

Question 9 was included largely to differentiate between those employed and those not employed and provide a comparison with the metropolitan average. Sub-categories were added to provide further information which could be useful in the analysis.

Residential addresses (Question 10) were needed to locate the home of each respondent on a map. This information provides the basis for service area delimitation and a study of the relation between user incidence and distance.

The sex of respondents and an estimation of age within broad categories was obtained to provide a basis for comparison with metropolitan averages; over-representation of women was indicated by the results of the trial sampling carried out at the Claremont Branch. Differential characteristics by sex and by age could have important implications for branch library policy.

CAPE TOWN CITY LIBRARIES

BRANCH LIBRARY QUESTIONNAIRE SURVEY

BRANCH: PLUMSTEAD (7) JUNE, 1969.

Monday or Thursday			Saturday	
morning	afternoon	evening	morning	afternoon
○	○	⊗	○	○

Question 1: Do you always or nearly always make use of this Library?

Yes ⊗ No ○

Question 2: Which other library do you use most frequently?

Wynberg ○ Muizenberg ○ Central City ○ No other ⊗

Question 3: How often, on the average, do you borrow books and/or use other library facilities such as gramophone records, periodicals, reference books, etc.?

About once a week or more often ○ About once a fortnight ⊗ About once a month or less often ○

Question 4: How many books have you taken out this visit?

3 or less ○ More than 3 ⊗

Question 5: What transport did you use to make this trip to the library?

car ⊗ bus ○ train ○ walk ○

Question 6: Do you intend, on this trip, to use the shopping centre for other purposes; for example:- shopping, work, dry cleaner, hairdresser, doctor, cinema, restaurant meal?

Yes ○ No ⊗

CARD PUNCHING DATA.

COL.	1	5	10	15	20	25	30	35	40
ZONE	05								
TIME		1							
Q1			1						
Q2			1						
Q3				1					
Q4				1					
Q5					1				
Q6					1				
Q7						1			
Q8							1		
Q9								1	
SEX								1	
AGE									1

Question 7: Have other members of your family come with you to make use of the library?

Alone: (No family/) (not living with family)	Alone: (books for family)	Alone:(books) (for self)	With some family
○	○	○	⊗

Question 8: If you had a choice between:

A: A small library occupying a ground floor shop in a shopping centre about ½ to 1 mile from your home, containing small but well-selected collections of books for adults and children. Parking would be difficult during the day;

OR

B: A large library in its own building with large book collections in separate rooms for adults and children, a reading room with periodicals and reference books, a gramophone record section, art prints, and a reasonable amount of parking available day and evening - but 2 to 3 miles from your home;

Which would you most probably use?

small	large	undecided
○	⊗	○

Question 9: Where do you work

Plumstead	City Centre	Elsewhere	Not employed: Housewife	Pensioner	Other
○	⊗	○	○	○	○

Question 10: What is your HOME address? (NO NAME REQUIRED)

A. E. Jones.
6 Hall Street.
Suburb Plumstead.

For interviewers ONLY

1. State SEX of respondent.

MALE	FEMALE
⊗	○

2. State estimate of respondent's AGE.

18 - 30 years	30 - 50 years	over 50 years
○	⊗	○

CAPE TOWN CITY LIBRARIES

BRANCH QUESTIONNAIRE SURVEY.

JUNE, 1969

NOTES TO INTERVIEWERS

GENERAL

1. Purpose of Survey: The purpose of the questionnaire survey is to collect data on the preferences and habits of a representative sample of white adult library members. The questions relate especially to the problem of siting branch libraries in optimum positions for the needs, preferences and habits of members..

2. Introduction: Interviewers should choose a few suitable introductory remarks pointing out that the questionnaire is official, confidential and should only take a minute or two; the purpose being to study habits and preferences of readers as a guide for location of new and replacement libraries.

3. Questions and Answers: The questions have been carefully designed to be appropriate for a rapid interview and to throw light mainly on factors external to the branch library itself and relevant to certain conflicting policies as to the best locations for branch libraries. The answers will be coded for processing by computer and with some exceptions (dealt with below) are mutually exclusive and cover a full range of answers. The interviewer should follow the text of the questionnaire as closely as possible; ask the question and then offer the answers as they appear from left to right.

   If the choice of answers does not provide exactly for the respondent's reply, the most appropriate answer should be chosen. It is most important THAT ONLY ONE ANSWER BE CHOSEN TO EACH QUESTION. That answer should be marked with a cross in the circle provided.

4. Sampling Method: A sample will reflect the total population studied fairly accurately only if it is drawn at random or care is taken to make it representative of the whole. Random samples are virtually impossible to get in practice and it has been agreed that a fairly representative sample will be obtained by choosing members at random who visit the library during specific periods on a Monday, Thursday and Saturday of a particular week. To compare samples from a number of libraries this must be done at the same times on the same days in

all/.....

all of them. The sampling times at the Muizenberg, Plumstead, Wynberg, Claremont and Rondebosch branch libraries will be as follows:-

MORNING (Mon - Thur - Sat) (excluding Plumstead on Mon)		10.30 a.m. to 11.30 a.m.
AFTERNOON (Mon - Thur - Sat) (Excl. Muizenberg & Plumstead on Sat)		3.30 p.m. to 4.30 p.m.
EVENING (Mon - Thur)	Claremont) Rondebosch)	7.45 p.m. to 8.45 p.m.
	Muizenberg) Plumstead)	7.15 p.m. to 8.15 p.m.

THESE TIMES SHOULD BE STRICTLY ADHERED TO.

5. Sampling Point: The sampling point chosen as being the most convenient for members and the most effective for interviewers is AS THE MEMBERS LEAVE THE DESK AFTER REGISTERING BOOKS BORROWED ON THAT VISIT.

Interviewers should be mobile with blank questionnaires clipped to a backboard. A small table should be handy for additional questionnaires and those completed.

To ensure random sampling during the prescribed periods interviewers should, having completed an interview, approach the next person leaving the desk. Queues should not be allowed to form for the interviews. If this happens the librarian on duty at the desk should be asked to discourage it. The interviewer should not allow his personal choice to interfere with the sampling.

6. Quick interviews: The questions are few and simple and it should be possible to complete a questionnaire very quickly. At least two hundred completed questionnaires will be needed from each branch library at the end of three sampling days. This implies an average of roughly 25 - 30 per hour period. Some periods will yield less than this average so others will have to yield more.

THESE RETURNS WILL NOT BE ACHIEVED, HOWEVER, IF THE INTERVIEWER ALLOWS HIMSELF TO BE DRAWN INTO DISCUSSION. As this is almost sure to happen, the interviewer should arm himself with a polite excuse such as "I have to do as many interviews as possible in one hour" or something similar. After a little experience it should be possible, at peak hours to complete an interview in little over 90 seconds. Peak hours will be

needed/.....

needed to bring the average up and interviews at these times should obviously be as rapid as possible. Apologise for the speed and blame the statistician.

7. The Universe: The "Universe", as statisticians call the group or population under study, is confined, for this survey, to adult members of the library; i.e., those over eighteen years of age. Since school children are not to be included, the question "Are you still at school?" will probably serve to differentiate most of the doubtful cases. A direct question on age should be avoided.

THE QUESTIONNAIRE

The appropriate date and period of interview should be noted in the circles provided at the top of page 1.

Question 1

Intended to establish almost exclusive use of one library.

Question 2

This question does not cover all possibilities but should be answered "no other" if only very occasional use is made of a library. If significant (say once a month) use is made of a library other than the three mentioned, cross out "no other" and write in the name of the library and mark the circle accordingly. This should be very exceptional.

Question 3

"ON THE AVERAGE" is the important phrase here. Don't waste time getting an accurate estimate. Quick "off the cuff" estimates are often more accurate than when more thought is given. This question applies to the use of facilities at ANY City library.

Question 4

Count the books and mark accordingly.

Question 5

Strictly speaking a trip always includes some walking. Walks to and from bus stop, station and car park should naturally be excluded. Treat a bicycle as walking and a motorcycle as car.

Question 6

This is an important question. The crucial phrase is "ON THIS TRIP".

Question 7

There will be three types of negative answer to this question. The

first/...

first is clear; the second is a lone visit with the purpose of taking out books for other members of the family as well; the third infers that members of the family come separately to fetch their own books. A positive reply infers that the whole or part of the family pays a combined visit to the library, each selecting his own books.

Question 8

This is perhaps the most important question of all and possibly the most difficult and time consuming to answer. It is advisable to warn the respondent of this with an opening sentence such as: "The next question is an important one and will perhaps need a little more thought".

You should make it clear that the small library will not have the extra facilities mentioned in the description of the large library and also that the large library could probably not be located at the hub of a suburban shopping centre and would probably require a special trip.

Question 9

Straightforward.

Question 10

When asking for the address mention that no name is required. Please print the address legibly.

QUESTIONS FOR INTERVIEWERS ONLY.

1. Straightforward
2. It should be relatively easy to place most respondents within these very broad age groups.

```
      LIST (LP)                                                          1
      PROGRAM  (BONE)                                                    2
      INPUT 3 = CRD                                                      3
      OUTPUT  5,(MONITOR)  = LPD                                         4
      TRACE 1                                                            5
      END                                                                6
      MASTER  LOCAT                                                     10
      DIMENSION  LAR(41),LSUM(60),MAT(20,60),MAT1(5,5),MAT2(5,5),       20
     1MAT3(5,5),MAT4(5,5),MAT5(5,5),MAT6(5,5),MAT7(5,5),MAT8(5,5),      30
     2MAT9(5,6),MAT10(5,6),MAT11(5,5)                                   40
      LCEN = 0                                                          50
      DO 10 J = 1,60                                                    60
      LSUM (J) = 0                                                      70
      DO 10 I  = 1,20                                                   80
10    MAT(I,J) = 0                                                      90
      DO 11 I  = 1,5                                                   100
      DO 12 J  = 1,5                                                   110
      MAT1(I,J)=0                                                      120
      MAT2(I,J)=0                                                      130
      MAT3(I,J) = 0                                                    140
      MAT4(I,J) = 0                                                    150
      MAT5(I,J) = 0                                                    160
      MAT6(I,J) = 0                                                    170
      MAT7(I,J) = 0                                                    180
      MAT8(I,J) = 0                                                    190
12    MAT11(I,J) =0                                                    200
      DO 11 J = 1,6                                                    210
      MAT9(I,J) = 0                                                    220
11    MAT10(I,J) = 0                                                   230
C  INPUT DATA AS ARRAY                                                 240
2     READ (3,4)  LAR                                                  250
4     FORMAT (I2,40I1)                                                 260
C  CHECK FOR LAST CARD                                                 270
      IF(LAR(1) = 99)  6,7,6                                           280
C  CROSS TABULATIONS FOLLOW                                            290
C  ALL QUESTIONS BY ZONE                                               300
6     DO 13 I = 1,20                                                   310
      IF(LAR(1) = I) 13,14,13                                          320
14    MAT(I,1) = I                                                     330
      MAT(I,42) = MAT(I,42) + 1                                        340
      DO 15 J  = 2,41                                                  350
15    MAT(I,J) = MAT(I,J) + LAR(J)                                     360
13    CONTINUE                                                         370
C   **BORROWING  FREQUENCY  BY  TRANSPORT  MODE  (MAT1)                380
      DO 51 I = 1,3                                                    390
      IF (LAR(I+12) = 1) 51,52,51                                      400
52    DO 53 J = 1,4                                                    410
53    MAT1(I,J) = MAT1(I,J)+ LAR(J+17)                                 420
51    CONTINUE                                                         430
C   **MULTI-PURPOSE TRIP BY TRANSPORT MODE  (MAT2)                     440
      DO 54 I = 1,2                                                    450
      IF(LAR(I+21) = 1) 54,55,54                                       460
55    DO 56 J = 1,4                                                    470
56    MAT2(I,J) = MAT2(I,J) + LAR(J+17)                                480
54    CONTINUE                                                         490
C   **LIBRARY SIZE PREFERENCE BY TRANSPORT MODE  (MAT3)                500

      DO 57 I = 1,3                                                    510
      IF (LAR(I+27) = 1) 57,58,57                                      520
58    DO 59 J = 1,4                                                    530
59    MAT3(I,J) = MAT3(I,J) + LAR(J+17)                                540
57    CONTINUE                                                         550
C   **FAMILY USE BY TRANSPORT MODE  (MAT4)                             560
      DO 60  I = 1,4                                                   570
      IF (LAR(I +23) = 1) 60,61,60                                     580
61    DO 62 J = 1,4                                                    590
62    MAT4(I,J) = MAT4(I,J) + LAR(J+17)                                600
60    CONTINUE                                                         610
C   **NUMBER OF BOOKS BY BORROWING FREQUENCY  (MAT5)                   620
      DO 63 I = 1,2                                                    630
      IF (LAR(I + 15) = 1) 63,64,63                                    640
64    DO 65 J = 1,3                                                    650
65    MAT5(I,J) = MAT5(I,J) + LAR(J + 12)                              660
63    CONTINUE                                                         670
C   **AGE GROUP BY BORROWING FREQUENCY   (MAT6)                        680
      DO 66 I = 1,3                                                    690
      IF (LAR(I +38) = 1) 66,67,66                                     700
67    DO 68 J = 1,3                                                    710
68    MAT6(I,J) = MAT6(I,J) + LAR(J +12)                               720
66    CONTINUE                                                         730
C   **MULTI-PURPOSE TRIP BY EMPLOYMENT  (MAT9)                         740
      DO 69 I = 1,2                                                    750
      IF(LAR(I + 21) = 1) 69,70,69                                     760
70    DO 71 J = 1,6                                                    770
71    MAT9(I,J) = MAT9(I,J) + LAR(J+30)                                780
69    CONTINUE                                                         790
C   **MULTI-PURPOSE TRIP BY TIME OF SURVEY  (MAT7)                     800
      DO 72 I = 1,2                                                    810
      IF (LAR(I +21) = 1)  72,73,72                                    820
73    DO 74 J = 1,5                                                    830
74    MAT7(I,J) =MAT7(I,J) + LAR(J+1)                                  840
72    CONTINUE                                                         850
C   **FAMILY USE BY TIME OF SURVEY   (MAT8)                            860
      DO 75 I = 1,4                                                    870
      IF (LAR(I + 23) = 1)  75,76,75                                   880
76    DO 77 J = 1,5                                                    890
77    MAT8(I,J) = MAT8(I,J) + LAR(J+1)                                 900
75    CONTINUE                                                         910
C   **TRANSPORT MODE BY TIME OF SURVEY   (MAT10)                       920
      DO 83 I = 1,4                                                    921
      IF(LAR (I+17) = 1) 83,84,83                                      922
84    DO 85 J = 1,5                                                    923
85    MAT10(I,J) = MAT10(I,J) + LAR(J+1)                               924
83    CONTINUE                                                         925
C   **MULTI-PURPOSE TRIP BY LIBRARY PREFERENCE  (MAT11)                926
      DO 78 I = 1,2                                                    930
      IF (LAR(I + 21) = 1) 78,79,78                                    940
79    DO 80 J = 1,3                                                    950
80    MAT11(I,J) = MAT11(I,J) + LAR(J+27)                              960
78    CONTINUE                                                         970
C   **CENTRAL EMPLOYMENT BY CENTRAL LIBRARY USE   (LCEN)               980
      IF (LAR(32) = 1)  81,82,81                                       990
82    LCEN  = LCEN  +  LAR(11)                                        1000
                                                                      1010
```

```
81    GO TO 2                                                          1020
C   SUM FOR ALL ZONES AND PLACE IN ARRAY                               1030
7     DO 20 J = 2,42                                                   1040
      DO 20 I = 1,20                                                   1050
20    LSUM(J-1) = LSUM(J - 1) + MAT(I,J)                               1060
C   OUTPUT DATA IN TABULAR FORM                                        1070
      WRITE (5,21) (LSUM(I),I =1,5)                                    1080
21    FORMAT (1H1,18X,94HBRANCH LIBRARY SAMPLE QUESTIONNAIRE SURVEY    1090
     1 * APRIL 1969 * CAPE TOWN CITY LIBRARIES////1H=,5X,16HTIME      1100
     2 OF SURVEY///1H=,36X,11HMON OR THUR,25X,3HSAT//1H=,27X,6HHORN,  1110
     31UX,3HAFT,10X,6HEVEN,8X,6HMORN,10X,3HAFT//1H=,27X,I3,4(10X,I3)///) 1120
      WRITE (5,22)                                                     1130
22    FORMAT (1H=,5X,11HQUESTION 1,9X,36HNEARLY ALWAYS USE            L 1140
     1IBRARY///1H=,17X,4HZONE,26X,3HYES,24X,2HNO,25X,5HTOTAL//)       1150
      WRITE (5,40) (MAT(I,1),(MAT(I,J),J=7,8), MAT(I,42),I=1,10),(LSUM 1160
     1(I),I=6,7),LSUM(41)                                             1170
      WRITE (5,23)                                                     1180
23    FORMAT (1H=,5X,11HQUESTION 2,9X,30HWHICH OTHER LIBRARY DO YOU USE 1190
     1///1H=,5X,4HZONE,56X,12HCENTRAL CITY,10X,8HNO OTHER,16X,5HTOTAL//) 1200
      WRITE (5,42) (MAT(I,1),(MAT(I,J),J=9,12), MAT(I,42),I=1,10),(LSUM 1210
     1(I),I=8,11),LSUM(41)                                            1220
      WRITE (5,24)                                                     1230
24    FORMAT (1H1,5X,11HQUESTION 3,9X,24HFREQUENCY OF LIBRARY USE///   1240
     11H=,17X,4HZONE,12X,14HWEEKLY OR MORE,5X,17HABOUT FORTNIGHTLY,6X, 1250
     215HMONTHLY OR LESS,11X,5HTOTAL//)                               1260
      WRITE (5,41) (MAT(I,1),(MAT(I,J),J=13,15),MAT(I,42),I=1,10),(LSUM 1270
     1(I),I=12,14),LSUM(41)                                           1280
      WRITE (5,25)                                                     1290
25    FORMAT (1H=,5X,11HQUESTION 4,9X,25HNUMBER OF BOOKS TAKEN OUT///  1300
     11H=,17X,4HZONE,19X,13HTHREE OR LESS,14X,15HMORE THAN THREE,18X,  1310
     25HTOTAL//)                                                      1320
      WRITE (5,40) (MAT(I,1),(MAT(I,J),J=16,17),MAT(I,42),I=1,10),(LSUM 1330
     1(I),I=15,16),LSUM(41)                                           1340
      WRITE (5,26)                                                     1350
26    FORMAT (1H1,5X,11HQUESTION 5,9X,23HTRANSPORT MODE FOR TRIP///    1360
     11H=,5X,4HZONE,17X,3HCAR,18X,3HBUS,17X,5HTRAIN,17X,4HWALK,16X,   1370
     25HTOTAL//)                                                      1380
      WRITE (5,42) (MAT(I,1),(MAT(I,J),J=18,21),MAT(I,42),I=1,10),(LSUM 1390
     1(I),I=17,20),LSUM(41)                                           1400
      WRITE (5,27)                                                     1410
27    FORMAT (1H=,5X,11HQUESTION 6,9X,18HMULTI-PURPOSE TRIP///1H=,17X, 1420
     14HZONE,24X,3HYES,26X,2HNO,24X,5HTOTAL//)                        1430
      WRITE (5,40) (MAT(I,1),(MAT(I,J),J=22,23),MAT(I,42),I=1,10),(LSUM 1440
     1(I),I=21,22),LSUM(41)                                           1450
      WRITE (5,28)                                                     1460
28    FORMAT (1H1,5X,11HQUESTION 7,9X,20HWITH FAMILY OR ALONE///1H=,   1470
     15X,4HZONE,12X,13HALONE(NO FAM),5X,20HALONE(BOOKS FOR FAM),3X,19HAL 1480
     2ONE(FOR SELF),10X,8HWITH FAM,14X,5HTOTAL//)                     1490
      WRITE (5,42) (MAT(I,1),(MAT(I,J),J=24,27),MAT(I,42),I=1,10),(LSUM 1500
     1(I),I=23,26),LSUM(41)                                           1510
      WRITE (5,29)                                                     1520
29    FORMAT (1H=,5X,11HQUESTION 8,9X,33HPREFERENCE FOR SMALL OR BIG LI 1530
     1BRARY///1H=,17X,4HZONE,13X,13HSMALL (ALT A),7X,13HLARGE (ALT B), 1540
     212X,9HUNDECIDED,14X,5HTOTAL//)                                  1550
      WRITE (5,41) (MAT(I,1),(MAT(I,J),J=28,30),MAT(I,42),I=1,10),(LSUM 1560
     1(I),I=27,29),LSUM(41)                                           1570

      WRITE (5,30)  (LSUM(I),I=30,35),LSUM(41)                         1580
30    FORMAT (1H1,5X,11HQUESTION 9,9X,19HPLACE OF EMPLOYMENT///1H=,62X, 1590
     133HN O T E M P L O Y E D//1H=,19X,11HCITY CENTRE,8X,            1600
     29HELSEWHERE,9X,9HHOUSEWIFE,9X,9HPENSIONER,12X,5HOTHER,11X,5HTOTAL/ 1610
     3//1H=,5X,I3,6(14X,I4)/////)                                     1620
      WRITE (5,31) (LSUM(I),I=36,37),LSUM(41)                          1630
31    FORMAT (1H=,25X,18HSEX OF RESPONDENTS///1H=,27X,6HMALE,16X,6HFEMAL 1640
     1E,16X,5HTOTAL///1H=,27X,I3,19X,I3,17X,I4/////)                  1650
      WRITE (5,32) (LSUM(I),I=38,40),LSUM(41)                          1660
32    FORMAT (1H=,25X,27HESTIMATE OF RESPONDENTS AGE///1H=,12X,13H18 - 3 1670
     10 YEARS,15X,13H30 - 50 YEARS,15X,13HOVER 50 YEARS,19X,5HTOTAL///  1680
     21H=,17X,I3,3(24X,I4)/////)                                      1690
C   FORMAT FOR 4 COLUMN TABLE                                          1700
40    FORMAT (10(1H=,18X,I2,3(25X,I3))///1H=,15X,5HTOTAL,3(24X,I4)/////) 1710
C   FORMAT FOR 5 COLUMN TABLE                                          1720
41    FORMAT (10(1H=,18X,I2,4(18X,I3))///1H=,15X,5HTOTAL,4(17X,I4)/////) 1730
C   FORMAT FOR 6 COLUMN TABLE                                          1740
42    FORMAT (10(1H=, 6X,I2,5(18X,I3))///1H=, 3X,5HTOTAL,5(17X,I4)/////) 1750
C   FORMAT FOR 7 COLUMN TABLE                                          1760
43    FORMAT (10(1H=, 6X,I2,6(15X,I3))///1H=, 3X,5HTOTAL,6(14X,I4)/////) 1770
C   OUTPUT CROSS TABULATIONS                                           1780
      WRITE (5,90) ((MAT1(I,J),J=1,4),I=1,3)                           1790
90    FORMAT (1H=,20X,51HBORROWING FREQUENCY (ROWS) BY TRANSPORT MODE (C 1800
     10LS)///3(1H=,35X,I3,3(10X,I3)//)////)                           1810
      WRITE (5,91) ((MAT2(I,J),J=1,4),I=1,2)                           1820
91    FORMAT (1H=,20X,49HMULTIPURPOSE TRIP (ROWS) BY TRANSPORT MODE (COL 1830
     1S)///2(1H=,35X,I3,3(10X,I3)//)////)                             1840
      WRITE (5,92) ((MAT3(I,J),J=1,4),I=1,3)                           1850
92    FORMAT (1H1,20X,55HLIBRARY SIZE PREFERENCE (ROWS) BY TRANSPORT MOD 1860
     1E (COLS)///3(1H=,35X,I3,3(10X,I3)//)//// )                      1870
      WRITE (5,93)((MAT6(I,J),J=1,4),I=1,4)                            1880
93    FORMAT (1H=,20X,42HFAMILY USE (ROWS) BY TRANSPORT MODE (COLS)///  1890
     14(1H=,35X,I3,3(10X,I3)//)//// )                                 1900
      WRITE (5,94)((MAT5(I,J),J=1,3),I=1,2)                            1910
94    FORMAT (1H=,20X,60HNUMBER OF BOOKS TAKEN (ROWS) BY BORROWING FRE 1920
     1QUENCY (COLS)///2(1H=,35X,I3,2(15X,I3)//)//// )                 1930
      WRITE (5,95)((MAT6(I,J),J=1,3),I=1,3)                            1940
95    FORMAT (1H=,20X,60HAGE (ROWS) BY BORROWING FREQUENCY (COLS)///    1950
     13(1H=,35X,I3,2(15X,I3)//)//// )                                 1960
      WRITE (5,96) ((MAT9(I,J),J=1,6),I=1,2)                           1970
96    FORMAT (1H=,20X,46HMULTI-PURPOSE TRIP (ROWS) BY EMPLOYMENT (COLS)/ 1980
     1//2(1H=,20X,I3,5(10X,I3)//)    )                                1990
      WRITE (5,97) ((MAT7(I,J),J=1,5),I=1,2)                           2000
97    FORMAT (1H1,20X,50HMULTI-PURPOSE TRIP (ROWS) BY TIME OF SURVEY (CO 2010
     1LS)///2(1H=,27X,I3,4(10X,I3)//)/////)                           2020
      WRITE (5,98) ((MAT8(I,J),J=1,5),I=1,4)                           2030
98    FORMAT (1H=,20X,42HFAMILY USE (ROWS) BY TIME OF SURVEY (COLS)///  2040
     14(1H=,27X,I3,4(10X,I3)//)/////)                                 2050
      WRITE (5,112)  ((MAT10(I,J),J=1,5),I=1,4)                        2051
112   FORMAT (1H=,20X,46HTRANSPORT MODE (ROWS) BY TIME OF SURVEY (COLS)/ 2052
     1//4(1H=,27X,I3,4(10X,I3)//)//)                                  2053
      WRITE (5,99)  ((MAT11(I,J),J=1,3),I=1,2)                         2060
99    FORMAT (1H=,20X,55HMULTI-PURPOSE TRIP (ROWS) BY  LIBRARY PREFERENC 2070
     1E (COLS)///2(1H=,35X,I3,2(15X,I3)//)/////)                      2080
      WRITE (5,111)  LSUM(31), LCEN                                    2090
111   FORMAT (1H=,20X,7HOF THE ,I3,38H MEMBERS WORKING IN THE CENTRAL CI 2100

     1TY, ,I3,42H USE THE CENTRAL LIBRARY BRANCH FREQUENTLY)           2110
      STOP                                                             2120
      END                                                              2130
      FINISH                                                           2140
```

APPENDIX C

GENERAL ANALYSIS OF USER CHARACTERISTICS

The Whole Sample

This initial description of user characteristics is baded on the whole sample of 835 respondents and refers to each part of the questionnaire (see Appendix B) and, thereafter, to various cross-tabulations provided for in the computer program. The latter comprises : -

1. Borrowing frequency by transport mode.
2. Multi-purpose trip by transport mode.
3. Library size preference by transport mode.
4. Family use by transport mode.
5. Number of books taken by borrowing frequency.
6. Age by borrowing frequency.
7. Multi-purpose trip by library size preference.
8. Multi-purpose trip by employment.
9. Multi-purpose trip by time of survey.
10. Family use by time of survey.
11. Transport mode by time of survey.

All these cross-tabulations are given below. Cell values are in the form of percentage proportions along both rows and columns. Sample size within each can be obtained by working back from the total sample size (835) through the sub-total percentages. Percentages are not shown in cells where the sub-samples in a row or column are small resulting in confidence intervals for proportions within the sub-samples being too large.

The following sample percentages were taken in the time categories listed :

Monday + Thursday			Saturday	
Morn.	Aft.	Even.	Morn.	Aft.
18%	22%	31%	20%	9%

The Saturday afternoon proportion was low because only three of the five libraries were open at this time. To test whether the sampling method might have introduced a bias in favour or against Saturdays these proportions were compared with the actual number of books issued which are,

unfortunately/..

unfortunately, recorded for full days only. The comparable percentages for Monday + Thursday and Saturday are 69% and 31% which compare quite well with the sample proportions of 71% and 29%. As might be expected two sessions on a Saturday are almost as active as three sessions on an ordinary weekday.

9 out of 10 respondents used the branch of their choice exclusively. This was not always the one closest to their homes but 2 in 3 live within 1 mile of their chosen branch. Only 1 in 25 use the Central City Branch occasionally and 7% make some use of adjacent branches. These figures indicate a marked attachment of users to a single outlet.

Almost 2 out of 3 respondents (61%) visited the library once a week or more often while 36% were fortnightly visitors and a negligible 3% go once a month or less often. The intense use of book lending facilities demonstrated by these figures may partly explain why book issues for local branches are a good deal higher than those quoted for typical large branch libraries in America (see Table 4 for local branch library statistics).

As would be expected the majority of respondents borrowed three or less books since this is the maximum allowed to each member. The remainder (40%) who took more than three books represents a very high proportion however. More than three books can be borrowed by paying for extras, but this privilege is apparently seldom used. Of the 337 respondents who borrowed more than three books, 39% visited the library with some of their family and 56% were alone but borrowed books for others as well.

As many as 33% of the respondents walked to the library and 60% came by car. Bus and train accounted for only 4% and 3% respectively. There is little doubt, therefore, that a location policy must pay overriding attention to, and be consistent with, the needs of both drivers and walkers. Transport mode will be dealt with in more detail below.

Less than half the respondents (41%) visited the library on a multi-purpose trip during which other facilities in the shopping centre were used. This is a surprisingly low proportion if compared with the

results/..

results of some American studies (14).

Family visits to the library do not appear to be common practice since only 30% of the respondents were accompanied by members of their families and then seldom by more than one. More than a third (37%) were alone but borrowed books for others as well, while another 33% borrowed books for themselves only. The questionnaire attempted to split this last category into those who have no family and those who do. Some, mostly elderly, respondents were loath to acknowledge their solitude and found the question embarassing. A split in this category would therefore have a low validity.

The questionnaire defined the main characteristics of two library sizes and respondents were asked to indicate their preferences. The validity of the answers is in doubt as explained in Chapter 2. Interviewers were asked, early in the survey, to elaborate as much as time would permit in an attempt to eliminate invalid answers arising from a tendency of respondents to identify their preference with the library they use. This was in most cases a valid tendency; for instance, in the case of those living reasonably close to Wynberg (a typical large library) who prefer to use Plumstead (a typical small library). There was also a tendency for Rondebosch users to regard Rondebosch as a large branch whereas it has most of the characteristics of a small branch, even though the adult book issue is three quarters of that of Wynberg. The total sample shows no marked preference for either type; 43% voted for a small library while 52% preferred the large and 5% were undecided.

The sex, age and employment characteristics of respondents have already been discussed in some detail in Chapter 3. It remains to record that almost two thirds are female (63%), and almost half (49%) are in the middle age group, while 29% are over 50 and 22% between 18 and 30. 79% of male and 31% of female users are employed.

The first cross tabulation, borrowing frequency by transport mode, shows that bus and train users, together with those visiting the library less frequently than once a month, are of little consequence being only 4%, 3% and 3% of the total sample respectively. Excluding these categories the important implication of this comparison is that walkers

are/..

are likely to visit the library more frequently (weekly or more - 70% to fortnightly - 28%) than car users (56% to 41%). Although car users predominate in both important frequency categories this accent is less marked among frequent users.

The only surprise in the multi-purpose trip by transport mode tabulation is the overall majority of single purpose trips (59% to 41%). The bus and train samples show a small predominance of multi-purpose trips even if the full range of the large confidence intervals for the small samples is taken into account. Among car users and walkers, however, most make special trips to the library. As expected this tendency is more marked among car users than among walkers. Similarly if the 'yes' and 'no' samples are examined, car users are more heavily represented in the latter.

The third table couples transport mode with library size preference. The proportions within the samples of bus and train users show a preference for small libraries but the confidence intervals are sufficient to upset this conclusion. The significant inference here is that while a preference for large libraries has a small overall majority (52% to 43%) this is reversed as between car users and walkers, the latter preferring small libraries. Significant, too, is that, of those preferring small libraries, car users and walkers are about equally represented (46%); a surprising result which indicates that preferences for small libraries arise from other factors as well as distance. It is not surprising, though, that among those who prefer large libraries, car users heavily outnumber walkers.

The family use by transport mode table does not indicate any marked differences from the total sample when the various transport modes are considered. In each case those who come alone to the library heavily outnumber those accompanied by members of their family. In each case, too, those who come alone and borrow books for others as well are the largest single category. There is, however, a much larger proportion of walkers (45%) than car users (24%) among those who go alone and borrow books only for themselves. In considering the various family use categories it will be noted that 3 out of 4 respondents who visit with their families also use their cars; an appreciably higher car usage than for the total sample.

The/..

The age by borrowing frequency table reflects the importance of the 30 to 50 age group in each frequency category and emphasizes again the high frequency of use in all age groups. It also indicates a rising frequency of use with age.

The books taken by borrowing frequency cross-tabulation was intended to throw light on the borrowing habits of the more frequent users. The table shows virtually no difference between the proportions in either sets of category when compared with the total sample; the 'monthly or less' sample is too small to indicate a significant difference.

Multi-purpose trip by library size preference: While both the preference groups show a majority using single purpose trips this is more marked for those preferring large libraries. Of those who make simultaneous use of the shopping centres, 49% prefer small libraries while 45% prefer large. This position is reversed for single purpose trips where only 38% prefer small and 57% prefer large. These differences are almost cancelled out in each case if the confidence interval is taken into account.

The two cross tabulations, multi-purpose trip by time of survey and multi-purpose trip by employment, throw convincing light on some of the factors underlying the split between special library visits and the combined use of library and shopping centre. The first shows a decided concentration of multi-purpose trips during the ordinary weekday and Saturday mornings (about 3 to 1) while, during the relatively well used evening sessions and Saturday afternoon when the shopping centres, apart from a few minor activities, are closed, virtually no multi-purpose trips (3%) were recorded. If evenings and Saturday afternoons are excluded, the proportions in the remaining sample are 65% to 35% in favour of multi-purpose trips. This division is even more significant when it is compared with the opposite trend in the sample as a whole (41% to 59% respectively). In the comparison with employment, the only group significantly different from the total sample are housewives (59% use multi-purpose trips) who constitute almost 40% of all respondents.

Multi-purpose trips to suburban libraries can with reasonable confidence be attributed in the main to the large proportion of housewives

and/..

and to the suburban shopping activity of those not otherwise employed, especially housewives.

Two inferences of interest can be drawn from the family use by time of survey table. First is that combined visits tend to concentrate in the evening session and Saturday afternoon with Saturday morning yielding the sample average. The second, is that lone borrowers tend to use the ordinary weekday morning sessions (46% compared with the sample average of 33%).

The transport mode by time of survey table shows up two further tendencies though less convincingly. First is the tendency for walkers to use the morning sessions (40% compared with the sample average of 33%) and second, that evening trips are more likely to be by car (71% compared with the sample average of 60%).

Wynberg Branch and the Rest.

Wynberg Branch Library is different in many important respects from the other four branches covered by the survey. There are the quantitative differences; by far the largest book-stock and running costs (total not unit cost) with a staff bill almost three quarters again as great as the next largest and a membership and book issue to match. These quantitative comparisons, however do not tell the whole story. There are qualitative differences, too, relating to some aspects of usage and particularly to the spatial distribution of its members; a characteristic dealt with in more detail in Chapter 3. For Wynberg, with a service area embracing those of both Claremont and Plumstead and encroaching well into Rondebosch, this relationship between distance and usage is likely to be incidental except at the periphery and close in. It is suggested that over most of its service area Wynberg users choose this branch largely because they desire the wider range of services and choice offered, but, to some extent too, because these services are accommodated in a well situated attractive building with a pleasant, spacious and bright interior.

Setting aside for the moment this most important factor which marks the special function of Wynberg as a sub-regional outlet, what other significant differences are there between Wynberg and the rest?

There/..

There is no difference in the tendency for exclusive use; Wynberg's members show no greater desire to use adjacent libraries, not even the central city branch, as alternatives. Taking into account the lower accuracy provided by the smaller Wynberg sample of 186, there is no significant difference either in the frequency of use or the number of books borrowed. In respect of the transport mode used, however, the proportion of car trips made to the Wynberg Branch is much higher than to the other four (78% and 55% respectively); the accent is reversed for walkers (14% and 39%). This is not surprising and accords with the very much larger service area of the Wynberg Branch.

There appears to be a stronger tendency for the smaller branches to encourage multi-purpose trips (37% for Wynberg and 41% for the rest), but this is not really significant when the confidence interval is taken into account. There is no difference between the overall proportions of those who go alone to the library compared with those who go with one or more of their family, but the Wynberg sample shows a higher proportion of those using the library for their own purposes only (excluding those with no families who thus have no alternative, the proportions are 33% for Wynberg and 24% for the rest).

The results of the library size preference question, even allowing for reduced validity, show a significant reversal of preference; 74% for the large and 22% for the small at Wynberg compared with 46% and 49% respectively for the other four branches.

Finally, proportions of the various categories of economically active and inactive respondents are virtually the same for Wynberg as for the rest. The Wynberg sample shows a slightly lower percentage of females (60% compared with 64% for the rest) which is probably not significant. With respect to the age groups, however, there is a significantly larger percentage of young Wynberg respondents in the 18 to 30 group (30% as compared with 19% for the rest). This increase is almost entirely at the expense of the middle age group.

The cross tabulations also indicate a few notable differences between the two types of library. While at Wynberg, car users and walkers differ little in respect of the frequency of their visits, walkers to the smaller branches are more likely to be frequent visitors; 71% in

the/..

the 'weekly or more' category compared with 59% of Wynberg walkers. Wynberg walkers on the other hand, are more likely to make special trips to the library, while the proportions of special trips to multi-purpose trips among car users is the same for both types (65% and 35% respectively). At Wynberg both walkers and car users show a majority preference for a large library. as high as 78% for car users. At the other branches the walkers reverse this tendency by 52% to 33%.

The remaining cross tabulations do not show any appreciable differences either between Wynberg and the other four branches, or between these and the total sample. An exception is perhaps that Saturday morning at Wynberg appears to contribute almost as much family visiting as do the evenings and Saturday afternoon.

Branch Characteristics.

Similar data from individual branches have been examined for indications of any special characteristics which may be useful to a location policy. It should be noted that comparisons are now between small samples and extra caution is needed. Possible specialities will therefore be ignored unless there is evidence from more than one set of data (question or cross-tabulation). To improve accuracy, comparisons are, in the main, between each branch and the combined sample for all branches excluding Wynberg.

The Muizenberg Branch.

The Muizenberg Branch is the smallest of the five in terms of both membership and book issue although it is more spacious and has a larger book-stock and staff than Plumstead. It is isolated from other branches but well located at present. Its nearest neighbour, apart from the very small branch at Kalk Bay, is at Plumstead 6 miles away. Its service area is elongated and restricted to the South by sea and mountain and to the north by non-White Group Areas and large tracts of vlei and undeveloped State land. Likely expansion will be to the East. The existing population within range is relatively small which doubtless accounts for the restricted use made of this branch.

Usage of the branch is similar in almost all respects to the four

branch/..

branch average. The proportion of walkers is a little above average, particularly on ordinary weekday mornings and it is the only branch where the majority of respondents, in the evenings only, were accompanied by other members of their families.

The Plumstead Branch.

Plumstead offers an interesting example of a small branch located a short distance (just over 1 mile) from a large branch and having a service area which falls entirely within that of a large branch, Wynberg.

The Plumstead library is fairly well located a short distance off the Main Road in a minor shopping centre and within close range of a number of blocks of flats. It is consequently well used, with a membership and book issue slightly higher than that of Muizenberg. The bookstock is, however, only three quarters the size of Muizenberg's.

Users are highly concentrated, 50% being within ½ a mile of the branch and nearly 75% within ¾ mile. Although many of them use Wynberg as an alternative (13%), the frequency of visits for both car users and walkers is appreciably higher than the average; nearly 3 out of 4 respondents visit the library weekly or more often. Increased visit frequency applies to all age groups as well.

Plumstead users voted strongly in favour of small libraries (67% to 22%), majority support coming from both car users and walkers. There is, however, no correlation between this preference for small libraries and the linking of shopping centre and library trips, due possibly to the weakness of the shopping centre compared with that of Wynberg near by. There are indications, too, of a higher proportion of employed users, probably males.

The Plumstead survey data thus presents a picture of a lively and frequently used small outlet strongly supported by a small but highly concentrated membership with average proportions of car users and walkers, who are apparently conscious of its special advantages. If this analysis and description is correct, there are important implications here for a location policy based on at least two types of outlet performing essentially different functions.

The/..

The Claremont Branch.

The Claremont Branch is very well located not far from the hub of the most important suburban shopping centre in the Southern Suburbs, with good transportation links and a relatively large and evenly spread population within its service area. These important advantages are, however, offset by the poor and cramped accommodation of the branch on the first floor of an old building. Consequently, and despite its greater potential, its membership is lower, and its book issue a good deal lower than its neighbour, Rondebosch.

There is little to distinguish the Claremont usage from the four branch average. One or two differences are probably attributable to the two factors mentioned above; the strength of the shopping centre and transportation links together with the sub-standard service offered (staff excluded).

The positive correlation between age and frequency of use is more marked, and the proportions of women, of housewives, and of the 30 to 50 age group, are somewhat higher than the average. Family use is more restricted as well. None of the above tendencies is marked, yet taken together, they could reflect sub-standard service. The branch is, perhaps, used to a greater extent by those who need it most while those who require added incentive (employed males) or who have alternative leisure time activity (the young age group) are under-represented.

The positive effect of the strong shopping centre is probably indicated by a higher proportion of housewives whose simultaneous use of a shopping centre is more marked, and the much greater than average use of multi-purpose trips when the shopping centre is active. The relative popularity of bus trips reflects the convenience of a location on the main bus route together with the concentration of flats along the Main Road towards Kenilworth as well as the availability of other bus routes which radiate from Claremont.

The/..

The Rondebosch Branch.

The Rondebosch Branch is fairly well located, in better accommodation than Claremont in the local Town Hall and within easy reach of a relatively weak shopping centre only 1½ miles from Claremont. The branch is eccentrically located in a relatively restricted service area which might be even more restricted if the quality of service at Claremont were improved. It is virtually surrounded, however, by a large concentration of flats. Consequently the user distribution is typical of a small library and, in most respects, the usage of Rondebosch is well described by the four branch average.

Although the frequency of use is a little below average it is a well used library with a relatively large adult issue. Its only significant "abnormality" is more a reflection of a weak shopping centre than the library service. The occurence of multi-purpose trips for both car users and walkers, is lower than the average; even housewives tend to make more special trips than multi-purpose ones which exceed 50% only in the mornings. Greater use of the car is made for trips to this branch; walkers have the edge only among those who prefer small libraries and this would probably not be the case if, as is suspected, many of those voting for the larger library had not misjudged the characteristics of their own branch.

FIVE BRANCH LIBRARIES COMBINED

RONDEBOSCH - CLAREMONT - WYNBERG - PLUMSTEAD - MUIZENBERG

Total adult membership	=	25,900	
Total adult book issue (1968)	=	1,259,000	
Total number in sample	=	835	comprising :-
Males		310	(37%)
Females		525	(63%)
Employed		403	(48%)
Not employed		432	(52%)
18 to 30 years of age (estimated)		180	(22%)
30 to 50 years of age (estimated)		407	(49%)
50 and over (estimated)		248	(29%)

TABLE 8 : CROSS TABULATIONS

a) Borrowing Frequency by Transport Mode

	CAR	BUS	TRAIN	WALK	TOTAL
Weekly or more	56 / 55	- / 4	- / 3	70 / 38	61 / 100
Twice Weekly	41 / 68	- / 5	- / 2	28 / 25	36 / 100
Monthly or less	3 / -	- / -	- / -	2 / -	3 / -
Total	100 / 60	- / 4	- / 3	100 / 33	100 / 100

b) Multi-purpose Trip by Transport Mode

	CAR	BUS	TRAIN	WALK	TOTAL
Yes	35 / 52	72 / 8	60 / 3	46 / 37	41 / 100
No	65 / 66	28 / 2	40 / 2	54 / 30	59 / 100
Total	100 / 60	100 / 4	100 / 3	100 / 33	100 / 100

c) Library Size Preference by Transport Mode

	Car	Bus	Train	Walk	Total
Small	32 / 46	61 / 6	65 / 2	60 / 46	43 / 100
Large	63 / 72	33 / 3	35 / 3	35 / 22	52 / 100
D.K.	5 / 60	6 / 5	0 / 0	5 / 35	5 / 100
Total	100 / 60	100 / 4	100 / 3	100 / 33	100 / 100

d) Family Use by Transport Mode

ALONE	Car	Bus	Train	Walk	Total
No Family	5 / 38	17 / 10	20 / 6	10 / 46	8 / 100
Books for Fam.	39 / 62	42 / 5	20 / 1	36 / 32	37 / 100
Self Only	19 / 46	31 / 5	40 / 4	35 / 45	25 / 100
With Family	37 / 75	10 / 2	20 / 2	19 / 21	30 / 100
Total	100 / 60	100 / 4	100 / 3	100 / 33	100 / 100

e) Age by Borrowing Frequency

	Weekly +	Twice Weekly	Monthly -	Total
18 - 30	19 / 53	25 / 42	39 / 5	22 / 100
30 - 50	48 / 60	51 / 37	52 / 3	49 / 100
50 +	33 / 70	24 / 29	9 / 1	29 / 100
Total	100 / 61	100 / 36	100 / 3	100 / 100

f) Books taken by Borrowing Frequency

	Weekly +	Twice Weekly	Monthly -	Total
3 or less	59 / 61	60 / 36	74 / 3	60 / 100
3 or more	41 / 62	40 / 36	26 / 2	40 / 100
Total	100 / 61	100 / 36	100 / 3	100 / 100

g) Multi-purpose Trip by Library Preference

	Small	Large	D.K.	Total
Yes	49 / 47	45 / 35	6 / 43	100 / 41
No	38 / 53	57 / 65	5 / 57	100 / 59
Total	43 / 100	52 / 100	5 / 100	100 / 100

h) Multi-purpose Trip by Time of Survey

	Monday + Thursday			Saturday		
	Morn.	Aft.	Even.	Morn.	Aft.	Total
Yes	76	51	3	71	3	41
No	24	49	97	29	97	59
Total	100	100	100	100	100	100

j) Multi-purpose Trip by Employment

	Emplyd.	Hsewife	Pension	Other	Total
Yes	30 / 25	56 / 59	10 / 44	4 / -	100 / 41
No	61 / 75	27 / 41	8 / 56	4 / -	100 / 59
Total	48 / 100	39 / 100	9 / 100	4 / -	100 / 100

k) Family use by Time of Survey

	Monday + Thursday			Saturday		
	Morn.	Aft.	Even.	Morn.	Aft.	Total
ALONE: No Family	9	9	6	6	10	8
ALONE: Books for Fam.	40	45	32	41	23	37
ALONE: Self Only	37	28	19	24	23	25
With fam.	14	18	43	29	44	30
Total	100	100	100	100	100	100

1). Transport Mode by Time of Survey

	Monday + Thursday			Saturday		
	Morn.	Aft.	Evem.	Morn.	Aft.	Total
Car	46	59	71	55	64	60
Bus	8	6	2	4	0	4
Train	6	1	2	3	2	3
Walk	40	34	25	38	34	33
Total	100	100	100	100	100	100

A P P E N D I X D

CALCULATION OF THE USAGE INDEX

The first step in the calculation of the Usage Index was to count the number of respondents residing in each of four 90° quadrants radiating from each branch library and to sub-divide the numbers obtained into the preselected concentric zones defined in Chapter 3-4.1. North-south and east-west directions for the quadrants were chosen since the former would give a continuous use intensity curve which would also indicate the sharpest effects of competition between branches. The east-west directions would be least affected by competition. Boundaries between quadrants for each library are therefore on the lines north-east to south-west and north-west to south-east.

The next step was to measure the area of all non-residential land within each quadrant by zone and subtract this from total areas to give the residential acreage for each quadrant by zone.

Step three was to calculate a co-efficient of use intensity for each quadrant by zone. The object of the co-efficient was to make allowance in the final index for use intensity variations between libraries and between zones. Frequency of use and number of books borrowed were selected as the pertinent characteristics and the co-efficient is basically a ratio of the occurrence of these characteristics in the relevant zonal quadrant to their occurrence in the 4 branch or total sample.

Since accumulated samples were not being used the samples within individual library zones were often too small and the values of the co-efficients were consequently too erratic. The four local branch sample was therefore used to reflect differences between zones for local branches. The zone co-efficient so obtained was adjusted for each branch by applying a branch co-efficient using the whole branch sample. Except for Wynberg which has the largest sample, use of small samples in most individual branch zones was thus avoided.

This/..

This procedure which produced a steadier but still rationally based co-efficient, is explained in algebriac terms as follows : -

To find the co-efficient of use intensity for Zone 1 (first ¼ mile) of the Claremont branch service area:

Let A = % in Zone 1 of the 4-branch sample who visit the library once a week or more.

Let B = % in Zone 1 of the 4-branch sample who took out more than 3 books.

Let C = % of the total 4-branch sample who visit the library once a week or more.

Let D = % of the total 4-branch sample who took out more than 3 books.

Then the Zone Co-efficient $= \frac{A \times B}{C \times D}$

$= \frac{71 \times 29}{62 \times 42} = 0.80$

This is now adjusted for any special characteristic displayed by the Claremont Branch by using the same procedure to obtain a Branch Co-efficient except that relevant proportions of the total Claremont sample are now used in the numerator.

Branch Co-efficient (for Claremont) $= \frac{59 \times 45}{62 \times 42} = 1.02$

The final Use Intensity Co-efficient is obtained by multiplying the first two co-efficients.

Co-efficient of Use Intensity = $1.02 \times 0.80 = 0.82$

This co-efficient is applied in all sectors of Zone 1 for Claremont.

In the final step the Usage Index is obtained from the following formula.

Usage Index $= \frac{B \times C \times M}{A \times S}$ where,

A = residential acreage in the relevant zone and quadrant.

B = No. of respondents residing in the relevant zone and quadrant.

C = co-efficient of use intensity.

M = registered adult membership of the branch.

S = size of the branch sample.

The registered adult membership does not strictly represent the total 'population' from which each branch sample was taken, since although the membership figure is up to date, it would include a small proportion who never use the library. This inaccuracy should not affect the results of a comparative study, however, provided the proportion of non-users is fairly constant throughout.

Table 5 gives the Zone Co-efficients by zone for Wynberg and the 4-branch combination as well as the Branch Co-efficients for each branch library. Table 6 (a to e) gives the Usage Indices for each branch library by zone and quadrant.

TABLE 5

Zone Co-efficient			Branch	Co-efficient
Zone	Wynberg	4-Branch Sample		
1	0.81	0.80	Rondebosch	0.93
2	0.90	0.97	Claremont	1.02
3	1.06	1.04	Wynberg	0.86
4	1.11	1.12	Plumstead	1.20
5	1.13	1.10	Muizenberg	0.86
6	1.10	0.95		
7	(1.0) *	0.87		
8	(1.0) *			

* Samples too small

TABLE 6(a)

RONDEBOSCH BRANCH

Adult Membership (M) = 5,800
Sample (S) = 174: M/S = 33.3

Zone and Sector	(A) Residential Acres	(B) Sample No. In Zone	(C) Coeff. Use Intensity	Usage Index $\frac{BxCxM}{AxS}$
1N	20	5	0.74	6.2
2N	53	4	0.90	2.3
3N	120	8	0.97	2.1
4N	146	6	1.04	1.4
1S	29	14	0.74	11.9
2S	64	25	0.90	11.6
3S	108	4	0.97	1.1
4S	100	5	1.04	1.7
5S	532	12	1.02	0.8
6S	589	2	0.88	0.1
1E	27	9	0.74	8.2
2E	65	8	0.90	3.7
3E	65	11	0.97	5.5
4E	148	9	1.04	2.1
5E	433	15	1.02	1.2
6E	303	5	0.88	0.5
1W	27	11	0.74	10.1
2W	44	3	0.90	2.1
3W	29	3	0.97	3.4

T A B L E 6(b)

CLAREMONT BRANCH

Adult Membership (M) = 5,400
Sample (S) = 172: M/S = 31.4

Zone and Sector	(A) Residential Acres	(B) Sample No. In Zone	(C) Coeff. Use Intensity	Usage Index $\frac{BxCxM}{AxS}$
1N	12	1	0.82	2.2
2N	82	9	0.99	3.4
3N	93	4	1.06	1.4
4N	136	4	1.14	1.1
5N	350	3	1.12	0.3
1S	15	8	0.82	13.8
2S	64	5	0.99	2.4
3S	147	7	1.06	1.5
4S	217	4	1.14	0.7
1E	23	1	0.82	1.2
2E	67	16	0.99	7.4
3E	109	13	1.06	4.0
4E	167	17	1.14	3.6
5E	322	22	1.12	2.4
6E	352	4	0.97	0.4
7E	584	5	1.08	0.3
1W	26	18	0.82	18.0
2W	87	10	0.99	3.5
3W	145	7	1.06	1.7
4W	214	5	1.14	0.8
5W	356	3	1.12	0.3
6W	260	1	0.97	0.1

TABLE 6(c)

WYNBERG BRANCH

Adult Membership (M) = 9,600
Sample (S) = 186: M/S = 51.6

Zone and Sector	(A) Residential Acres	(B) Sample No. in Zone	(C) Coeff. Use Intensity	Usage Index $\frac{BxCxM}{AxS}$
1N	21	7	0.70	12.1
2N	74	15	0.77	8.2
3N	147	9	0.91	2.8
4N	209	13	0.95	3.0
5N	462	9	0.97	0.9
6N	722	9	0.95	0.6
7N	700	8	0.86	0.6
8N	715	1	0.86	0.1
9N	900	1	0.86	0.1
1S	12	1	0.70	3.1
2S	56	4	0.77	2.7
3S	100	8	0.91	3.8
4S	168	6	0.95	1.7
5S	518	15	0.97	1.5
6S	664	10	0.95	0.7
7S	649	3	0.86	0.2
8S	573	8	0.86	0.6
9S	803	7	0.86	0.4
1E	7	2	0.70	10.3
2E	40	2	0.77	2.0
3E	58	3	0.91	2.6
4E	31	0	0.95	-
5E	79	6	0.97	3.8
6E	203	5	0.95	1.2
7E	453	5	0.86	0.2
8E	419	1	0.86	0.2
1W	11	2	0.70	6.6
2W	48	3	0.77	2.5
3W	42	1	0.91	1.1
4W	31	0	0.95	-
5W	319	1	0.97	0.2
6W	710	6	0.95	0.4
7W	531	0	0.86	-
8W	374	0	0.86	-
9W	314	1	0.86	0.2

TABLE 6(d)

PLUMSTEAD BRANCH

Adult Membership (M) = 2,800
Sample (S) = 138: M/S = 20.3

Zone and Sector.	(A) Residential Acres	(B) Sample No. in Zone	(C) Coef. Use Intensity	Usage Index $\frac{BxCxM}{AxS}$
1N	27	22	0.96	15.9
2N	93	11	1.16	2.8
3N	145	1	1.25	0.2
4N	86	0	1.34	-
5N	182	1	1.32	0.1
6N	295	1	1.14	0.1
1S	16	0	0.96	-
2S	69	8	1.16	2.7
3S	129	7	1.25	1.4
4S	152	1	1.34	0.2
5S	306	3	1.32	0.3
6S	371	6	1.14	0.4
1E	31	5	0.96	3.1
2E	91	10	1.16	2.6
3E	136	21	1.25	4.0
4E	183	13	1.34	1.9
5E	229	10	1.32	1.2
6E	157	1	1.14	0.1
1W	25	6	0.96	4.7
2W	71	7	1.16	2.3
3W	106	1	1.25	0.2
4W	127	0	1.34	-
5W	499	1	1.32	0.1

TABLE 6(e)

MUIZENBERG BRANCH

Adult Membership (M) = 2,400
Sample (S) = 165: M/S = 14.6

Zone and Sector	(A) Residential Acres	(B) Sample No. In Zone	(C) Coeff. Use Intensity	Usage Index $\frac{BxCxM}{AxS}$
1N	31	28	0.69	9.1
2N	58	17	0.83	3.5
3N	106	17	0.90	2.4
4N	54	7	0.96	1.8
5N	184	19	0.95	1.4
6N	65	5	0.82	0.9
1S	12	8	0.69	6.7
2S	22	5	0.83	2.7
3S	22	0	0.90	-
4S	17	1	0.96	0.8
5S	67	7	0.95	1.5
6S	56	3	0.82	0.7
1E	13	8	0.69	6.2
2E	23	5	0.83	2.7
3E	27	6	0.90	2.9
4E	19	1	0.96	0.7
1W	25	11	0.69	4.5
2W	28	3	0.83	1.3
3W	1	0	0.90	-
4W	0	0	0.96	-
5W	46	3	0.95	0.8
6W	25	0	0.82	-

ANNEXURE E

COSTING PROCEDURE

The annual cost of running each of the five branches studied would comprise not only local expenditure but also a proportion of head office and other overhead expenses. For an organisation as large as Cape Town City Libraries however, the marginal cost of adding or eliminating a branch would have little effect on such overhead expenditure. In comparing branch operations, overhead expenses should, in these circumstances, be left out of account.

The remaining annual costs would thus include salaries paid to branch staff, rent or loan charges in respect of branch accommodation and the cost of books added annually to the local book stock. Unfortunately, the last mentioned costs are not recorded for each branch and can therefore only be distributed by reference to another operating characteristic. Circulation of the local stock or branch book issue is the best of these but is also used to calculate the unit cost of branch operation. New book costs distributed in this way would mask rather than throw light on inter-branch variations, particularly since the value of books added during the year is a large figure of the same order as local salaries.

City Library policy is to apportion the annual allocation for book purchase to various book types on the basis of their total circulation during the previous year. Distribution of purchased books to the various branches, however, is not necessarily in accordance with local branch circulation. Distribution of these costs in the manner described above could therefore lead to serious inaccuracy and such costs are thus excluded from local expenditure.

Table 4 (Appendix C) therefore gives two unit costs - local as well as total costs per book issue. Both costs have been corrected by a reduction of 15% to allow for the exclusion of juveniles. Neither of these two unit costs is satisfactory; the first, because it excludes the cost of books added annually to local stocks (the recording of such costs in future would greatly assist studies of this nature) and the second because it includes all overheads distributed on the basis of each branch's share in the total book issue of the whole library service. The first is the more useful for inter-branch comparisons. The second is of little value for inter-branch comparison but may be useful for comparison with statistics produced elsewhere by other library services.