A Study on

"THE INABILITY TO PAY FOR TELEPHONE SERVICES"

BY

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INTRODUCTION

The primary purpose of this research project is to establish the extent of a problem that confronts certain Canadians: the inability to pay for telephone service. A second important purpose is to depict some of the more important causes of this phenomenon. The study is an exploratory one, which allows for a broad and flexible research design. Because the problem to be studied is not one that has been extensively researched in the past, hypotheses and relations between variables cannot immediately be tested; they must first be recognized and outlined. This task alone demands a research project of wide scope. The aim is to explore the topic in depth, establish certain realities and determinants of the problem, and develop priorities for further research.

Although specific hypotheses and/or theories concerning the problem have not been formulated to date, there are several concepts inherent in the phenomenon that can serve as a basis for a research design. For example, it is obvious that low income Canadians will have a higher probability of not being able to afford telephone service, than Canadians with middle or high incomes. Equally obvious is the fact that there are certain regions that are more affected than others. From basic concepts such as these, others can be devised and a research design can be deductively formulated.

The principle objectives of this study are the following:

(a) To establish the extent of the problem of the inability to pay for telephone service.

(b) To identify certain regions that are characteristic of disparities in telephone service.

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(c) To explore and identify the main causal factors of the problem, relating to objectives (a) and (b).

(d) To develop and point to specific areas for future research.

In other words, this study will attempt to answer the following question: Who, where, and why are some Canadians unable to pay for telephone service?

To undergo a study adhering to these objectives requires the researcher to answer two preliminary questions. The first is: Is equality (or near equality) desirable? This question is crucial because a negative or positive answer must be established before any measures can be taken (even on paper). The second is: Is access to information a want, a need, or a right? This too is a crucial question since there are obvious different implications for each answer.

Concerning these questions, I support the stance taken by the Telecommission in 1970 to consider basic telephone services as a right rather than a need or a want. It follows, then, that equality (at least in telephone services) is desirable. Hence, the basic rationale underlying the present study.

In supporting these two contentions, however, several problems arise. Firstly, if access to information is to be a right, then there is danger of what Benjamin Singer labels "information overload". He argues that equality in access could result in an information explosion leading to an information overload which can isolate and alienate many people, rather than "free" them.(1)

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Similarly, other authors argue that an increase in equality and access to information may in fact increase disparities rather than reduce them, because the already developed regions will be at an advantageous starting point, and will also be better able to expand quickly and widely.

Nevertheless, as several recent studies and surveys have shown, the telephone has come to be considered as an indispensible household appliance. Several groups such as the aged, the blind, the crippled are even more dependent on the telephone to perform their daily tasks. Many people from these handicapped groups also belong to another social grouping: the poor. The two handicaps being coupled, many of these people cannot afford to have a telephone in their home, even though it is particularly indispensible to them. Because of cases like these, equality in telephone service and access to information seem to outweigh the problems that may arise from such developments.

At first glance, the problem of being unable to afford telephone service may seem somewhat trivial. Although since its one hundred years of existence the telephone has had one of the strongest social impacts of all communications instruments, it has largely been taken for granted, including its price. In fact, however, there is a substantial number of people who are deprived of this service, because they cannot afford it. In other words, they cannot participate in the rapid social change that the mainstream of society is undergoing due basically to economic reasons. When viewed in this way, the triviality disappears quickly.

1. COMMUNICATIONS AND THE POOR

a) The Poor:

The poor in Canada are at an inferior and disadvantaged position in almost all spheres of life. The area of communications is no exception. The poor are suffering from a lack of means of communications due firstly to their economic inferiority, and secondly, to their lack of knowledge (for whatever reasons) on the access and usage of various means of communications.

A parallel between communications deprivation and economic poverty can be conceptualized by using communications (rather than wealth) as the measuring instrument. Thus, just as there are inequalities in wealth and the opportunity to attain it, there are inequalities in access to means of communications and the opportunity to attain them. Similarly, there are regional disparities when communications is the measuring instrument, just as there are when wealth is measured. The two instruments cannot be empirically seperated, however, because money leads to and actually buys the means of communications.

Nevertheless, the parallel remains analytically useful to demonstrate that the concepts of power, control, and inequality are inherent in a study of communication deprivation, as they are in a study of economic deprivation. For example, the problem of poverty in Canada is not one of lack of wealth or resources; Canada is a wealthy nation. The problem, rather, is the uneven distribution of wealth that is often controlled and safeguarded by the powerful: the wealthy. Similarly, in the field of communications Canada ranks amongst the most advanced countries in the world, yet a segment of society is being deprived of basic telephone service. Once again the problem is one of inequality, power, and control rather than resources, since Canada has 12 million

telephones.[2] The only optimistic aspect of this reality is that it is perhaps remediable.

Approximately 25% of the Canadian population is poor,[3] according to the poverty line devised by the Economic Council of Canada. This group is by no means hemogeneous, however. Some are poorer than others, and the causes of poverty vary constantly, almost from case to case. This percentage does not correspond to the percentage of Canadians that cannot afford telephones. In other words, not all poor people are without telephones. It has been estimated that approximately 5% of Canadian homes do not have a telephone.[4] A survey of households receiving mother's benefits during 1971 in the city of Toronto showed that 74.6% had their own telephones, 19.4% had no phones, and 6.1% had access to phones but did not pay for one.[5] Approximately 25% of this low income sample, then, did not pay for telephone service. Of the poor people who have telephones, many of them cannot actually afford it. Although there are no relevant data on this, it seems that because the telephone has become practically indispensible, people will economize on other items to be able to meet telephone bills, rather than do without the service. There is an array of factors, particularly those dealing with cost, that add to this hardship. These will be reviewed at a later point in this report.

The telephone has greatly accelerated social change, in its one hundred years of existence. It has greatly affected the economy, urban and rural planning, and, of course, interaction and communication between people. Perhaps most important, the telephone has created a need that has been accepted as a necessity by society at large. Those that are poor experience the same need, but have much more difficulty in satisfying the need, if they can at all. This alone, isolates them from the mainstream of society, and very often through no fault of their own. Thus, it seems justifiable to ascertain that the poor should be entitled to fulfill this serious need. If

they cannot fulfill it themselves, they should be helped. It is important that they be enabled to join the changing society, for the telephone (and the social changes that accompany it) is developing at a very rapid rate.

TABLE 1

TELEPHONE DEVELOPMENT IN CANADA

YEAR	TELEPHONES IN THOUSANDS	NUMBER OF TELEPHONES PER 100 POPULATION	HOUSEHOLDS
1925	1,143	12.2	44.2
1930	1,103	13.6	54.5
1935	1,209	11.1	40.3
1940	1,461	12.8	44.4
1945	1,849	15.8	50.8
1950	2,917	21.0	70.1
1955	4,152	26.1	81.9
1960	5,728	37.5	93.0
1965	7,445	43.5	98.0
1970	9,751	45.2	h.a.

Source: Bell Canada Annual Charts, February, 1971.

This table reveals that as the telephone industry develops, its service is being made available to more and more of the population. However, it is much harder for some to afford the service than for others. Although the segment is small, still others cannot afford it at all. Thus, to print a clear picture of telephone development and its effects on the people buying the service, it should be compared to the distribution of income (See Table 2). It is evident that telephone service is much more of a burden for the lower segments of the income distribution. Although there is no available data, it seems plausible to speculate that the distribution of

TABLE 2

ESTIMATED INCOME DISTRIBUTION OF FAMILIES IN CANADA, 1969.

INCOME GROUP	INCOME SHARE AS % OF TOTAL INCOME	AVERAGE INCOME $	GROUP INCOME AVERAGE AS % OF AVERAGE OF TOTAL INCOME
POOREST 5%	1	1000 - 1500	10 - 15
POOREST 10%	2	1500 - 2000	20
POOREST 20%	6	2500 - 3000	30
SECOND LOW 20%	13	6000	60
MIDDLE 20%	18	8000	90
SECOND HIGH 20%	23	10,000	120
HIGHEST 20%	40	18,000	200
HIGHEST 10%	25	22,000-23,000	250
HIGHEST 5%	15	25,000-30,000	300

SOURCE: ADAMS, I., THE REAL POVERTY REPORT, M.G. HURTING LTD., EDMONTON, 1971, p.17

telephones is closely related to the income distribution. By any means, the point is clear: the major obstacle to full participation by the poor is the cost of the service coupled with their low income.

b) Family Expenditures:

Perhaps the most appropriate way to measure the socio-economic impact of the telephone is to compare family telephone expenditures at different income levels.

The president of Bell Canada, Mr. Jean de Grandpré said publicly that "Canadians should be proud that they spend a smaller percentage of their income on telephone service, than any other people in the world". Mr. de Grandpré was quite right in saying this. However, when limiting the comparison to within Canada, there are wide differences between income groups, and that essentially is the problem.

The following table shows the average family expenditures for the telephone, in different income groups.

TABLE 3

AVERAGE FAMILY TELEPHONE EXPENDITURE BY FAMILY INCOME CLASS

	TELEPHONE (TOTAL)	LOCAL CHARGE	LONG DISTANCE	OTHERS
ALL CLASSES	87.6	55.8	30.2	1.8
under $3,000	46.1	35.5	10.0	.6
$3,000-$3,999	65.5	43.6	20.3	1.6
$4,000-$4,999	68.2	45.7	20.7	1.8
$5,000-$5,999	79.4	50.4	27.2	1.8

$6,000-$6,999	82.7	54.3	26.5	1.9
$7,000-$7,999	90.6	59.6	29.4	1.6
$8,000-$8,999	96.6	60.7	33.8	2.1
$9,000-$9,999	95.5	62.7	31.1	1.7
$10,000-$10,999	106.3	64.8	39.0	2.6
$11,000-$11,999	110.1	66.6	41.7	1.7
$12,000-$14,999	118.9	70.2	46.7	2.0
$15,000 over	137.8	78.0	58.6	3.0

SOURCE: TABULATED USING DATA FROM TABLE 60, FAMILY EXPENDITURES, 1969, STATISTICS CANADA

Thus it seems that those with a higher income spend more for telephone service than those with low incomes. In terms of pure dollars, the situation is such. However, when calculating the percentage of income spent for telephone service, it is interesting to note that the gradation is almost exactly reversed.

TABLE 4

PERCENT OF INCOME SPENT ON TELEPHONE BY INCOME CLASS

INCOME CLASS	PERCENTAGE OF INCOME
UNDER $3,000	1.8%
$3,000-$3,999	1.8%
4,000-4,999	1.5%
5,000-5,999	1.4%
6,000-6,999	1.3%
7,000-7,999	1.2%
8,000-8,999	1.1%
9,000-9,999	1.0%

$10,000-$10,999	1.0%
11,000-11,999	.9%
12,000-14,999	.8%
15,000-Over	.7%

SOURCE: CALCULATED AND TABLED ACCORDING TO DATA IN TABLE 60, FAMILY EXPENDITURES, 1969, STATISTIC CANADA

Note: In each category, the percentage was calculated using the media for that category e.g. $4,500 for the $4,000-$4,999 category. For the under $3,000 category $2,500 was used and for $15,000 over $18,000 was used.

There are a few points in Tables 3 and 4 that need clarification. Firstly, these changes may be somewhat low because the data pertains to 1969, and it reflects average expenditures for each category. Secondly, the local charge is seen as a gradation because it includes extensions, phone types, etc. However, the local charge does seem somewhat low (at all levels) in spite of this. Thirdly, the "other" charge category seems extremely low since it includes installation and public phone costs. Nevertheless, these tables effectively demonstrate the differences between income groups, which is their basic use in this context.

The differences in percentage of income spent on telephone service are significant: on a possible discrepency of 1.8%, the lowest and highest group differ by 1.1%. In addition, this difference would probably widen if the data were more exact, particularly if the local charge was more fixed. By any means, there is a serious gap in the impact of telephone costs between income groups.

Indeed, Canadians should be proud that they pay less than anyone in the world for a generally better service. We should be less proud, however, that proportionally, the poor pay more.

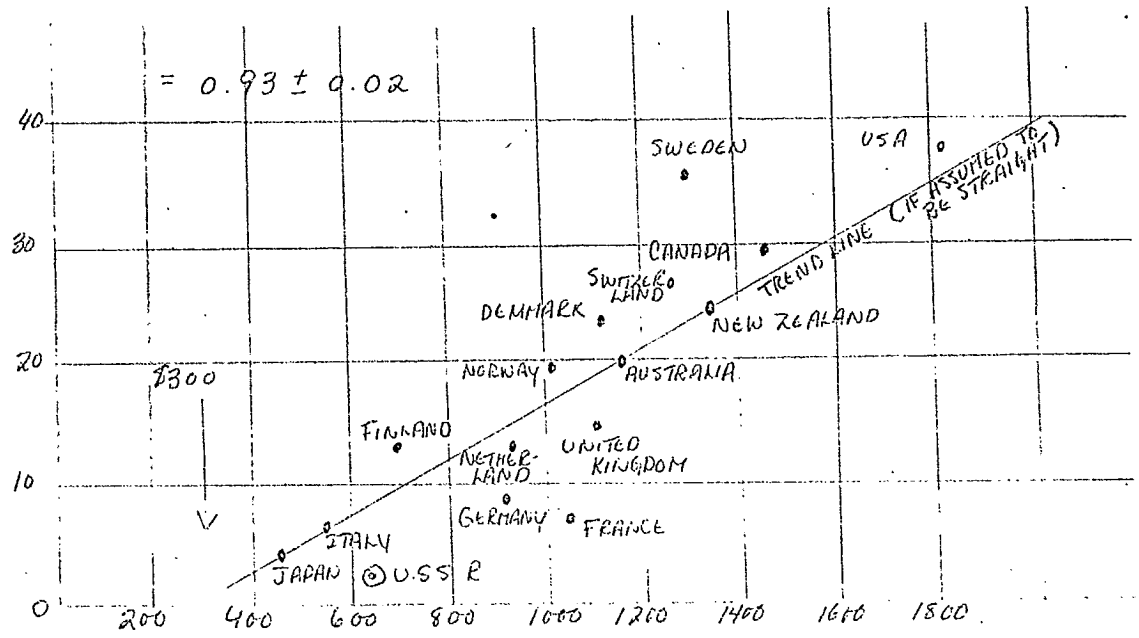
Ideally, an assessment of the socio-economic impact of telephone cost would

match the amount spent (as % of income) with a need and demand model. Unfortunately, there is no exact data on this, and comments must be speculative. Nevertheless, it seems fairly correct to speculate that the upper income echelons would normally have more demand for telephone service. In Table 3, for example, long distance calls are more prevalent in the higher echelons than the lower ones. At the residential level the demand model is speculative, but at the business and institutional level there seems to be no question that there is much more demand in this sector than in the residential sector. When matching demand with need, it can also be said that businesses and institutions have a greater need for telephone service (in terms of pure functioning capabilities). In the residential sector the need seems to be somewhat uniform. A survey recently undertaken by the Government of Ontario shows that almost all subjects considered the telephone as a basic household necessity for living in today's society.[6] Another project, carried out by the University of Western Ontario in London on the social function of the telephone, gave similar results.[7] If it can be generalized that the telephone is a basic necessity, then the essential need is the same across all income levels. Certain segments, however, have an even more acute need for telephone service. These are the aged, the blind, the crippled, and so on. Because they are often poor, many of these people cannot fulfill this essential need. In short, if a need-demand-service model were drawn, the higher income levels would have more demand, more service, for the same basic need as those of the lower levels, but for a relatively smaller price. Moreover, it is clear that the shape of the model would be designated by the rates of service.

The above situation, of course, is on a national scale. On an international scale, the concept of wealth and service is the same, but Canada is in a favourable position as Figure 1 demonstrates. Canada, being a wealthy nation, is at an advantageous position, as are the wealthy within Canada. Thus, it is all the more deplorable that some people, and perhaps more important, some regions, lack telephone service, since Canada undoubtedly possesses the means to accommodate those lacking.

Figure 1

CORRELATION BETWEEN WEALTH AND POSSESSION OF
TELEPHONES IN THE INDUSTRIALLY ADVANCED COUNTRIES (1958)



REAL NATIONAL INCOME PER CAPITA IN 1958
(IN U. S. DOLLARS, AT 1950)

⊙ Denotes a Communist country

SOURCE: WORLD COMMUNICATION: THREAT OR PROMISE' COLLIN CHERRY, p. 139.

Note: Although the numbers are inexact (1958), the basic correlation and position of nations is representative.

2. REGIONAL DISPARITIES:

Although there are people in large urban centres who cannot afford telephone services, there are a few regions (mostly remote areas) that are characteristic of this phenomenon. The poor rural regions of the Maritimes, the coast of Newfoundland and Labrador, the Northern Extremities of almost every province, the Yukon, and the Northwest Territories are usually considered as disadvantaged areas. One of the main reasons why the inability to afford telephone service is somewhat characteristic of such areas is because the costs of services are usually higher than in the large urban areas, which can be seen as the "centre" of communications.

Aside from the urban-rural dichotomy, regional inequalities and disparities can also be measured in terms of provincial differences. This type of measurement is useful to demonstrate that disparities are often caused by the state of the provincial economy and its role in the overall Canadian economy.

This section will firstly examine the extent of provincial differences and disparities. Secondly, it will look at disparities in remote areas, mostly the North, and establish the extent of disparities in relation to needs. Thirdly, it will give a brief account of recent regional development in telephone service.

A) PROVINCIAL DIFFERENCES:

There are various indicators of economic disparities within provinces. The annual personal income per capita, average weekly wage, the unemployment rate and so on are good examples. These are illustrated in Table 5.

TABLE 5

INDICATORS OF PROVINCIAL AND REGIONAL DISPARITIES, 1969

PROVINCE	Annual Personal Income Per Capita		Average Weekly Wages and Salaries		Employed as % of working Age Population	Unemployment Rate
	$	(Canada = 100)	$	(Canada = 100)	%	%
Newfoundland.....	1,613	56	106	90	38.8	10.3
P.E.I.....	1,818	63	81	69	48.6	5.3
Nova Scotia.....	2,304	79	96	81	47.0	5.4
New Brunswick....	2,080	72	97	82	45.1	8.5
Atlantic Region..	2,032	70	n.a.	n.a.	44.5	7.6
QUEBEC.....	2,626	90	115	98	50.8	6.9
ONTARIO.....	3,365	116	122	103	56.1	3.1
Manitoba.....	2,842	98	108	91	54.1	2.7
Saskatchewan....	2,516	87	108	92	51.6	3.1
Alberta.....	2,913	100	118	100	58.5	2.7
Prairie Region..	2,784	96	n.a.	n.a.	55.3	2.9
B.C.....	3.116	107	129	110	53.9	5.0
Territories.....	2,542	87	n.a.	n.a.	n.a.	n.a.
Canada.....	2,906*	100	118	100	53.1	4.7

SOURCE: Special Senate Committee, Poverty in Canada, p.51. Ottawa, 1971

As can be expected, the Atlantic Provinces rate amongst the lowest. Although the state of the provincial economy is an important factor in communications deprivation, a measurement in terms of actual spending power is a more accurate measurement of possible expenditures.

TABLE 6

CHANGES IN PURCHASING POWER (1961 DOLLARS) RECEIVED BY AVERAGE WAGE EARNERS IN EACH PROVINCE, 1946-1971

	1946-51	1951-56	1956-61	1961-66	1966-71	1946-71
Newfoundland	$ - -	$- 22	$-215	$-143	$-416	- 796
P.E.I.	-235	-317	-130	- 7	-197	- 416
Nova Scotia	- 90	-357	-214	-197	-443	-1,121
New Brunswick	- 80	-354	-94	-302	-295	- 965
Quebec	-129	-421	-262	-420	-352	-1,584
Ontario	-113	-520	-259	-383	-539	-1,814
Manitoba	-127	-325	-315	-199	-353	-1,319
Saskatchewan	-294	-189	-321	-404	- 89	-1,119
Alberta	-247	-379	-283	-318	-446	-1,673
B.C.	-249	-591	-165	-482	-409	-1,896
Canada	- 98	-449	-252	-375	-429	-1,603

SOURCE: Leo, A. Johnson, Incomes, Disparity and Poverty in Canada Since World War II, p.24.

Because of the rapid inflation rate that Canada has been experiencing in the past 25 years, the purchasing power measure is more accurate than the average earned income. Although virtually all wage earners in each province have increased their purchasing power, there are indeed wide discrepencies between some provinces. Moreover, these discrepencies are by and large reflected in the telephone

development of provinces, as Table 7 demonstrates.

TABLE 7

TELEPHONE DEVELOPMENT IN CANADA BY PROVINCE (Jan. 1, 1970)

PROVINCE	TELEPHONE DEVELOPMENT PER 100 POPULATION
ONTARIO	49.6
BRITISH COLUMBIA	48.1
ALBERTA	46.0
MANITOBA	44.4
QUEBEC	43.4
SASKATCHEWAN	39.6
YUKON	39.4
NOVA SCOTIA	37.1
NEW BRUNSWICK	36.1
PRINCE EDWARD ISLAND	31.0
NEWFOUNDLAND	25.9
NORTHWEST TERRITORIES	24.6

SOURCE: BELL CANADA ANNUAL CHARTS, FEBRUARY, 1971.

However, in terms of progressive development some provinces with low purchasing power have had substantial telephone development. The Yukon is the most flagrant example. These reflect telephones per 100 population however, and since the Yukon and Northwest Territories are sparsely populated, the figure does not look too low. The same is true of P.E.I. and Newfoundland. When calculated in total member of residence telephones, the picture is quite different.

TABLE 8

RESIDENCE TELEPHONES, BY PROVINCE, 1971

	Total	Per 100 Population	HOUSEHOLDS		
			Total	With One Telephone	With two or More Telephones
	Number			,000	
Newfoundland	105,060	19.9	105	77	10
P.E.I	26,628	23.8	26	20	-
Nova Scotia	219,811	27.7	189	136	21
New Brunswick	174.707	27.3	148	106	22
Quebec	1,926,908	31.9	1,536	1,139	285
Ontario	2,855,784	36.7	2,163	1,533	551
Manitoba	326,775	33.0	270	212	44
Saskatchewan	285,439	31.1	254	196	38
Alberta	550,735	33.5	446	322	100
B. C.	791,374	35.5	640	469	136
Yukon	3,941	20.7	-	-	-
Northwest Territories	5,343	14.8	-	-	-
TOTAL	7,272,505	33.5	5,777	4,210	1,207

SOURCE: TELEPHONE STATISTIC, 1971, STATISTIC CANADA

Although figures may vary considerably depending on the manner which they are calculated, some provinces are clearly inferior to others, on all counts. There also seems to be a direct correlation between the economy of a province and its telephone development. Just as the gap is widening between provincial economies, the gab between provinces in terms of telephone service also seems to be widening, depending once again on how it is calculated.

Thus, the economic state of a province as well as its population density seem to be the primary factors of wide discrepancies between provinces. Furthermore, the two factors are interrelated and in many ways interdependent, and it is this interdependence that accounts for much of the gap and its widening. The industrial heartland of Canada (from Windsor to Québec) contains 52% of the population, although it represents less than 2.5% of the total land mass.[8] Correspondingly, this region contains almost half of all telephones.

Aside from differences in number there are serious regional and provincial differences in type of service. Although the main differences tend to be on the urban-rural axis (which will be looked at shortly), there are significant inter-provincial differences. These obviously reflect the fact that some provinces are unquestionably more rural than others, but the differences are nonetheless significant at the inter-provincial level. The following table demonstrates this in terms of access to direct distance dialling.

TABLE 9

RESIDENCE AND BUSINESS BY TELEPHONES AND TELEPHONES WITH ACCESS TO DIRECT DISTANCE DIALLING, BY PROVINCE, 1971

	TELEPHONES			TELEPHONES WITH ACCESS TO DIRECT DISTANCE DIALLING	
	RESIDENCE NUMBER	BUSINESS NUMBER	TOTAL	NUMBER	% OF TOTAL
Newfoundland	105,060	40,279	145,339	56,236	38.7
Prince Edward Island	26,628	9,098	35,726	-	-
Nova Scotia	219,811	80,564	300,375	199,566	66.4
New Brunswick	174,707	67,615	242,322	187,948	77.6
Québec	1,926,908	817,029	2,743,937	2,235,197	81.5
Ontario	2,855,784	1,186,709	4,042,493	3,274,692	81.0
Manitoba	326,775	129,524	456,299	390,010	85.5
Saskatchewan	285,439	95,365	380,804	344,808	90.6
Alberta	550,735	244,263	794,998	697,322	87.7
British Columbia	791,374	317,631	1,109,005	1,010,733	91.1
Yukon	3,941	3,552	7,493	-	-
Northwest Territories	5,343	4,647	9,990	-	-
CANADA	7,272,505	2,996,276	10,268,781	8,396,512	81.8

Source: Telephone Statistics: 1971, Statistics Canada

It is important to note here that there are five provincies that are well below the national average. All of these are basically rural, and the national average is being sustained by the highly urban provinces. Again, the large urban centres being seen as the centre of communications is demonstrated.

In sum, disparities in telephone service (whether measured provincially or regionally) are by-products of three inter-related factors: economic development, population density and urbanization. The three, of course, are products of each other, thus forming a vicious cycle which is difficult to penetrate.

There are a few hypotheses concerning regional inequalities in communications that are of relevance here. One author, for example, sees regional inequalities in a relative sense:

"It is not so much a question of under-development, as a question of backwardness in relation to a competing large city".[9] He adds that as technological developments expand, the relative backwardness of certain areas may well increase because the

developments "must respond to the needs of profitability".[10] In other words, the hypothesis states that the gap between disadvantaged rural regions and urban areas is widened rather than narrowed by technological development because the development is better and faster in urban areas, as well as controlled by them. Without going into depth on the causes of disparities (for these will be reviewed in the next section) it is clear that the urban-rural differences with all their forces, account for a large part of regional disparities. Thus far, the model has been largely inter-provincial. The urban-rural discrepancies, however, are found within most provinces as well. The best method of analysis seems to be the north-south axis.

B) THE NORTH:

The North has traditionally been the region of "backwardness" and underdevelopment in Canada, and for the large part, the reasons are obvious. The climate, terrain, and scarce population have been credited for most of the social and economic lag that the North is experiencing. In recent years, particularly in the last decade, the North has undergone substantial development, both social and economic. There is still a great need for further development, however, particularly in extending services and facilities to those communities who lack them. Communications facilities and services, of course, have been of prime importance in developmental planning.

Although some regions have undergone more development than others, communication inadequacies by and large occur at the 55^{o} parallel in the

provinces of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec and Newfoundland. The population has been estimated at approximately 32,000 in the Northwest Territories, 18,000 in the Yukon and 196,000 in the region between the 55^{o} and 60^{o} parallels.

One of the main causes of telephone inadequacy in the North is that many of the communities that have telephone service receive it through the HF radio system. This system proves to be unreliable, and interference prone, although quite inexpensive. Much of the need for improvement in Northern communities arises from inadequacies of the HF system.

Another important factor in the North is that many telephone lines that are present are not open for public use. The citizens of the community thus often lack service, although their community is often labelled as having telephone service.

When speaking of telephones in the North, one must also distinguish between local and toll service. For emergency purposes (particularly medical) the toll line is indispensible. This is also another serious reason why the HF system is unsatisfactory. For weather conditions, forest fires and other emergencies, as well as medical ones, the need for reliable, constant service is clear. Local service is also important for community development and interaction. It is also useful for transmission of perhaps less crucial information, but nonetheless, important for the community or communities in question.

The HF radio system is undoubtedly inadequate for the North, yet it is relatively inexpensive. It also has other advantages, such as allowing for several people to confer simultaneously. It has also been

judged in the past as being an excellent "starting point" of development. Because of the inadequacies of the HF system, however, particularly for emergency service, the developer is faced with an array of systems that can transmit telephone service. They are all relatively expensive (though generally reliable) which calls for cost-benefit and facilities-services analysis before a decision can be made. Basically, the systems that are presently available for Northern development are the following:

TOLL SERVICE: (1) land lines:
- (a) open-wire
- (b) paired cable
- (c) coaxial cable

(2) radio waves:
- (a) HF radio
- (b) VHF-UHF link
- (c) tropo-scatter
- (d) micro-wave
- (e) thin route (Anik TRS)

LOCAL SERVICE: All of the above with the exception of tropo-scatter and micro-wave systems.

Another problem in developing the North is the varying degree and/or potential of economic progress within regions and areas. For example, the Mackenzie District and Northern Québec seem favourable for economic development and progress, while the District of Keewatin may not have the same potential. As was seen earlier, economic development is conducive to communications development (and vice-versa) and thus poses a great problem in Northern development.

Yet another problem that enters the realm of developing the North is a social one: the people. It is crucial that Northern Canadians

be allowed to participate actively in the development of their own territory. This has been a major problem for developers, particularly of late, because Northerners have become more aware of the possibilities of development, as well as more anxious to actively participate. This is especially true of radio and television broadcasting, but is also very important in telephone development. Northerners need to be trained to carry on their own developmental projects, or at least to be responsible for the functioning of the present systems. This sheds light on the extremely important problem of permanent full-time maintenance, which will be examined in the next section.

The Telecommission expertly outlined the majority of communities needing implementation or improvement of facilities or services, in its report entitled Northern Communications. Although this difficult task was concluded in 1971, their work is still very representative and pertinent to the present situation (allowing for a few exceptions). The Telecommission outlined approximately 240 communities that needed new or improved services, ranging in population from 50 to 800. Certain regions were identified as areas of prime concern for communications needs:

(a) Baffin Region
(b) District of Keewatin
(c) Arctic Islands
(d) Arctic Québec
(e) Northern Manitoba
(f) Northern Saskatchewan
(g) Northern Ontario
(h) Yukon
(i) Labrador Coast
(j) Northern Alberta
(k) Northern British Columbia
(l) Mackenzie Delta and Great Slave Area

In the Baffin region, Frobisher Bay is the regional centre for administrative purposes, which calls for reliable communication. Communications with the South for medical emergency purposes is also crucial. The following table lists communities that are in need of new or improved facilities. Existing service in these communities is by HF radio only, and proves to be unreliable.

TABLE 10

COMMUNITIES IN NEED - BAFFIN REGION, 1971

LOCATION	POPULATION	DISTANCE
Arctic Bay	250	750
Broughton Island	350	300 (75)
Cape Dorset	588	225
Clyde River	292	450 (325)
Grise Fiord	100	900 (600)
Hall Beach	250	475 (2)
Iglookik	530	525 (35)
Lake Harbour	200	75
Pond Inlet	412	650
Pangnirtung	642	175 (125)
Resolute Bay	254	950 (425)

Source: Northern Communications, Telecommission, p.25

The distances in brackets show how far the community is from the DEW Line or Polevault System.

In the District of Keewatin, there is also a lack of effective communication facilities at the administrative level. The District is administered from Churchill, Manitoba and there is a lack of reliable

communications between the two. Again, public services are inadequate due to unreliable two-way voice communications offered by HF radio.

TABLE 11

COMMUNITIES IN NEED - DISTRICT OF KEEWATIN, 1971

LOCATION	POPULATION	DISTANCE
Baker Lake	596	375
Eskimo Point	480	150
Rankin Inlet	430	275
Coral Harbour	310	450
Gjoa Haven	250	225
Chesterfield Inlet	220	325
Belcher Islands	210	350
Whale Cove	200	225
Pelley Bay	180	225
Repulse Bay	146	525

Again, the distance indicates the distance from the community to the nearest trunk intersection point.

In the Arctic Islands, the requirements are threefold: Government (Department of Energy, Mines and Resources, Glaciology Division), industry (major oil companies)and public. All are inadequate due to unreliable HF radio. The major communities in need of improvement are listed in Table 12, along with the distance to the nearest trunk intersection.

TABLE 12

COMMUNITIES IN NEED - ARCTIC ISLANDS, 1971

LOCATION	POPULATION	DISTANCE
Spence Bay	270	280
Holman Island	180	325
Sachs Harbour	132	260
Paulatuk	100	250
Thom Bay	50	300
Bathurst Inlet	50	180
Perry River	50	125

Source: Northern Communications, p. 28

In Arctic Québec, there are 26 locations that are in need of new or improved telephone service.

TABLE 13

COMMUNITIES IN NEED - ARCTIC QUEBEC, 1961

LOCATION	POPULATION	DISTANCE
Fort George	1300	200
Great Whale River	965	300
St. Augustine	900	
Rupert House	832	90
Romaine	704	400
Fort Chimo	701	400
Paint Hills	535	150
Port Harrison	515	500
Obedjiwan	400	100
Suyluk	337	250
Lac Simon	239	
Grand Lac Victoria	211	30
Lac Albanal	200	
Wakeham Bay	194	200
George River	194	375
Nemiscou	172	
Eastmain	171	120
Payne Bay	159	275
Rapid Lake	139	
Inugiruk	117	300
One Goeland Lake	100	
Koartak	97	200
Leaf Bay	50	300
Lac Evans	50	

Source: Northern Communications, p.29.

These communities are connected to the telephone network by HF radio. The Hudson Bay Company also operates HF systems.

In Northern Manitoba, the extent of the lack of communications is very serious. There are approximately 34 communities that need new or improved facilities. Once again, HF radio system does not provide reliable emergency service, and there is no public telephone service with reliable trunk connections to the telephone network.

TABLE 14

COMMUNITIES IN NEED - NORTHERN MANITOBA, 1971

LOCATION	POPULATION	DISTANCE
Berens River	763	90
Bloodvein	308	60
Brochet	637	77
Cross Lake	1840	38
Dauphin River	80	28
Easterville	344	25
Garden Hill	1129	208
God's Lake Narrows	887	258
God's Lake	83	258
God's River	50	258
Granville Lake	80	110
Hoke River	300	7
Jackhead	242	60
Little Black River	168	18
Little Grand Rapids	450	110
Matheson Island	160	50
Moose Lake	630	38
Nelson House	1282	35
Oxford House	800	298
Parringassi	160	120

(table continued on following page)

TABLE 14 (continued)

LOCATION	POPULATION	DISTANCE
Pinedock	109	45
Popular River	385	135
Pukatawagan	836	7
Red Deer Lake	62	6
Red Sucker Lake	218	258
Sault Point	60	30
Schoal River	490	
South Indian Lake	477	150
Split Lake	400	15
St. Theresa Point	880	208
Shamattawa	344	107
Wasagamach	450	208
Waterhen	677	40
York Landing	80	8

Source: Northern Communications, p.30.

In Northern Saskatchewan, most communities are on a system operated by the Saskatchewan Government and the Department of Natural Resources over HF radio. The service to these communities is not sufficiently reliable, nor is the quality of transmission.

TABLE 15

COMMUNITIES IN NEED - NORTHERN SASKATCHEWAN, 1971

Location	Popn.	Distance (mi)	Location	Popn.	Distance (mi)
*Albertville	78	on trunk route	Ile-a-Crosse	941	104
*Aylsham	176	" " "	Island Falls	178	60
Beauval	486	85	La Loche	1090	200
Black Lake	415	100	*Mayfair	114	on trunk route
Buffalo Narrows	611	130	*Meath Park	198	" " "
Canoe Lake	320	80	Molonosa	214	15
Chitik Lake (I.R)	260	2	Montreal Laee	90	
*Chitik Lake	134	on trunk route	Patuanak	118	105
*Choiceland	493	" " "	Pelican Narrows	130	35
*Christopher Lake	163	" " "	Pinehouse Lake	336	58
*Clemenceau	60	on trunk route	*Rabbit Lake	225	on trunk route
Codet	187	" " "	Red Earth	372	50
Cree Lake	57	165	*Reserve	187	on trunk route
*Creighton	1904	on trunk route	Sandy Bay	561	65
Cumberland House	628	55			
Deschambault Lakes	253	29	*Shipman	69	on trunk route
Dill .n	90	127	Shoal Lake	182	55
Dore Lake	112	72	*Snowden	65	on trunk route
*Dorintosh	102	on trunk route	Southend	114	116
*Erwood	119	" " "	Stanley Mission	156	37
*Flin Flon	527	" " "	Stoney Rapids	123	116
Fond du Lac	398	55	Sturgeon Lake	615	25
*Frenchman's Butte	111	on trunk route			
*Glen Bush	55	" " "	*White Fox	389	on trunk route
*Green Lake	744	" " "	Wollaston Lake	57	222
*Gronlid	151	" " "			

* Clarification of the public services available at these locations is necessary

Source: Northern Communications, p.33.

In Northern Ontario, there are approximately 31 locations that are in need of either new or improved facilities. The main requirement is to support health services from the Department of Health and Welfare. The Ontario Government expressed its dissatisfaction with communications in Northern Ontario, which resulted in a joint program with Bell Canada, DOC, and Department of Health and Welfare, to install HF systems in support of health services.

TABLE 16

COMMUNITIES IN NEED - NORTHERN ONTARIO, 1971

Location	Popn.	Distance	Location	Popn.	Distance
Angling Lake	125	170	New Osnaburgh	600	21
Attawapiskat	441	140	North Spirit Lake	100	112
Bearskin Lake	270	170	Ogoki	195	144
Big Trout Lake	550	160	Pikangikum	661	60
Cat Lake	157	75	Poplar Hill	150	80
Deer Lake	120	115	Round Lake	434	
Fort Albany	220	80	Sandy Lake	850	140
Fort Hope	450	85	Sachigo	140	190
Fort Severn	144	450	Slate Falls	110	68
Grassy Narrows	485	36	Weagamow		
Kasebonica	100	167	(Round Lake)	144	150
Kashechewan	350	84	Webique	105	160
Kingfisher Lake	90	111	White Dog	495	35
Lansdowne House	350	100	Winisk	134	330
Lac La Croix	141	36	Wunnummin Lake	209	120
Lac La Seul	506	23			

Source: Telecommission, Northern Communications

Although there may be a few exceptions, the Commissioner of the Yukon Territory indicated in 1971 that services are generally satisfactory. Only one community, Old Crow, is said to have unreliable telephone service.

On the coast of Labrador, the following communities were found to have non-existant or inadequate service.

TABLE 17

COMMUNITIES IN NEED - LABRADOR COAST, 1971

Location	Population	Distance
Batteau	75	55
Davis Inlet	175	45
Indian Tickle	70	50
Makkovik	400	52
Nain	650	95
Packs Harbour	125	12
Paradise River	150	
Pitts Harbour	60	
Postville	125	47
Rigolet	150	70
Spotted Islands	150	60

Source: Telecommission, Northern Communications.

In Northern Alberta, many oil companies operate their own private HF system; but for communities, there is a need for reliable trunk and exchange facilities.

TABLE 18

COMMUNITIES IN NEED - NORTHERN ALBERTA, 1971

Location	Popn.	Dist.	Location	Popn.	Dist.
Anzac	225	24	Fort McKay	176	13
Atikmeg	420	20	Fox Lake	475	61
			Gambler	183	
Cadotte Lake	85	39	Garden River	125	72
			Gift Lake	370	26
Chipewyan Lake	150	67	Indian Cabins	63	1
Conklin	150	42	Janvier	191	45
Driftpile River	502		Jean D'or	424	32
Little Buffalo Lake	105	42	Sandy Lake	110	19
			Sturgeon Lake	735	
Loon Lake	150	18	Utikoomak Lake	155	
Meander River	300	1			
O'Chiese	500				
Peerless Lake	85	18			

Source: Telecommission, Northern Communications

In Northern British Columbia, the problem is one of providing adequate connections to the telephone network for public use as well as to support health services.

TABLE 19

COMMUNITIES IN NEED - NORTHERN BRITISH COLUMBIA, 1971

Location	Population	Distance
Blueberry River	70	148
Dease Lake	100	267
Eddontenajon	174	250
Halfway River	100	25
Kincolith	412	50
Kitkatla	470	40
Kitwancool	198	15
Nation Lakes	under 250	130
Omineca	96	170
Stewart Trembleur	439	105
Takla Lake	under 250	170
Takla Landing	under 250	170
Tahltan	144	320
Telegraph Creek	150	250

Source: Telecommission, Northern Communications

In the Mackenzie Delta and Great Slave Area communications are usually good. The Mackenzie Poleline system provides the service. One problem that has been discussed by common carriers, is the selection of people who are prepared to accept administrative responsibility of telephone company agents. Aside from this, there are only six communities that need new or improved facilities.

TABLE 20

COMMUNITIES IN NEED - MACKENZIE DELTA

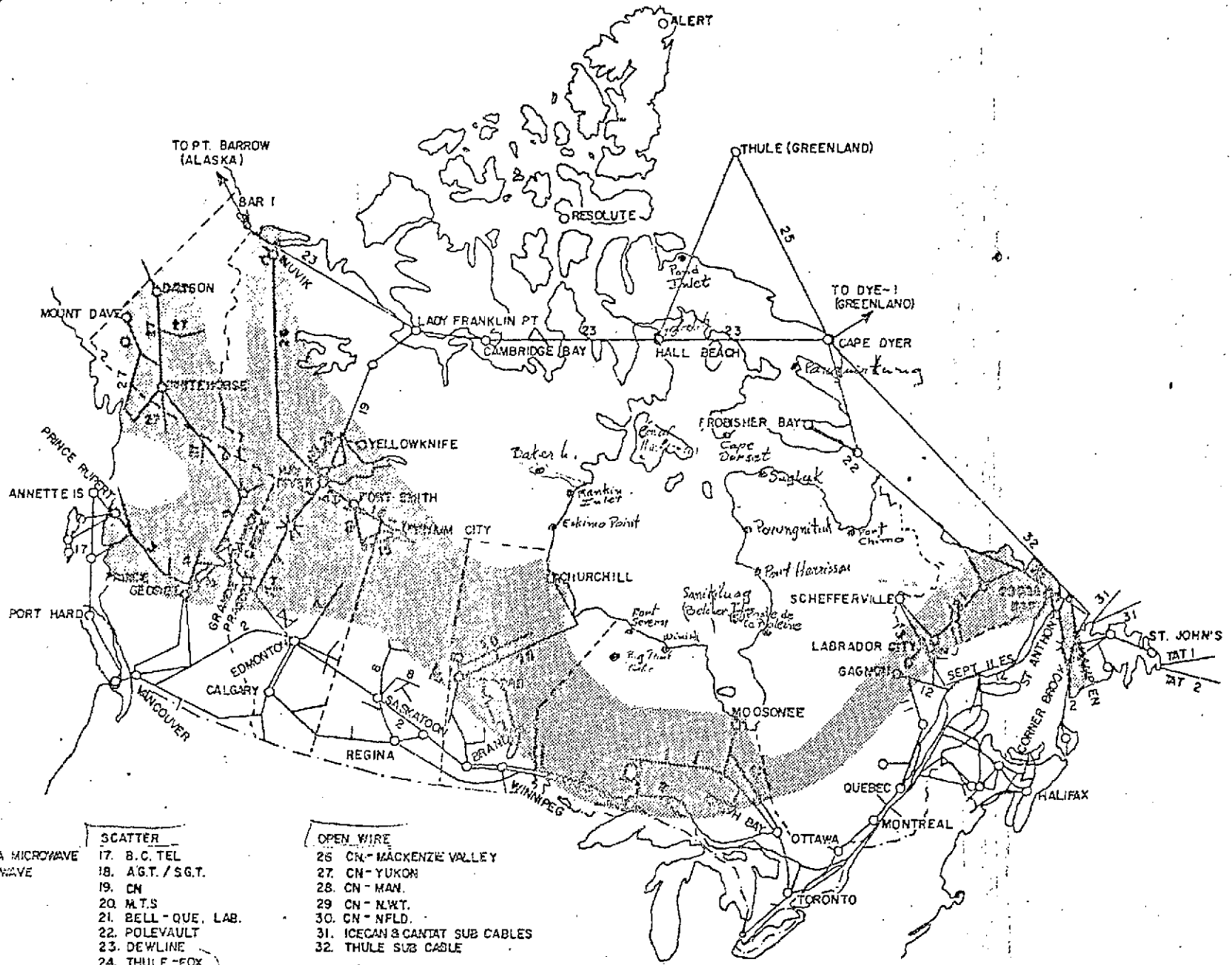
& GREAT SLAVE AREA, 1971

LOCATION	POPULATION	DISTANCE
Coleville Lake	67	
Fort Liard	160	300
Nahanni Butte	85	300
Lac La Martre	168	140
Snowdrift	209	125
Rocher River	150	100

Source: Telecommission, Northern Communications

Thus, when speaking of regional disparities in communications, the North is of prime concern. Unfortunately, this study is not of wide enough scope to analyze all aspects of Northern development. The following map may help to summarize the major areas of tele-communications development as well as those in need.

As "backward" as the North may be, it has undergone a great deal of development, particularly in recent years. Although there are many communities that are not receiving adequate service, the North as a whole, has developed substantially, and developers deserve a great deal of merit.



MICROWAVE	SCATTER	OPEN WIRE
1. TRANS CANADA MICROWAVE	17. B.C. TEL	26. CN-MACKENZIE VALLEY
2. CN-CP MICROWAVE	18. A.G.T. / S.G.T.	27. CN-YUKON
3. B.C. TEL	19. CN	28. CN-MAN.
4. P.G.E	20. M.T.S	29. CN-N.W.T.
5. B.C. HYDRO	21. BELL-QUE. LAB.	30. CN-NFLD.
6. CN-ALCAN	22. POLEVAULT	31. ICECAN & CANTAT SUB CABLES
7. A.G.T	23. DEWLINE	32. THULE SUB CABLE
8. S.G.T	24. THULE-FOX	
9. M.T.S.	25. THULE-DYER	
10. ONT. NORTHLANDS COMM.		
11. QUE HYDRO		
12. QUE TEL		
13. QUE NS & LR		
14. CN-NFLD		
15. AGT VHF MICRO BAND		
16. CN UHF MICRO BAND		

MAJOR TELE-COMMUNICATIONS ROUTES IN CANADA

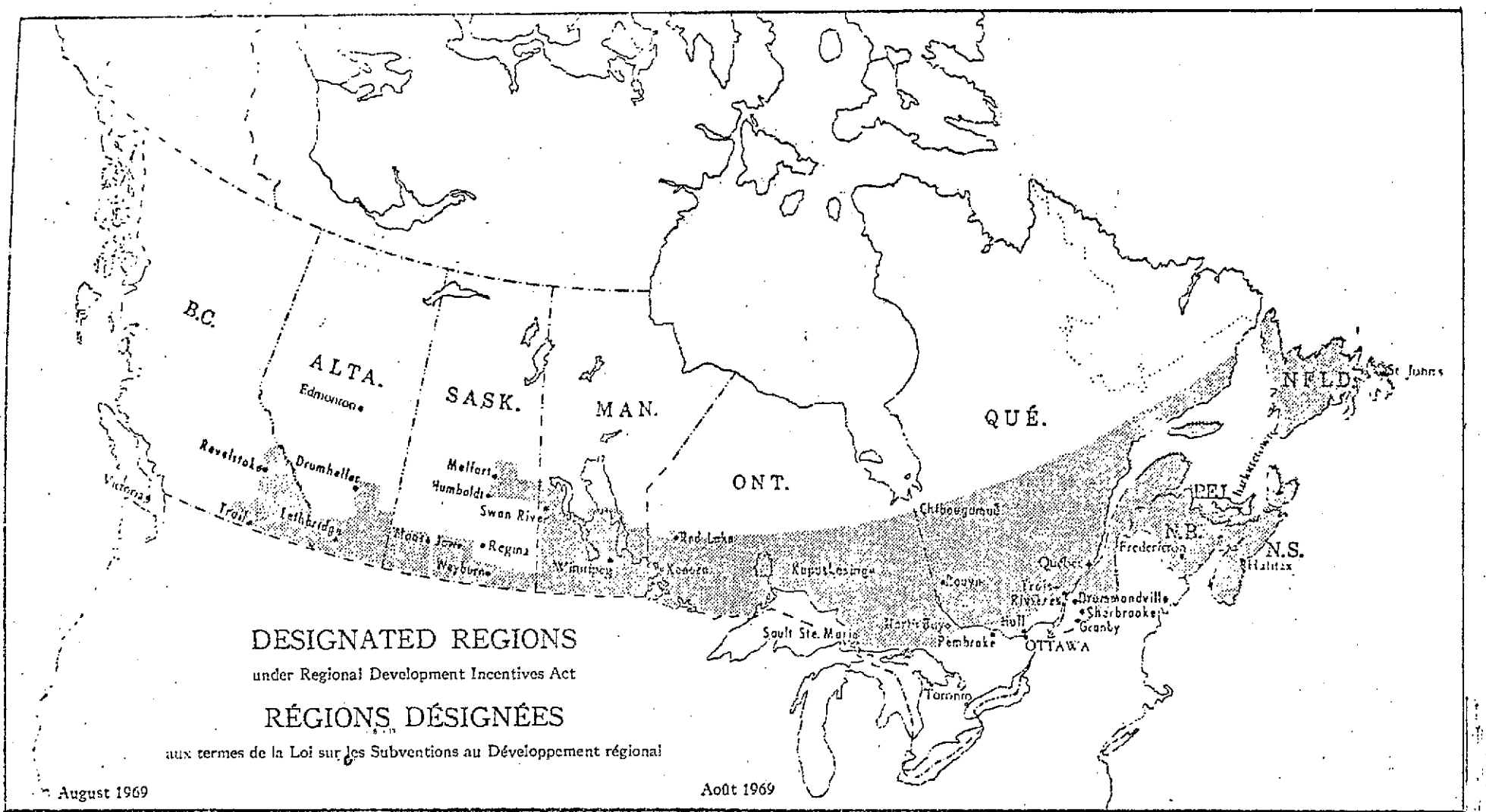
C) REGIONAL DEVELOPMENT:

Communications play a major role in regional development. Community interaction is dependent on adequate communications facilities, which in turn urges development. The telephone is the most basic form of tele-communications and hence, of regional development.

Regional development can be measured in many ways. It can be measured by province, by territory, by urban-rural differences, by company and so on. Another important form of measurement is by economic development as such, because, as seen earlier, it is directly related to communications development. In Canada, and particularly in the government sector, regional economic expansion has been of prime concern. Hence, the Department of Regional Economic Expansion.

In 1969, under the Regional Development Incentives Act, certain regions were designated as areas of prime concern for economic development. The following map illustrates the regions. When measured in this way, regional development in communications is closely linked with business and industrial development and thus, economic development. The Telecommission described the link as follows: "While tele-communications may not have been either a prime cause or constraint to economic development, they have been a very important catalyst for development and a vital part of the economic infra-structure".[11]

In terms of number of telephones by the size of the population, development in Canada has been as follows. (Table 21)



SOURCE: DEPARTMENT OF REGIONAL DEVELOPMENT

TABLE 21

TELEPHONE DEVELOPMENT IN CANADA

END OF YEAR	TELEPHONES	POPULATION	TELEPHONES PER 100 POPULATION	INCREASE IN TELEPHONES OVER PREVIOUS YEAR	
				Number	Per Cent
1950	2,917,092	13,885,000	21.0	217,480	8.1
1951	3,113,766	14,277,000	21.8	196,674	6.7
1952	3,352,366	14,682,000	22.8	238,600	7.7
1953	3,606,407	15,105,000	23.9	254,041	7.6
1954	3,860,269	15,535,000	24.8	253,862	7.0
1955	4,151,678	15,919,000	26.1	291,409	7.5
1956	4,499,325	16,352,000	27.5	347,647	8.4
1957	4,827,135	16,907,000	28.6	327,810	7.3
1958	5,118,293	17,318,000	29.6	291,158	6.0
1959	5,439,023	17,710,000	30.7	320,730	6.3
1960	5,728,167	18,092,000	31.7	289,144	5.3
1961	6,014,015	18,422,000	32.6	285,848	5.0
1962	6,329,448	18,787,000	33.7	315,433	5.2
1963	6,656,613	19,142,000	34.8	327,165	5.2
1964	7,019,374	19,501,000	36.0	362,761	5.4
1965	7,445,071	19,857,000	37.5	425,697	6.1
1966	7,893,032	20,252,000	39.0	448,122	6.0
1967	8,358,423	20,630,000	40.5	465,391	5.9
1968	8,817,846	20,940,000	42.1	459,423	5.5
1969	9,296,048	21,260,000	43.7	478,202	5.4
1970	9,750,011	21,561,000	45.2	453,963	4.9
1971	10,268,781	21,731,000	47.3	518,770	5.3
1972	10,978,964	21,976,000	50.0	710,183	6.9
1973					
1974					

Telephones for 1972 based on information supplies by members of the Canadian Telecommunications Carriers Association; earlier years are from reports issued by Statistics Canada.

Source: Canadian Telecommunications Carriers Association, Telephone Development in Canada.

Thus, there has been a great deal of development in the telephone industry, in Canada. When the trend of development is distributed amongst the provinces, we see that development has been accentuated in some provinces.(Figure 4)

The Yukon and Northwest Territories have visibly undergone the most development. However, as mentioned earlier, these two areas rate high in telephones per 100 population because of their small population. Other disadvantaged regions, such as the Maritimes, do not rate as high on the development scale.

Another way to measure regional development is in the important urban-rural axis. Figure 5 demonstrates the margin between cities. It is interesting to note that cities from largely rural provinces rate lower than cities from less rural provinces.

Yet another manner by which to measure regional development is by the companies serving certain areas. Figure 6 is an illustration of the various telephone companies with respect to the number of telephones and the area they serve. The twelve graphs thereafter are more recent and more accurate. They show graphically, the evolution of households with telephones, by company. The calculation is made per 100 household.

Figure 4

TELEPHONES PER 100 POPULATION — 31 DECEMBER 1972

BY PROVINCES

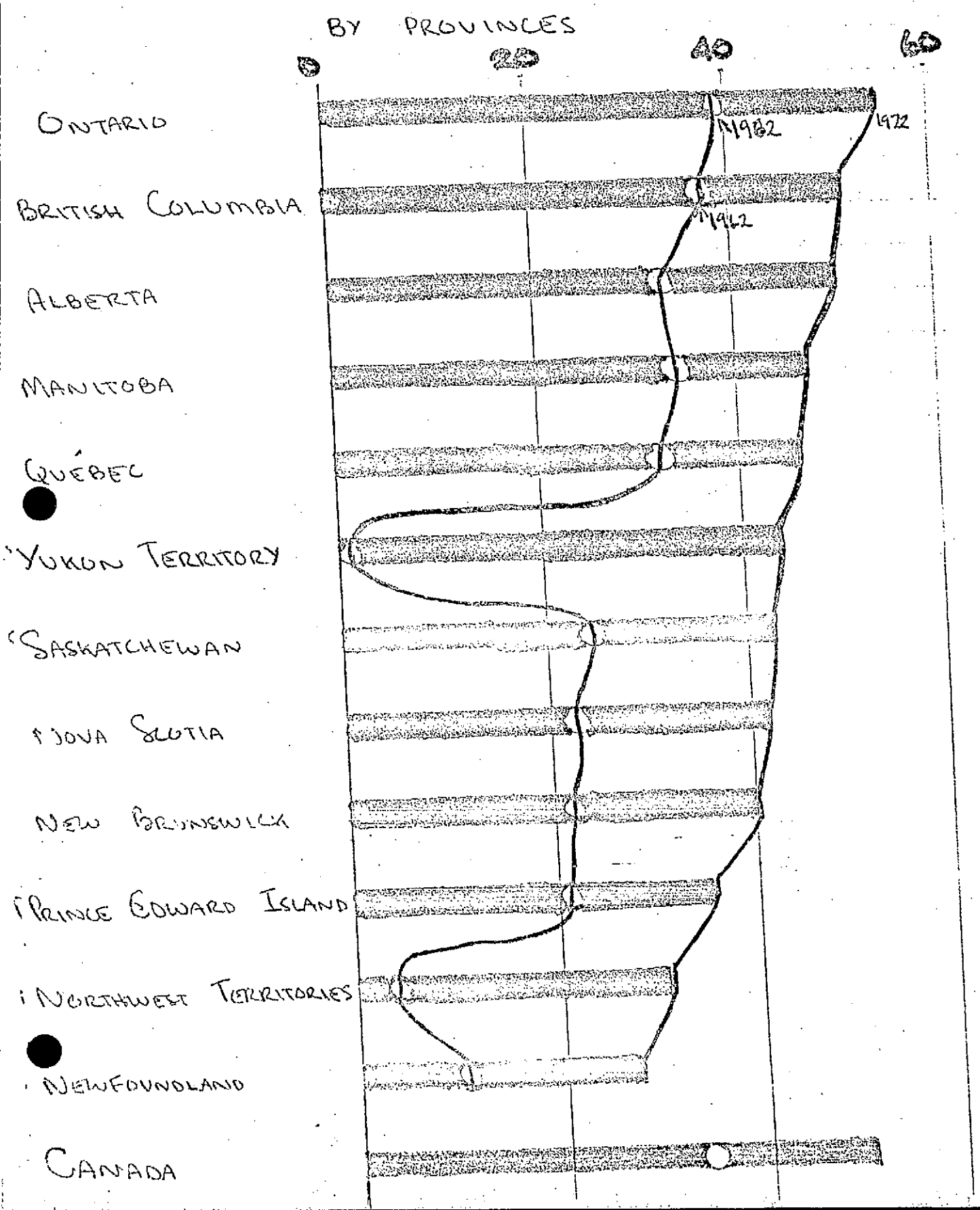


Figure 5

TELEPHONES PER 100 POPULATION - 31 Dec. 1972

By Cities

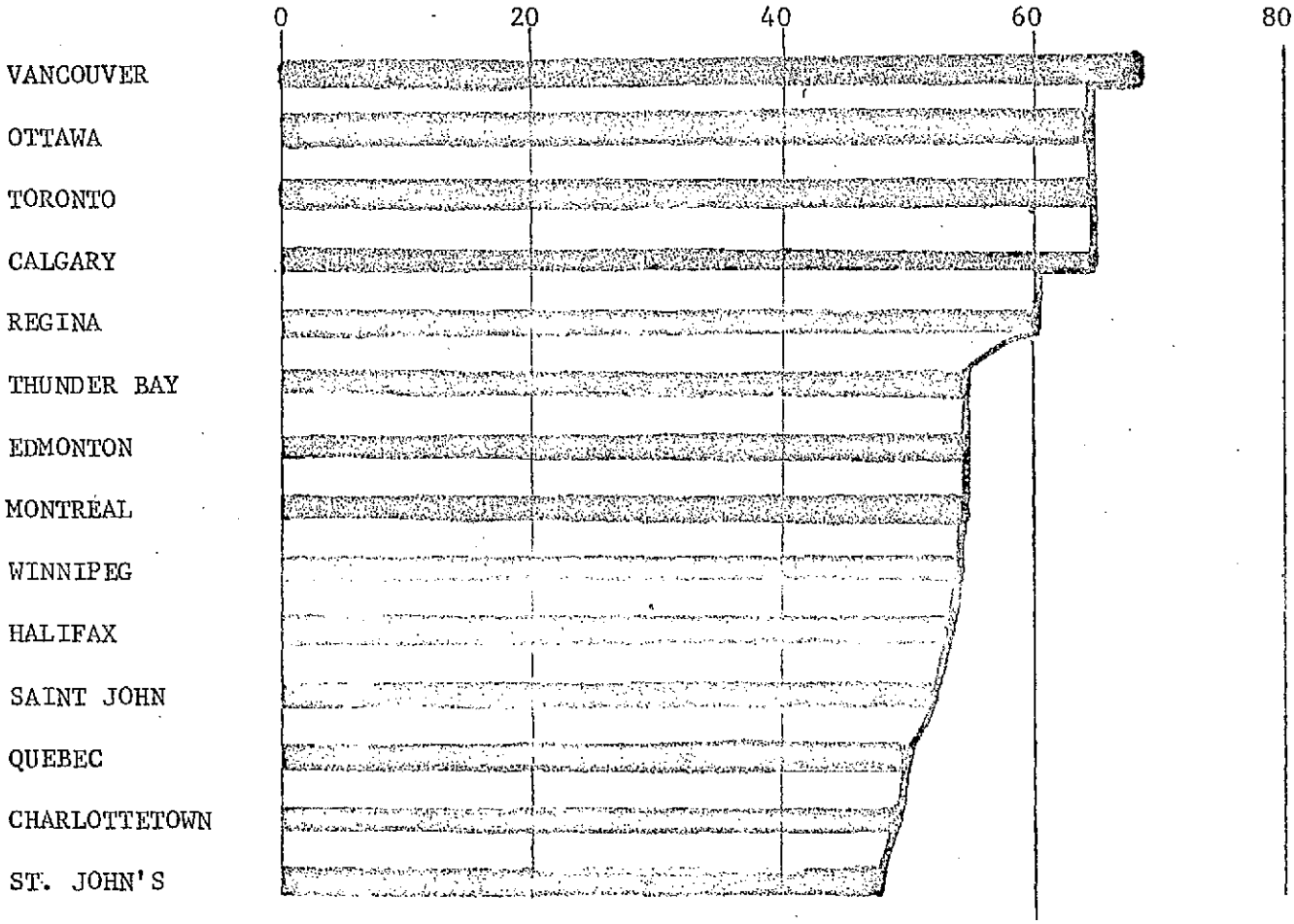
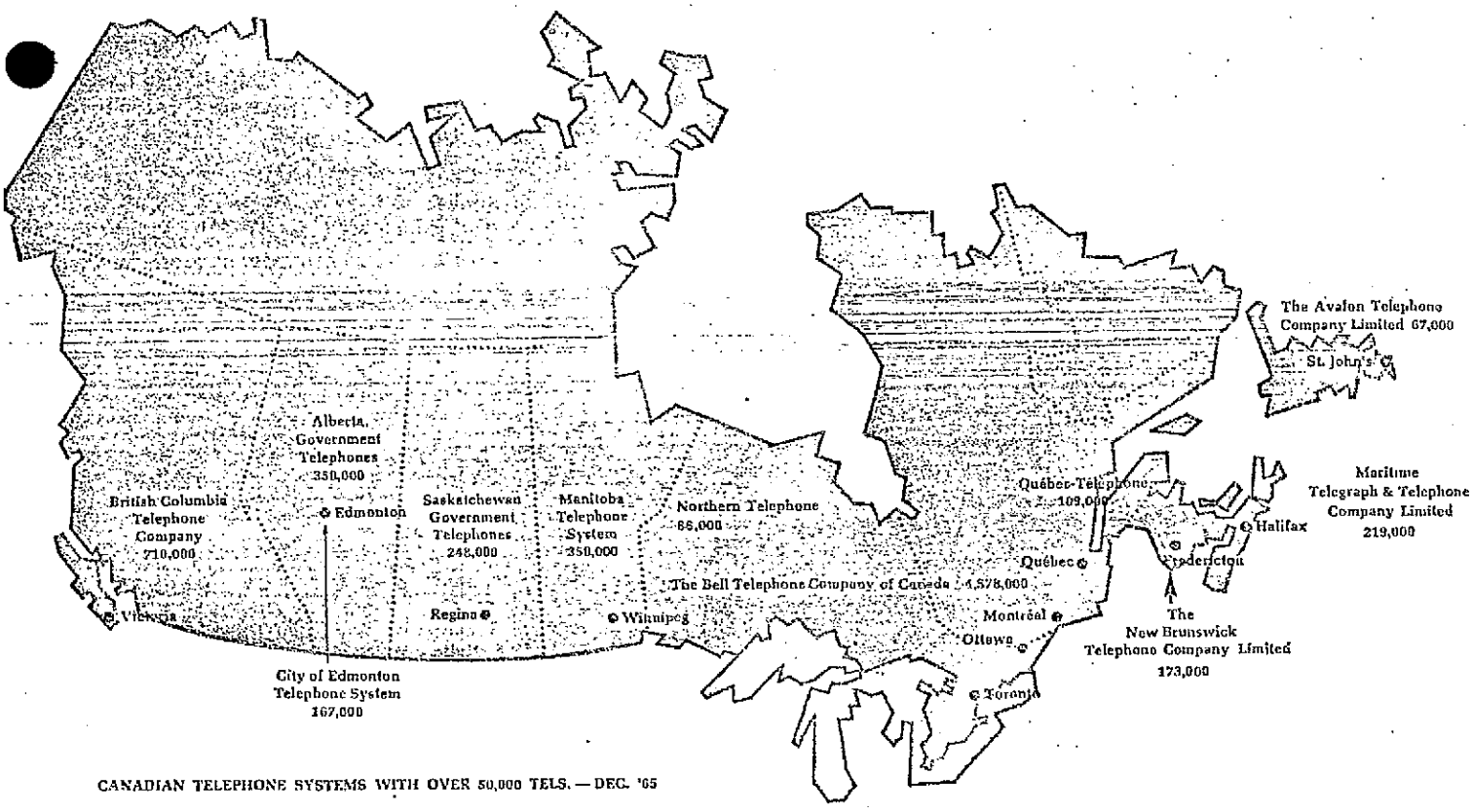


FIGURE 6



CANADIAN TELEPHONE SYSTEMS WITH OVER 50,000 TELS. — DEC. '65

Telephones in Canada — By Companies and Systems (December 1965)
Telephone Association of Canada

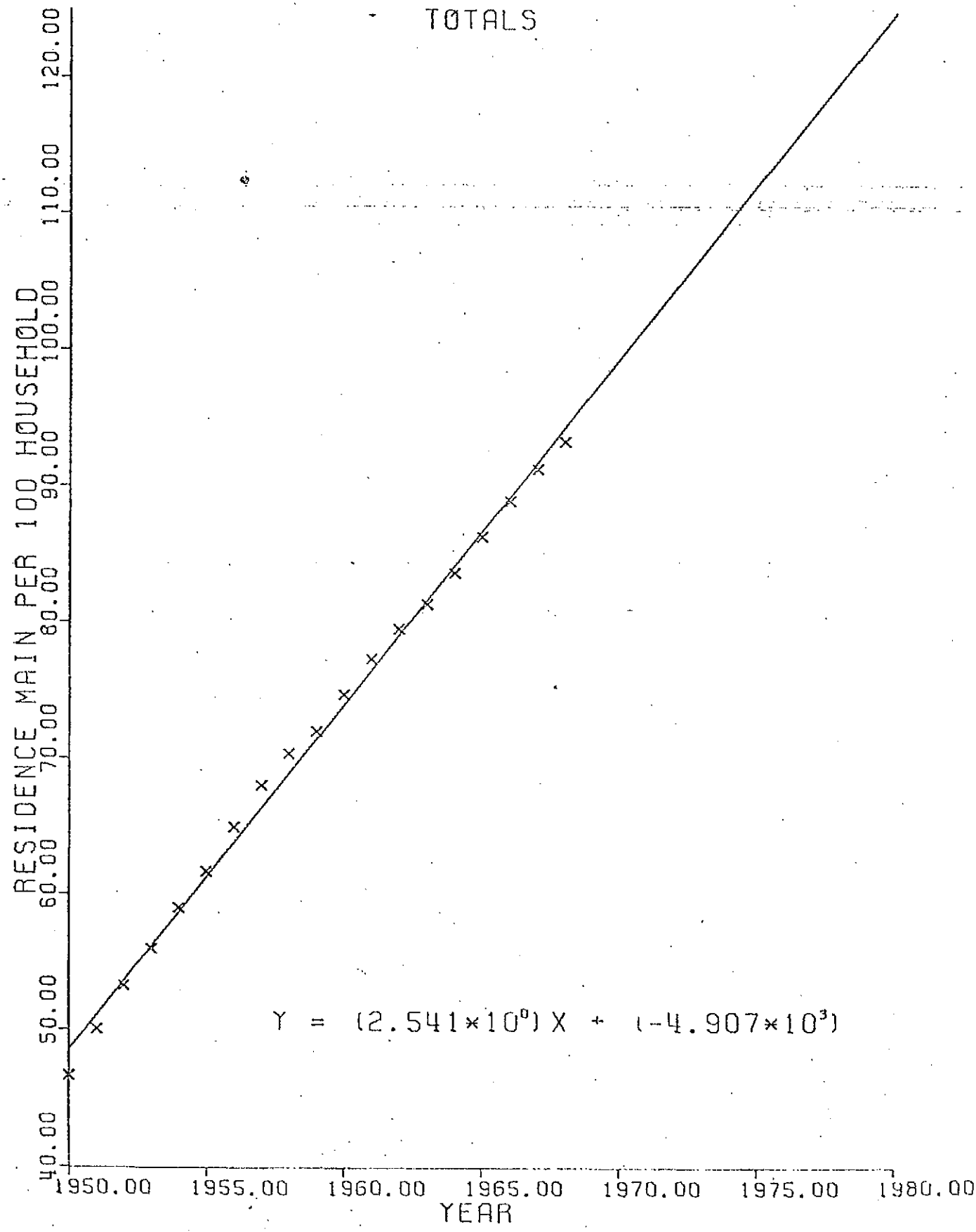
	Telephones	Ownership
*The Avalon Telephone Company Limited	67,000	Private
*The Bell Telephone Company of Canada	4,578,000	"
*British Columbia Telephone Company	710,000	"
The Island Telephone Company (PEI)	27,000	"
*Maritime Telegraph & Telephone Company Ltd.	219,000	"
*The New Brunswick Telephone Company Limited	173,000	"
Okanagan Telephone Company	37,000	"
Québec-Téléphone	109,000	"
*Alberta Government Telephones	350,000	Provincial Govt.
*Manitoba Telephone System	350,000	"
Ontario Northland Communications	1,000	"
*Saskatchewan Government Telephones	248,000	"

Other large systems

†Northern Telephone Limited	86,000	Private
†City of Edmonton Telephone System	167,000	Municipal Govt.
Fort William Municipal Telephone System	23,000	"
Port Arthur Municipal Telephone System	21,000	"
Total: 16 Companies	7,156,000	
Total: Canada	7,505,000	

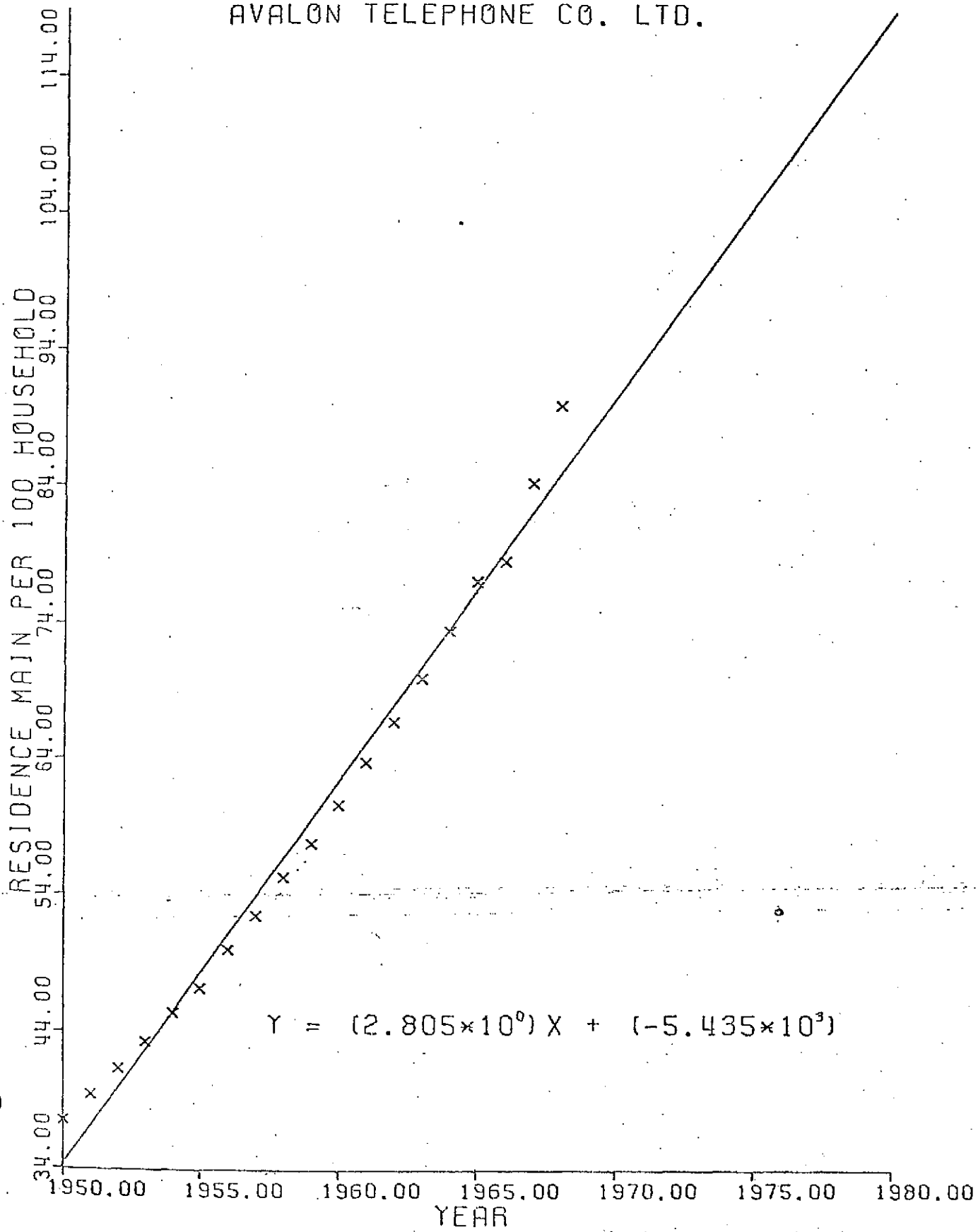
Members of Trans-Canada Telephone System

†*Joined Telephone Association of Canada in 1966*


RESIDENCE MAIN PER 100 HOUSEHOLD
TOTALS
RESIDENCE MAIN PER 100 HOUSEHOLD
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
1950.00
1955.00
1960.00
1965.00
1970.00
1975.00
1980.00
YEAR
Y = (2.541*10^0) X + (-4.907*10^3)

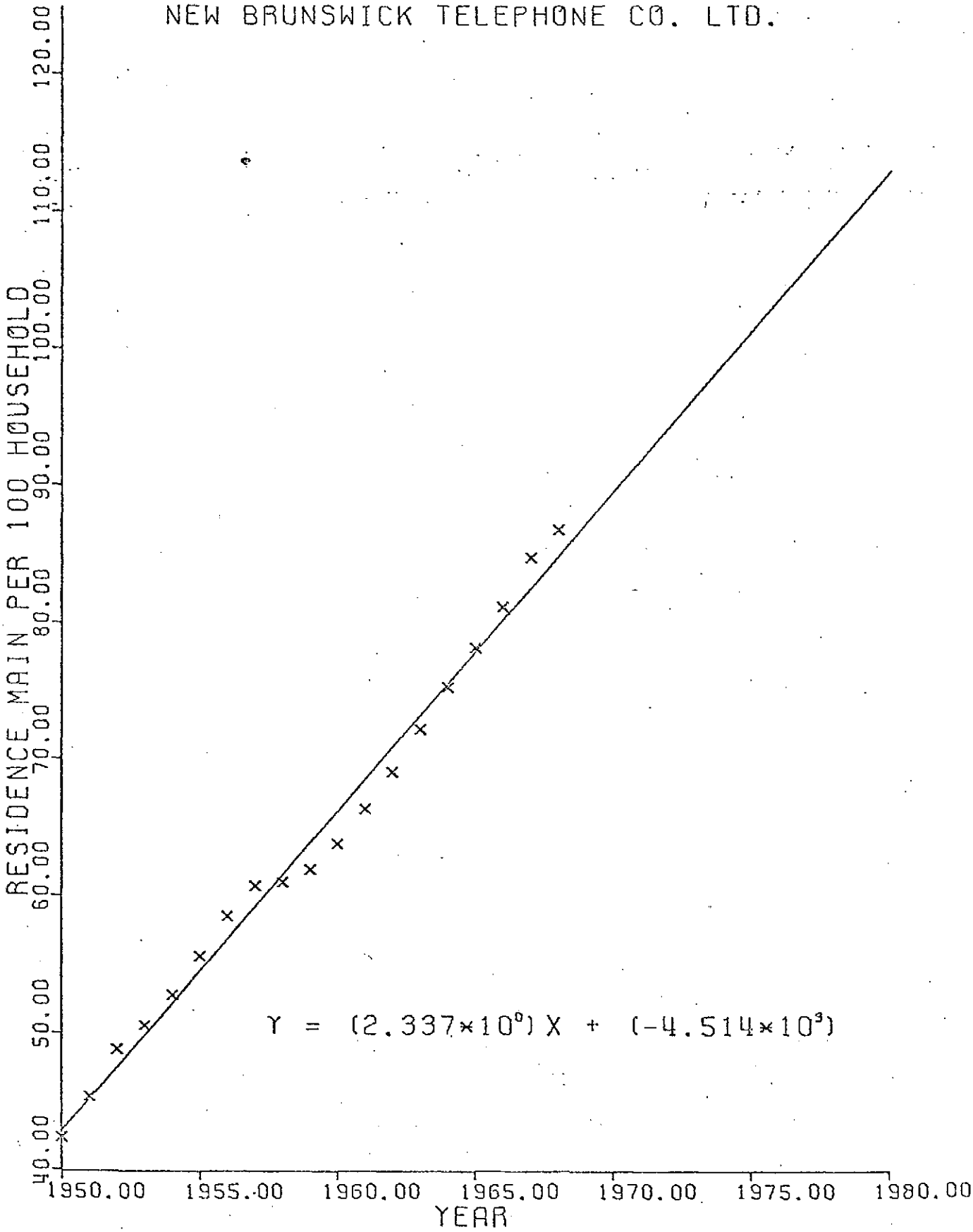
RESIDENCE MAIN PER 100 HOUSEHOLD

AVALON TELEPHONE CO. LTD.

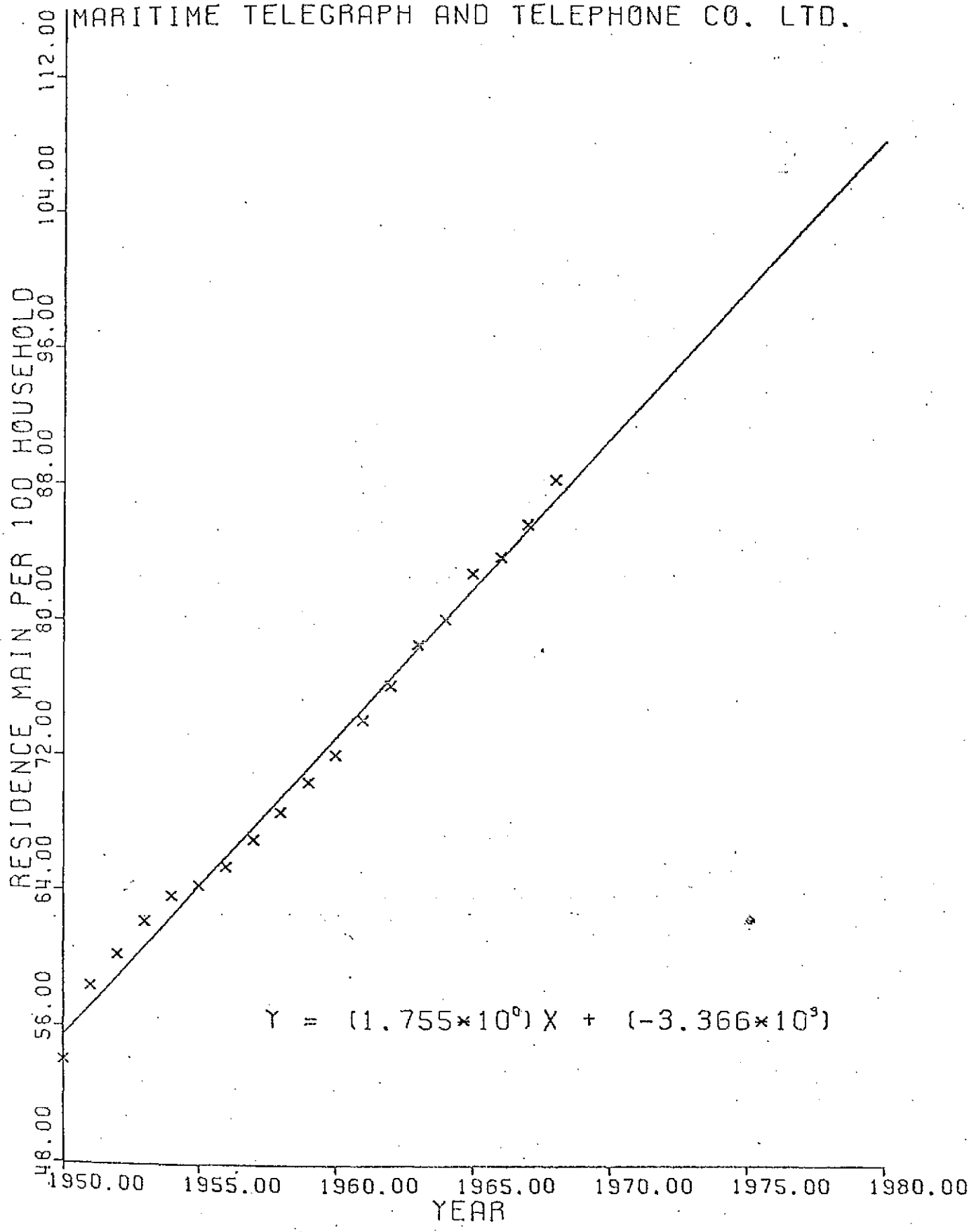


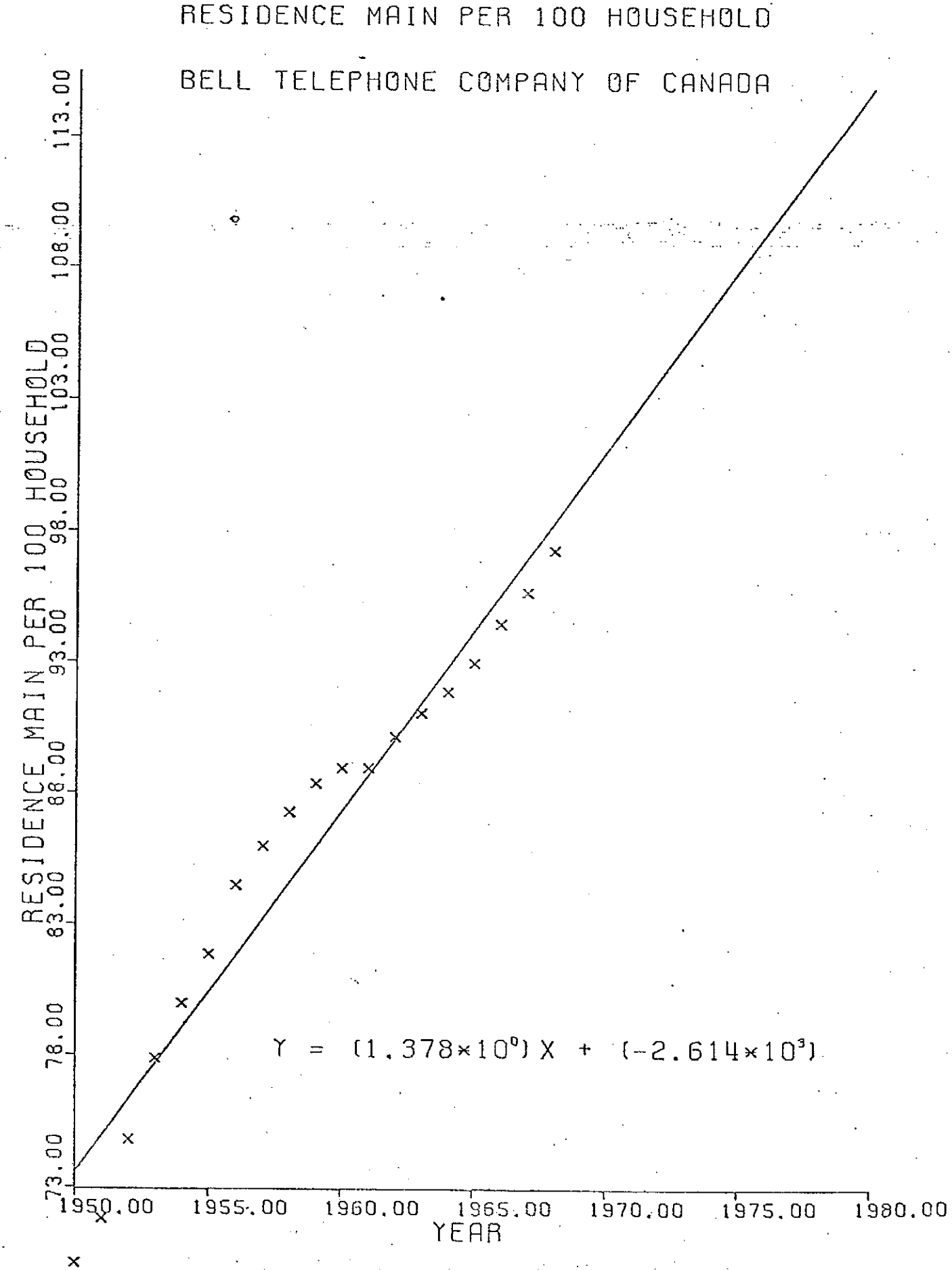
RESIDENCE MAIN PER 100 HOUSEHOLD

NEW BRUNSWICK TELEPHONE CO. LTD.



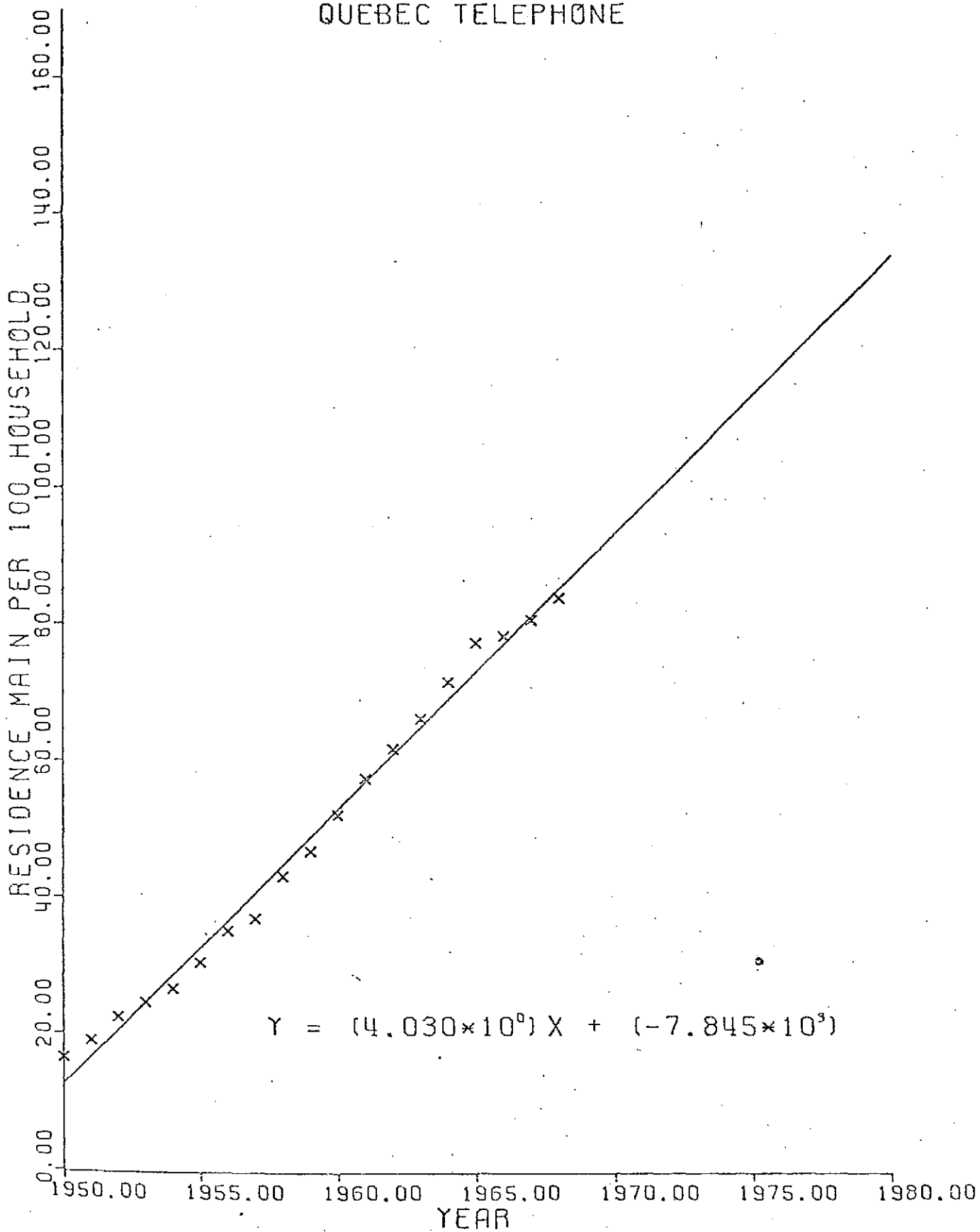
RESIDENCE MAIN PER 100 HOUSEHOLD




RESIDENCE MAIN PER 100 HOUSEHOLD
BELL TELEPHONE COMPANY OF CANADA
RESIDENCE MAIN PER 100 HOUSEHOLD
73.00
78.00
83.00
88.00
93.00
98.00
103.00
108.00
113.00
1950.00
1955.00
1960.00
1965.00
1970.00
1975.00
1980.00
YEAR
Y = (1.378*10^0) X + (-2.614*10^3)

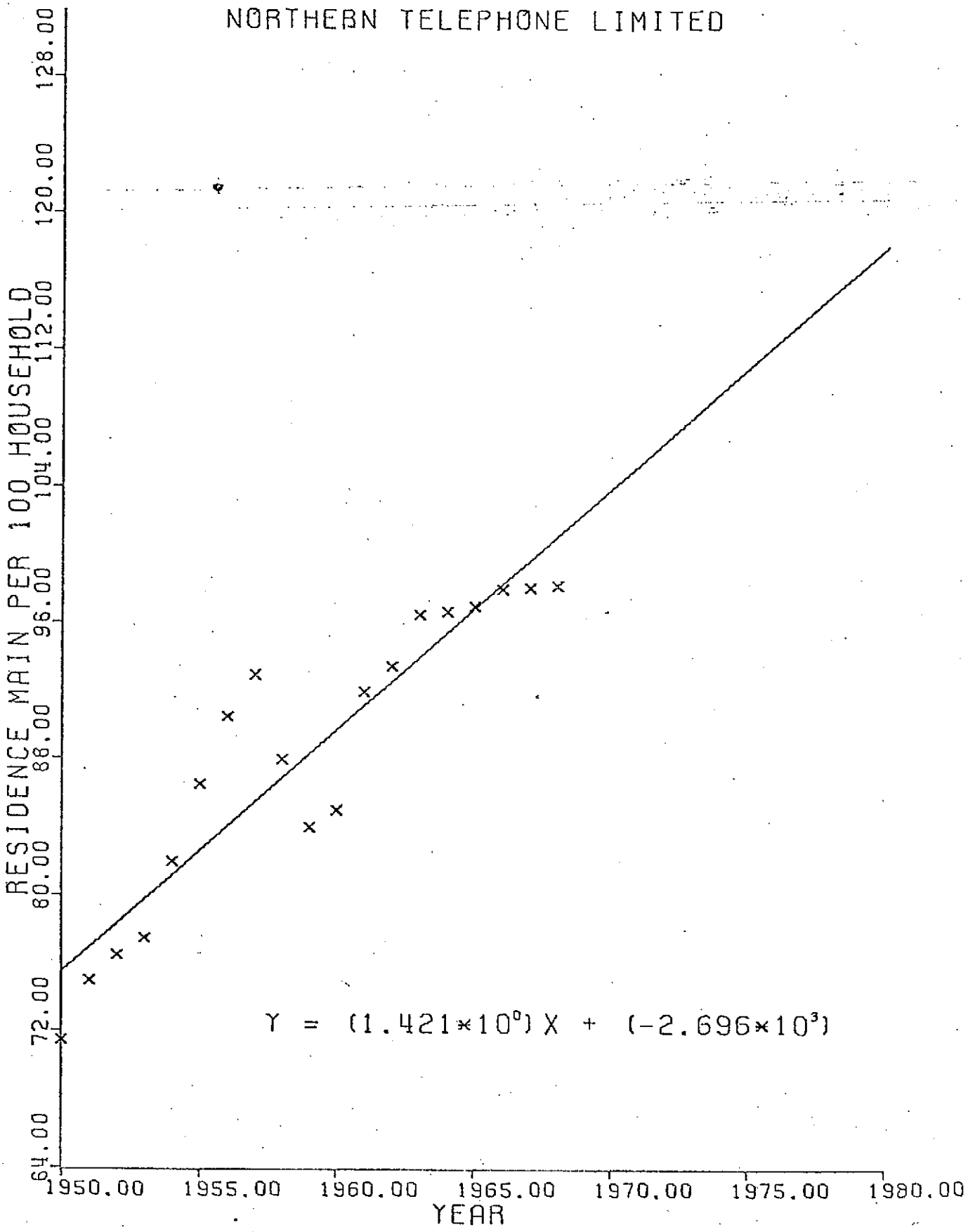
RESIDENCE MAIN PER 100 HOUSEHOLD

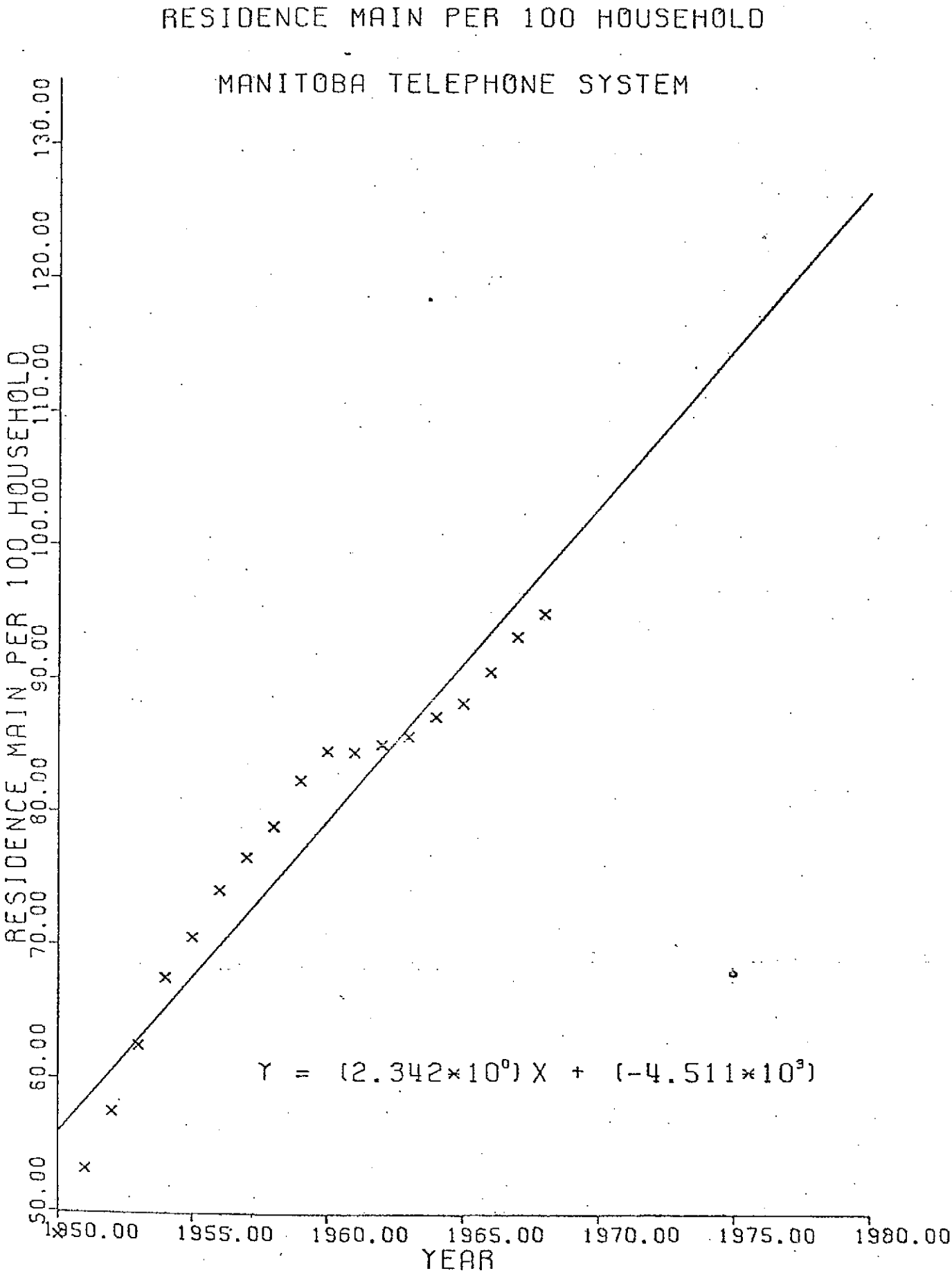
QUEBEC TELEPHONE



RESIDENCE MAIN PER 100 HOUSEHOLD

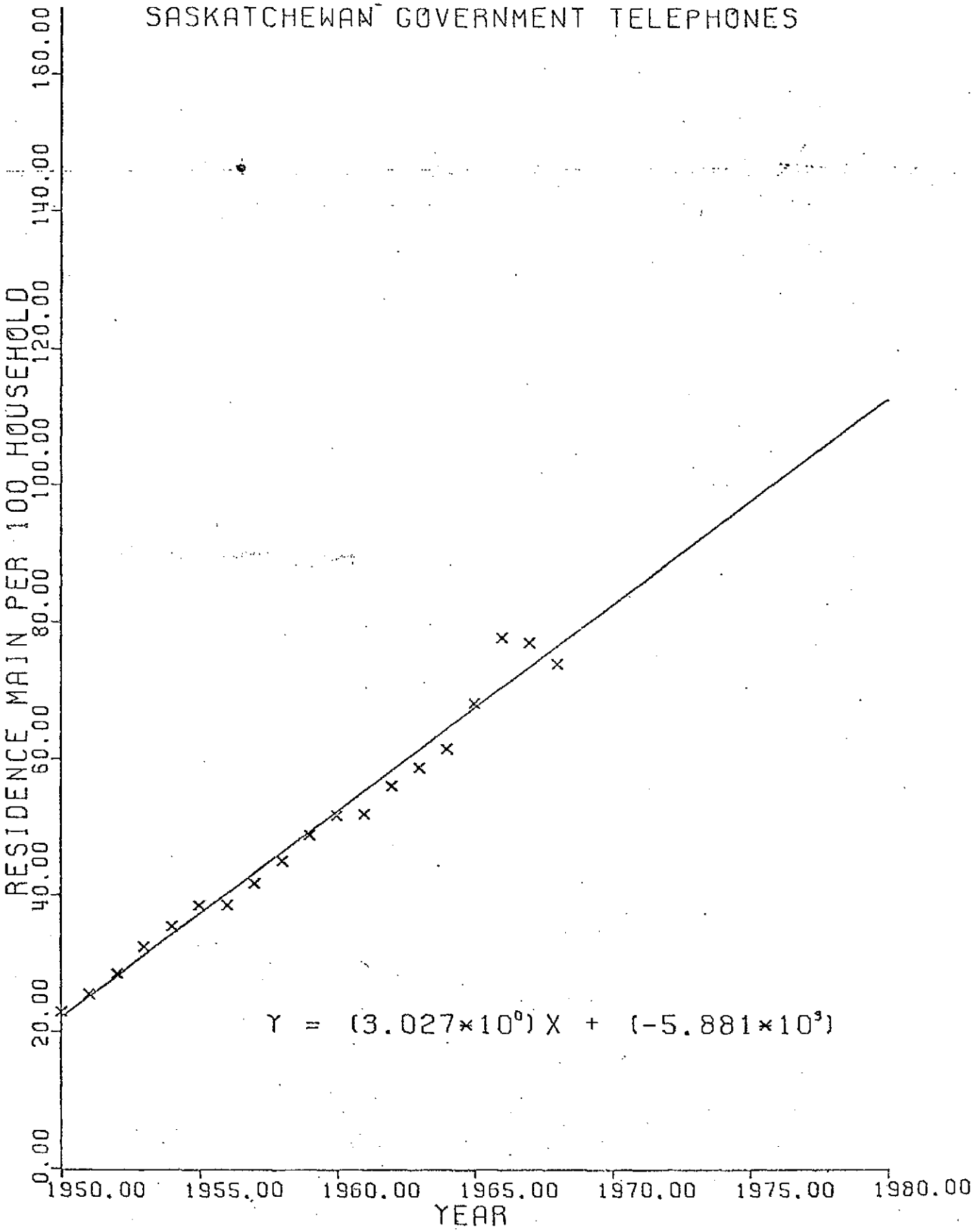
NORTHERN TELEPHONE LIMITED




RESIDENCE MAIN PER 100 HOUSEHOLD
MANITOBA TELEPHONE SYSTEM
RESIDENCE MAIN PER 100 HOUSEHOLD
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
130.00
1950.00
1955.00
1960.00
1965.00
1970.00
1975.00
1980.00
YEAR
Y = (2.342*10^0) X + (-4.511*10^3)

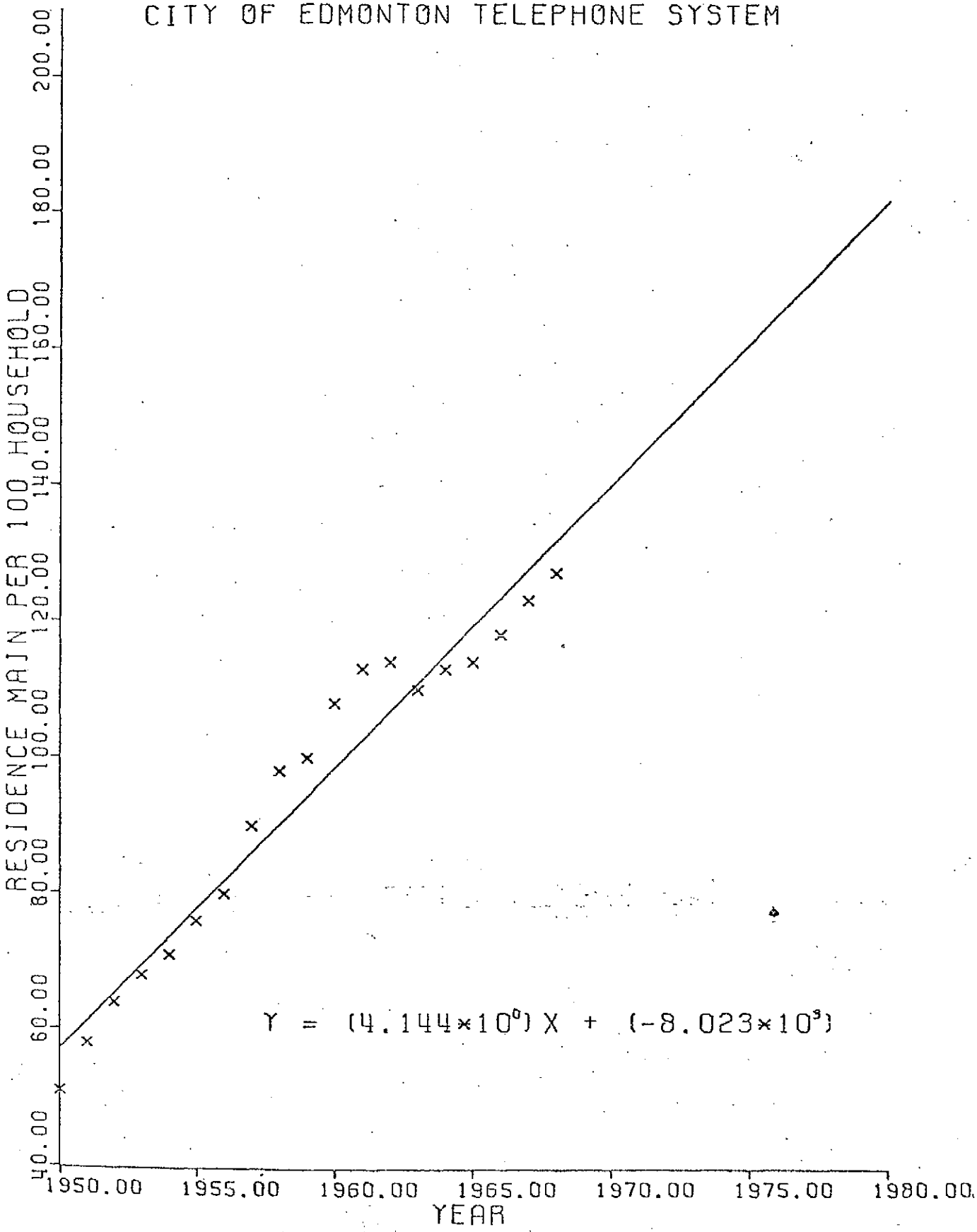
RESIDENCE MAIN PER 100 HOUSEHOLD

SASKATCHEWAN GOVERNMENT TELEPHONES



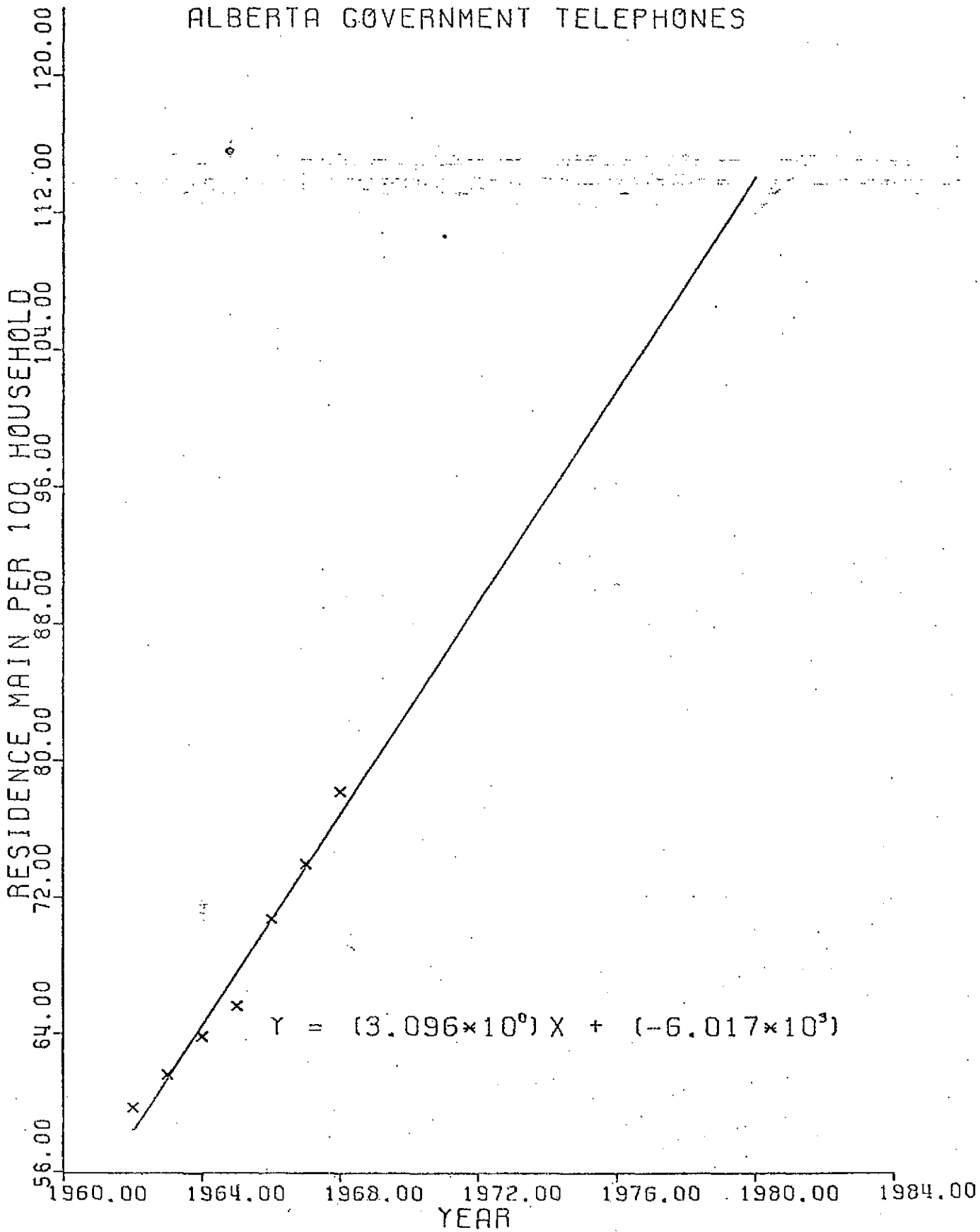
RESIDENCE MAIN PER 100 HOUSEHOLD

CITY OF EDMONTON TELEPHONE SYSTEM



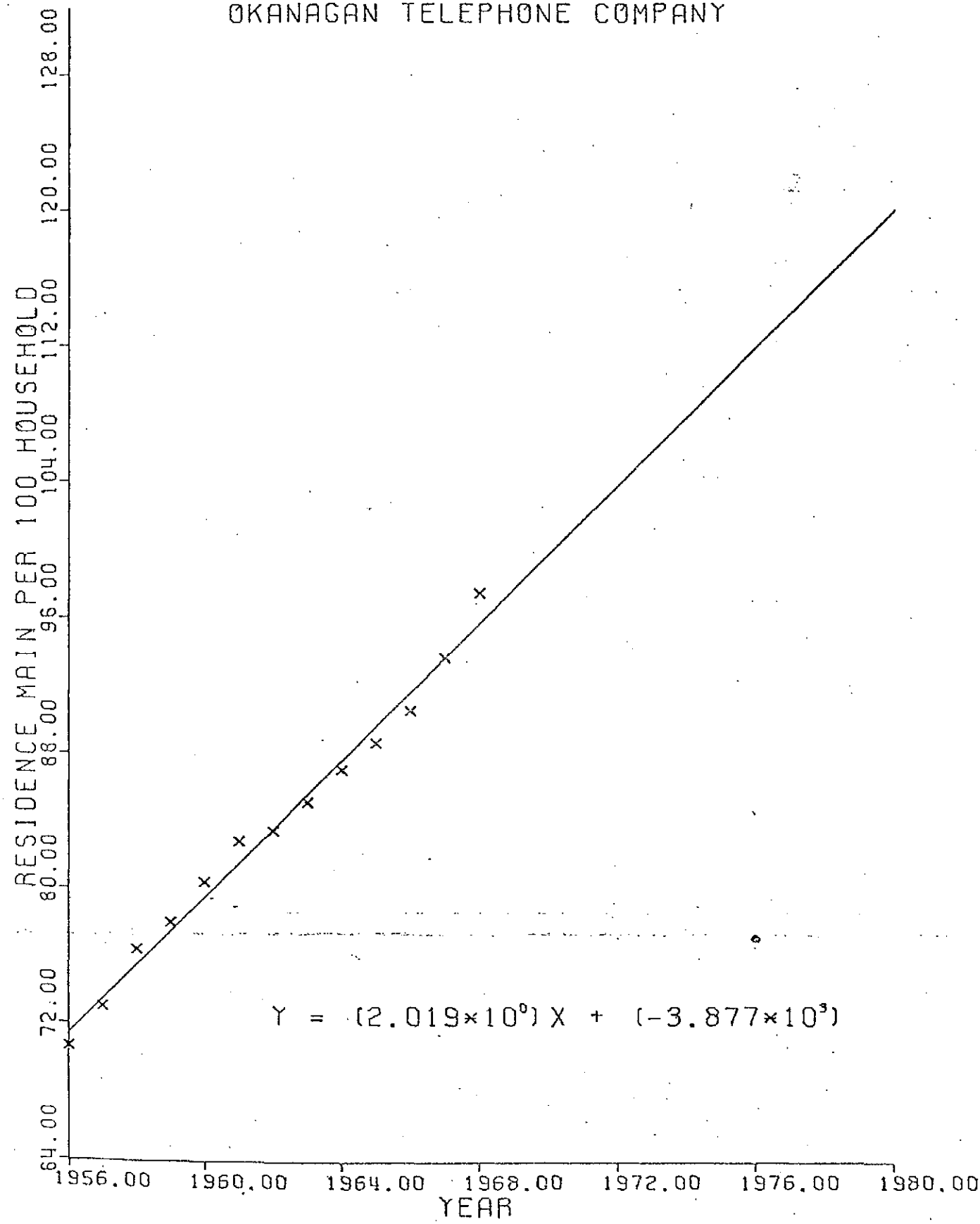
RESIDENCE MAIN PER 100 HOUSEHOLD

ALBERTA GOVERNMENT TELEPHONES



RESIDENCE MAIN PER 100 HOUSEHOLD

OKANAGAN TELEPHONE COMPANY



3. THE CAUSES:

This section of the report will attempt to outline the more important causes or reasons why some people (and whole regions) are deprived of telephone service. It will do so in three sub-sections. The first is the centralization of control of services, which will deal with regional disparities, the second is the problem of maintenance of existing facilities, and the third is perhaps the most important: telephone costs.

A) CENTRALIZATION OF CONTROL AND REGIONAL DISPARITIES:

Economically speaking, there are several reasons why certain regions are more developed than others. The more favourable climate in the south of Canada, for example, as well as easily accessible waterways are certainly important determinants in the location of businesses, and industry. Another possible explanation is historical. The centralization of industrialization in southern Ontario could have been due to the fact that many of the parent corporations in the United States wanted their junior corporations to be at close range, thus, building small flaws in Canada's economy. As the economy grew, these flaws developed into seriously imbalanced growth. Still another explanation lies in the market system. If a region or province has a resource or produces a commodity whose market drops and stays low, that region will collapse economically because the centre economy will no longer desire its product. In order to fight regional disparity, many individuals and industries leave the affected area, thus reinforcing both the centre economy and the disparity of the region.

Notwithstanding the effects of economic development on communications development, the above description demonstrates other factors as well. These are the centralization of power and control. Similar to and because of the economic structure, the structure of communications can be seen in much the same way. The centralization of power and control in the tele-communications industry can be seen from two levels: At the institutional level, a further dichotomy is possible: the supply level, in the sense that Bell Canada enjoys a quasi-monopoly; and the user level, in the sense that large businesses, corporations, and institutions of all sorts use more and better facilities, as well as more frequently, than single citizens (of all areas), but pay a proportionally lower price. This is evident through such policies as pre-fixed long distance rates, regardless of actual calls, and the like. In the eyes of the company (Bell or others), however, the lump sum is much higher from institutions and in this way they indirectly control the quality of services as well as technological developments, since there are very often suited to their taste and needs.

At the urban-rural level, the situation is similar. Large urban areas are the centre of communications and consequently, control the industry as well as technological developments. These are implemented to firstly satisfy the needs of the urban area, therefore increasing isolation of the rural area. It is also a fact that tele-communication costs are inversely related to the population density.

As a result of the above factors, another causal factor emerges. Because of the control and power structure, technological development is

often conducted without serious concern for the social environment or social needs. Thus, technological development is undergone to satisfy cert in needs (mostly those of the power structure) while ignoring others. As one author expresses it ..."technological development involves three factors: technical, economic and social. Whenever the attempt is made to co-ordinate these three, it is the social fact that is sacrificed".[12] This social fact includes anything from environment to social reactions and consequences of particular developments. Although this area of study is gaining increasing concern, it is still largely forgotten when developments are planned and implemented. The fact that Bell Canada ignored a request to carry out a study on the social and economic utility to cope with telephone rates is a good example.

All these factors and more about centralization of power and control account for a large part of inequalities and disparities, both regional and individual. It seems logical and perhaps highly favourable that the first step towards a remedy for this social ill is that measures be taken to encourage decentralization of power and control.

B) MAINTENANCE:

Aside from disparities of access to telephone service, there are also wide disparities in effective access. There are many people who are deprived of services due to poor maintenance of basic equipment. Hence, the importance of proper maintenance practices in regional development.

Most maintenance difficulties are concentrated in remote areas, particularly in the North. Most difficulties revolve around problems of

distance, climate, manpower and equipment. The problems of distance and climate, by nature, are somewhat uncontrollable; the latter two are indeed controllable and thus pose complexities. There have been numerous complaints of inadequate equipment or more "leftovers" being sent to the North, therefore requiring more maintenance and repairs. Simultaneously, the manpower problem is a serious one. It would not be profitable for a telephone company (Bell or others) to employ full-time technicians for "stand-by" positions in remote areas. Similarly, it may not be profitable (although perhaps favourable) for such companies to train local people for various positions of maintenance, repair and general functioning of present facilities. On the other hand, a breakdown in equipment may have much more serious consequences in isolated areas than in highly populated areas where other facilities are normally easily accessible. In reality, remote areas require better, more dependable equipment since the maintenance staff is extremely limited. This rarely occurs, however.

The problems of distance and climate are in a sense responsible for the problems of manpower and equipment. It is admittedly much more difficult to introduce and effectively service communication facilities in the North (particularly in remote areas) than elsewhere. However, many of the serious maintenance needs stem from a lack of positive action by all concerned to seriously match equipment with needs and to maintain the facilities once they are introduced.

As far as equipment is concerned, it must innenitably be sent from the south. Admittedly this poses serious problems and difficulties, but there should be better perception of what certain communities need and

what equipment will fulfill the need. Only then can proper maintenance policies begin.

Once the proper equipment has been installed, the manpower problem becomes a reality. There has been much controversy facing the question of whether Northerners should be trained for maintenance positions or whether southern technicians should be imported. The latter seems highly time consuming and very expensive. Training local people in the operation and repair of equipment would be more profitable for all concerned: it would enable Northerners to operate their own communication systems as the other regions in the country, and it would also relieve some unnecessary duties that common carriers and governments are presently involved in.

Training should be at all levels. That is, training should be provided for administrative personnel, technicians, maintenance people, and the like. Training should of course be directly related to the type of equipment utilized by the community. In short, personnel should be trained at all levels of communications, so that in future years, the North can govern, operate and maintain its own systems as the rest of Canada is doing.

At present, maintenance needs are very serious in the North, and other remote areas as well. If a piece of equipment fails, there is very often no one in the area to repair it properly, and the process of importing technicians is time-consuming and expensive. The result is that the community or communities would do without service for a given period of time - sometimes several weeks. In addition, remote areas are usually

those who are most in need of effective communication because of the various factors and dangers of remoteness. Moreover, the problem may be minor and technically simple, but there is no personnel to even detect that it is a minor problem. Proper training of local people, therefore seems to be amongst the most important measures for further communications development in remote areas.

Of the communities listed in the previous section, there are many that are experiencing technical difficulties and are deprived of adequate service as a result. In Frobisher Bay as well as in Coral Harbour, for example, there has been a recent demand for the establishment of regional administrative personnel to improve and facilitate the lulling procedures in particular, but all other administrative duties as well. As it is, Bell Canada has the same billing policy in the north as in the south. That is, payment notices are sent out approximately ten days after the customers should have received their bills by mail. In the North, however, the mail service is irregular, and there have been many instances of customers receiving payment notices at the same time or shortly after their bill. There have also been a few exceptional cases where payment notices were received before bills. The need for regional administrative personnel in the North is clear. There are similar needs at almost all levels of positions involved in providing telephone service. They need technicians, operators that can speak the native language, accurate and trilingual directories and so on. Northerners as well as citizens from other remote areas urgently need to be trained, so that they can install, administer, maintain and operate their own systems without

being totally dependent on governments, common carriers and other institutions for provision of their every need.

C) TELEPHONE RATES:

Telephone rates have been a subject of extreme controversy of late. With the recent approval by the CTC of most of Bell Canada's Application "B" for rate increases, telephone rates have suddenly become a popular topic. Telephone rates have been largely taken for granted in the past, but now they are drawing the attention of more and more researchers, project managers, and policy-makers. Perhaps Bell's quick response to refusal of Application "A", namely Application "B", accounts for much of the intellectual uproar.

By any means, the basic monthly charge for telephone service before the CTC approval was as follows:

TABLE 22

RANGE OF MONTHLY SERVICE CHARGE - RESIDENTS ONLY 1974

Company	Type of Service	
	Individual	Multi-Party
Bell Canada	$4.00 - $7.55	$3.05 - $5.20
Alberta Gov't Tel.	$3.35 - $4.25	$4.25 - $5.25
Saskatchewan Tel.	$2.40 - $4.15	$2.35 - $3.65
Manitoba Telephone	$2.40 - $3.90	$2.30 - $3.60
CN Tel. (Nfld)	$4.60 - $5.00	$2.65 - $2.90

There are two more charges that are compulsory for assessing telephone rates: installation and long distance charges. In some cases an additional credit deposit is necessary. Installation charges vary

considerably amongst companies: Saskatchewan Telephone charges $3.00, Alberta Government Telephone charges $10, and Bell Canada charges $11. The latter two are relatively very expensive. Long distance calls, of course, are based on the distance called. They also vary according to time of day. For example, the regular charge for Ottawa to Halifax is $.60 per minute, and from Ottawa to Calgary, it is $.90 per minute. These charges apply to customer dialed calls; if operator assistance is requested, the charges are boosted to $2.10 and $3.00 respectively. Basically, those are the charges that regular customers have to pay. All of the above charges are for residential telephones only.

The Bell rate increases that were approved by the CTC are in the following areas:

(a) Additional 10 cents a month on basic rates for individual residential lines.

(b) Increase of 5.75 per cent for business telephones, including extensions.

(c) Additional five cents per quarter-mile for mileage charges which apply to individual and two-party rural lines serving customers located outside a local exchange base rate area.

(d) Increase of five cents a month for residential and hotel extension telephones.

(e) Charge for temporary suspension of a telephone service, done at the customer's request, increased from one-half of the normal basic rate to the full basic rate.

(f) One cent a minute added to long distance overtime rates in the Ontario - Quebec schedule.

(g) Service charge for installing an extension telephone on a residential line increased from $9 to $10.

(h) Service charges for installation work on business lines increased by 25 per cent.

There are two more increases that were approved but with certain modifications:

(a) New directory assistance charge of 25 cents each on calls to "information" for local telephone numbers listed in the current directory, subject to the following exemptions:

- no charges on the first three calls in each month from a residential subscriber
- no charges to residential subscri ers aged 65 and over who request exemption
- no charges to be applied in the Northwest Territories or sub-Arctic Québec where a trilinqual directory is proposed
- no charges on requests for emergency services
- on requests from persons unable to use a directory due to a physical disability

(b) Local calling rate from coin-operated pay phones increased from 10 to 20 cents with the following exceptions:

- The ten cent rate shall continue to apply to pay phones located on city sidewalks, and at subway stations, railway stations, bus stations, hospitals, nursing homes, rooming houses and churches
- No 20 cent phones shall be introduced in an exchange area until a 10 cent pay phone location plan for the area has been filed with the CTC and found satisfactory.

All but two clauses of Bell's application were approved.

A popular opinion about the recent increases in both the public sector and Bell defenders has been that the increase is minimal due to the excellent service offered. Generally speaking, the service is indeed excellent. However, rate increases must not be assessed in terms of the additional 10 cents per month that customers will have to pay, but rather by the economic structure and more specifically, Bell's position in this structure.

Without going into detail about Bell's economic infra-structure, a brief summary of revenues seems appropriate. For further financial details, please see Appendix A. Net earnings of Bell Canada for the second quarter of 1974 amounted to $63.4 million or $1.60 a share, up from a restated $36.9 million or 91 cents a share in the comparable period of last year. This marks a 72% increase. The restatement of year ago results reflects the consolidation of all subsidiaries. For the same time period, consolidated revenues totalled $664.4 million compared with $471.8 million, an increase of 41%.

For the first six months of this year, earnings were $119.8 million, or $3.01 a share, as against $84.8 million or $2.12 a share last year. Consolidated revenues were $1.28 billion, versus $973.1 million last year.[13]

By any means, these figures show that Bell Canada is a healthy corporation. The approved rate increases will yield an additional $51,800,000. The increases would also result in estimated earnings per common share of about $4.81 for 1974, an increase of 10.1% over the $4.37

attained in 1973. The result for 1975 is estimated at about $5.27 per common share, an increase of 9.6% over the $4.81 estimated for 1974.[14] Thus, the lenient approval of rate increases, undoubtedly favours an already healthy corporation, at least internally (within the corporation).

Externally, or in comparison to other major corporations, Bell Canada is very stable.

TABLE 23

RATES OF RETURN ON EQUITY OF 52 MAJOR CORPORATIONS COMPARED TO THAT OF BELL CANADA, 1962 - 1972

		1962	1967	1972
Transportation and Utilities	Higher than Bell	5	7	6
	Same as Bell	0	0	0
	Lower than Bell	4	2	3
Commercial and Industrial	Higher than Bell	15	9	9
	Same as Bell	1	1	0
	Lower than Bell	3	9	10
Resources and Resource Based	Higher than Bell	9	6	7
	Same as Bell	0	0	0
	Lower than Bell	0	4	3
Financial	Higher than Bell	9	1	4
	Same as Bell	12	1	1
	Lower than Bell	13	0	1

Source: LEO A. JOHNSON, Comparing Bell Canada's Performance to Selected Companies in Canada.

This table requires brief elaboration. Generally speaking, there has been relatively little change in Bell's position in rates of return on equity. The most significant shifts in the table do not necessarily relate to Bell's position, but rather reflect a decline in relative profitability of corporations in the commercial and industrial sector, and an equally large improvement of profitability of corporations in the financial sector.[15] Also, Bell lost a little ground between 1962 and 1967, among transportation and utilities companies, but gained most of it

back. Moreover, Bell has been experiencing a significant general rate of increase since 1967, and particularly in the last couple of years, which are not illustrated in the above table. All in all, when compared to other major Canadian Corporations, Bell Canada has been very stable and has generally held its own.

An assessment of Bell's internal revenues as well as its external position does not necessarily reveal that rate increases are unjustified or justified. What it does reveal however, is that Bell Canada is internally healthy and on the increase, and its position in the Canadian economy is perhaps at a medium point and very stable. This stability is largely produced by an important economic factor that cannot be ignored: Bell's possession of a quasi-monopoly of an essential service. This has made the corporation practically immune to fluctuations of earnings during down-turns of the economic cycle. This is especially true during these unprecedented inflationary years that we are experiencing at present. Of the 53 corporations studied in the preceding table, a total of 34 had experienced years in which their rate of return was below Bell's lowest return during 1962 - 1972. This constant stability in earning power makes Bell Canada's medium position a more favourable one, since it is a practically temporary middle position.

In sum, Bell's economic condition does not produce direct justification or unjustification for rate increases, but its comfortable and powerful middle position can serve as a point of unjustification for this particular time in Canadian economic trends. As the counsel for the Consumer's Association of Canada said publicly: "It seems that a time of

inflation, when the rest of us are forced to tighten our belts, it is incongruous that Bell should go on the largest expansion program in its history".[16]

An accurate assessment of possible rate increases should undoubtedly include the possible socio-economic impact on what after all, is the fundamental sector of Bell's economy: the customers, the people. Indeed, this was repeatedly suggested, but seemingly to no avail. The Governments of Ontario and Québec, DOC, and several consumer groups had expressed the need for such a study. It was first suggested during hearings for Application "A", and again during hearings for Application "B". It was originally urged that this should be the responsibility of either Bell Canada or the CTC. No such study was attempted by either party. It was finally decided that such a project would rest within the responsibility of the Department of Communications of the Federal Government. On July 18, 1974, a proposed plan was established by DOC, including estimated costs, funding, an elaborate outline of the research design, allocation of duties, and the like. The final report was expected for November, 1975. Less than one month later, on August 15, 1974, the CTC issued the highlights of its approval of rate increases. The Commission urged in this issue that a study on the socio-economic impact of telephone rate increases be pursued. In all fairness, it seems that if a true assessment was to be made, the decision should have been postponed until final results of the proposed study were available. As it is, it seems that that proposed study has lost much of its importance and function, unless an Application "C" is expected shortly.

The remainder of this section will attempt to briefly study the socio-economic impact of Bell rate increases. Perhaps the first thing to be said is that is doubtful that any impact would be restricted to citizens of Ontario and Québec. Bell Canada has definite interests in companies that serve other parts of Canada. The following is a resumé of these:

- The New Brunswick Telephone Company:
  - Operates in New Brunswick with 275,000 telephones; $41 million in operating revenues; owned 50.2% by Bell Canada (1973)
- Maritime Telephone and Telegraph Company Limited:
  - Operates in Nova Scotia with 243,343 telephones; $51.9 million in operating revenues; owned 52.4% by Bell Canada since 1966 (1973)
- Newfoundland Telephone Company, Limited:
  - Operates in Newfoundland with 119,914 telephones; $25.4 million in operating revenues; owned 99.6% by Bell Canada since 1962 (1973)
- Téléphone du Nord de Québec, Inc:
  - Operates in northwestern Québec with 60,505 telephones; $10.1 million in operating revenues; a subsidiary of Northern Telephone Ltd., which is controlled by Bell Canada.
- Northern Telephone Limited:
  - Operates in northern Ontario with 54,123 telephones; $5.4 million in operating revenues; owned 88% by Bell Canada since 1966 (1973)
- Island Telephone Company Limited:
  - Operates in Prince Edward Island with 41,590 telephones; $6.6 million in operating revenues; owned 56% by Maritime Telephone and Telegraph Company Limited.

Thus, it seems plausible to assume that all Canadian provinces, with the exceptions of British Columbia, Alberta, Saskatchewan and Manitoba, will be at least indirectly affected by the Bell rate increases. This amounts to 7,536,659 telephones, or roughly 62% of the Canadian total. Moreover, aside from Québec and Ontario, the regions that will be affected are the Maritimes and much of the North - those regions who can afford it least.

When attempting to assess the impact of telephone rates, one must examine the basic rate structure. It was shown earlier, in Section 1, that proportionally, the poor pay more for telephone service. That is, they pay a larger percentage of their income towards telephone service, and there is a gradation inversely related to the income level (see p. 6)

A few intervenors at the CTC Appliaation "B", rate hearings, argued that the proposed rate increases as well as the rate structure itself was discriminatory against low-income citizens. Discriminatory may prove to be a somewhat exaggerated and innaccurate term. "Overlooked" or "ignored" are probably better terms to describe the low-income people. By any means, they suffer most from the rate structure and the problem is amplified when there are talks of rate increases.

One of the harshest rate regulations for low-income people is the advance payment for credit that is often required of them. When Bell Canada judges that a customer's credit rating is bad, low, or non-existant, it demands an advance payment of approximately $50 before equipment is installed. The sums collected by Bell or advance payments can be tabled as follows:

ADVANCE PAYMENTS - Balances at end of Year

1969	1970	1971	1972	1973
NA	NA	$1,973,861	$2,622,493	$2,650,375

ADVANCE PAYMENTS - Averages

1969	1970	1971	1972	1973
NA	NA	NA	$2,298,177	$2,636,434

The criteria for the requirment of advance payments are such things as, type of employment, duration of employment, income, accumulated savings, and the like. Without a doubt, this places low-income subscribers in a disadvantageous position and they are correspondingly often the only ones required to disburse advance payments. As Mr. Dowie, president of the Greater Montreal Anti-Poverty Coordinating Committee (G.M.A.P.C.C.) has said that if one lived in Pt. St. Charles (poor district of Montreal), it would cost close to $70 to get a telephone ($50 deposit plus $7 first month advance plus $11 installation); but if one lived in the Town of Mt. Royal (a rich district), it would merely cost $11 for installation.

The installation charges also place low-income people at a disadvantage, because they are the ones that move most often, due to delapitated living quarters, demolition projects, evacuation for late payments, etc.

The basic monthly service charge increase, also condemns the poor because whenever there is a universal rate increase of any kind, it is understandably those of lowest income or funds that suffer most.

The billing system is perhaps the most "discriminatory" of all. If we analytically separate subscribers into classes, then class A customers are institutions and businesses who have a separate billing system; class B are allowed to accumulate a $25 two-month bill or a one-month bill, up to ten times the local service charge; class C is granted $15; class D $10; and class M (the poor) are required to pay an initial $50 deposit, and their overdue bills are often not tolerated.

Some of these charges that disadvantage poor people, such as, installation and monthly service charges, are uncontrollable by anyone concerned (either Bell, governments or other intervenors) under the present system. Others, such as billing practices and advance payments are controllable by the telephone company to account for the poor, but unfortunately they are not. Others still are actually being controlled by intervenors, to at least acknowledge the disadvantaged position of the poor. The CTC modifications for information request and public telephone increases are good examples (see pp.60-61) By and large however, low-income people suffer the greatest impact from telephone rates, and are too often left unprotected.

To briefly summarize this last section, it can be said that there are at least three main causes of telephone deprivation: centralization of control, maintenance, and rates. A possible breakdown or catagorization of these causes is as follows: centralization of control (which includes regional disparities) and rates for those living in rural areas or economically disadvantaged regions, maintenance difficulties and rates for those in remote areas, and almost solely rates for those in

urban areas with no telephones. Although the three are undoubtedly interrelated, telephone rates seem to dominate in importance, or at least in frequency, as a cause for telephone deprivation.

CONCLUSION

The inability to pay for basic telephone service is a problem that is faced mostly by the poor. Although there are variations to the problem, such as telephone deprivation due to remoteness, or maintenance difficulties, or regional underdevelopment, it is by and large a problem of poverty.

Poverty is a social ill that is inherent in the social and economic structure of our country. It involves regional disparities, centralization of power and control, and basic inequality, social as well as economic. Likewise, the problem of telephone deprivation is an ill that is inherent in the economic structure of telephony, and involves many similar concepts to those of poverty. It was with this general framework, that the problem was attacked in this research study.

The telephone is a facility that has become a basic need and almost indispensible to everyone living in Canada today. These were the premises on which the rationale of equality was based. It seems mandatory therefore, that no one be allowed to unwillingly do without telephone service, no matter how poor they may be.

It was found that there were three general causes for telephone deprivation: remoteness (including problems of maintenance, equipment, manpower etc.,), regional disparities (largely caused by the centralization of communications) and telephone rates. All three are quite closely related in that they are products of the economic development and structure of the country. However, the telephone rate structure seems to be the

central cause of much of the deprivation.

Fundamentally, the problem can be attacked in two separate ways. The rate structure can be intervened with and altered so that telephone costs are compatible with the economic capabilities of all Canadians; or, that those who are incapable of meeting telephone costs, be financially assisted to do so. The possibilities are on the one hand, to "nationalize" telephone companies, particularly Bell Canada, as was done in the Prairie provinces for example, and on the other hand, that telephone costs be incorporated in an estimated cost of living in a guaranteed annual income scheme. In reality, however, the best option probably lies somewhere in the middle. It would be unwise in many ways to nationalize Bell Canada, just as it would not curb high costs to only attack the problem with a guaranteed annual income plan - in fact, this would likely sustain high costs. It seems then, that a possible solution lies in a compromise between rate regulations to ease the impact on low income families, and financial assistance to those in need. For example, if some of the present CTC modifications to Bell rate increases were more strict and widespread, as well as coupled with a guaranteed annual income scheme, the impact of rate increases on low-income Canadians would most certainly be diminished.

However, there is one fact that cannot be overlooked when speaking of possible remedies. Bell Canada is by nature, a profit-seeking corporation, and this places a certain limit on possible regulations. This does not imply that it is wrong or unfavourable for Bell to operate as such. In fact, profit-seeking has often been labelled as one of the key reasons for Bell's efficient and excellent service. It does imply however,

that immediate solutions are not readily foreseeable and that the quickest route may be to implement a Guaranteed Annual Income.

Basically, a guaranteed annual income is a plan that sets a poverty line or "floor" in direct relation with the cost and standard of living of the country, and assures that no-one falls below that line. The cash transfer is based on a negative income tax approach which simultaneously assures work incentive through an allowance reduction rate related to the income earned. The GAI is not a miraculous scheme that would insure the eradication of poverty, as it would not be an instant remedy to telephone deprivation. It would however, provide a strong plunge towards a reasonable solution. In the case of the telephone, it would simply incorporate telephone costs in an estimated decent standard of living.

All of these possibilities call for extensive investigation and further research. Most of this research would be conducted under what could again be labelled socio-economic aspects. It seems that most of the recent research on the telephone has answered the social questions concerning telephone service. That is to say, most of the research has determined that the telephone is now indispensible in our society, that it should be accessible to everyone, that it serves as an essential link between certain social groupings and society, and that the telephone has essentially become part of our lives. Further research on these topics may be somewhat redundant. It seems that the need for research is now on the methods of arriving at equal accessibility, the possible ways of coping with costs, etc. For example, further research seems to be quite urgently

needed in the following areas:

(a) How do low-income people that do have telephones cope with costs? Are they forced to economize on other essentials to be able to afford this one? How is their budget affected by telephone costs? Does this affect their way of life?

(b) The relation between the distribution of telephones and the distribution of income. Is there a correlation? If so, how strong and how significant?

(c) The amount of money spent (in both actual dollars and percentage of income) matched against a need and demand model, over all classes of income.

(d) Cost-benefit analyses of telephone service for all income classes.

(e) The possible methods of intervening with the rate structure to diminish individual and regional discrepencies. For example, the feasibility of forming an equilibrium of rates between urban and rural areas by transferring much of the costs for "relational distance" to urban areas.

(f) The role of governments, businesses, telephone carriers, and the public in working towards greater accessibility.

(g) The economic and social feasibility and effects of incorporating telephone costs in a guaranteed annual income scheme.

The areas for further research could go on and on. Essentially, though, the demand seems to be in the general area of how can our most efficient world of telephony in Canada be enjoyed by all Canadians at a fair and reasonable price for the carriers and the people.

Nevertheless, whatever research is undertaken, whatever policies and programs are produced, they must all abide by ss 320 + 321 of the Railway Act, which states that ",,must be just, reasonable and non-discriminatory".[17]

FOOTNOTES

1. TELECOMMISSION, Report of the Seminar on Access to Information, Ottawa, 1970, pp. 5 - 7
2. CURAN, A., "Innovation - Key to the Future", in In Search, Summer '74, p. 16
3. Special Senate Committee, Poverty in Canada, Ottawa, 1971, p.
4. In Search, Summer '74
5. Ministry of Transportation and Communications, Government of Ontario, The Socio-Economic Effects of Telephone Rate Increases, May, 1974, p. 3
6. Ibid
7. The University of Western Ontario, The Social Functions of the Telephone, London, Ontario, 1974
8. Telecommission, Communications and Regional Development, Ottawa, 1971, p. 12
9. Telecommission, Report of the Seminar on Access to Information, Ottawa, 1970, p. 7
10. Ibid, p. 7
11. Telecommission, Communications and Regional Development
12. Telecommission, Report of the Seminar on Access to Information, Ottawa, 1970, p. 30
13. All figures cited from "Daily Press Clippings", published by Information Services, Communications Canada, August 22, 1974
14. Figures cited from "Highlights of the Bell Canada Rate Decision", Canadian Transport Commission, August 15, 1974

15. JOHNSON, Leo A., "Comparing Bell Canada's Performance to Selected Companies", April, 1974

16. Quoted from The Gazette, Friday, August 16, 1974, p. 2

17. Report of the Canadian Computer/Communications Task Force, Branching Out, Vol. II, Crown Copyrights, Information Canada, 1972, p. 39

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