THE UNIVERSITY OF MANITOBA

A DEMOGRAPHIC STUDY OF THE FORT RESOLUTION NATIVE POPULATION, NORTHWEST TERRITORIES

by

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ABSTRACT

A Demographic Study of the Fort Resolution Native Population.

In this study an attempt is made to obtain a rather complete picture of the demography of the Fort Resolution native population. We first study the changes in the size of the population, from 1940 to 1970. We then try to give a rather complete picture of the age, sex, and marital status composition of that population. Finally we study the levels and trends of nuptiality, fertility and mortality.

We find that the population more than doubled in size, from 1940 to 1970. During that period, native population experienced important changes in its age, sex, and marital status structures. In 1940, more than half of the population were among the 0-14 age group. Gradually this age group experienced a decline in relative importance whereas the "50 plus" age group increased rapidly. For the same period, the male-female ratio among the 15-49 age group declined from 117 males to 90 males per 100 females. The percentages of people, both sexes taken together, did not vary much within each marital status category from 1940 to 1970, when all age

groups are considered. However, when limiting our observations to the 15-49 age group, we observed an important decline in the number of persons in the 'married' category -- particularly among females.

The nuptiality rate of 'marriageable' age, taken here as 15 and over, declined rapidly from 220 to 80 per 1000 from the 1940-49 to the 1960-69 period. Another important aspect of marriage that we studied was the average age of women at first marriage; we found that generally these women tend to delay their entry into wedlock -- those who married for the first time during the 1960-69 period, enterred married life at an average age of 20.6 years compared to 19.0 during the 1940-49 period.

From 1940 to 1969, the crude death rate declined steadily, from 24.3 per 1000 to 4.5 per 1000. Mortality was particularly sensible among the 0-4 age group. This age group contributed over 70% of all deaths recorded during the 1940-49 decade. The situation, however, improved over the years, so that only 50% of all the 1960-69 deaths came from the 0-4 age group.

Although the number of births increased substantially

from 1940 to 1969, the crude birth rate shows in fact a sharp decline, from 51.7 per 1000 to 39.7 during that period. A large proportion of these births (from 12.4% to 32%) occurred outside wedlock. The average number of children per family varied according to categories of families: -among the 'completed' families, this average was 5.6 children, as compared to 6.0 children among 'incompleted' families of Type I and Type II.

When considering all categories of families, we found that fertility levels vary considerably according to the age of the mother. After a low of .157 in the first period of reproduction life (under 20), the fertility level gradually increased to a high during the 25-29 age group, then declined, more gradually at first, but abruptly in the last period of the reproductive life.

We also found that the mean intervals between marriage and first order birth and between higher order births, vary from 20.2 to 31.3 months -- with a mean of means of 24.6 months. From 22.8 months, the mean interval between the first order birth and marriage, the mean interval then rises sharply to 31.3 months between the third order birth and the second order birth. Then, the mean interval experienced

a slow but significant decline so that between the 10th order birth and the 9th order birth, the mean interval had now reached a low of 20.3 months.

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INTRODUCTION

The present research project is an attempt to describe selected demographic characteristics of the native population of Fort Resolution. We want to study its population characteristics -- the age, sex, and marital status -- as well as the evolution of these characteristics from 1940 to 1970. Furthermore, we will try to analyse the demographic processes which shaped the changes in the population structures -- namely, fertility, mortality, and nuptiality.

Special attention will be given to the various characteristics of fertility levels and trends of that population. More specifically, we will try to measure the following general aspects of fertility:

a) variations in the number of births, at various periods from 1940 to 1970;

b) levels of legitimate and illegitimate fertility;

c) age specific (legitimate) fertility level, for all ages at marriage;

d) family size -- the number of children per family; in particular, the number of children per 'completed' family;

e) finally, the rhythm of the family organization processes

-- analysis of intervals between marriage and first births, and the spacing of successive births.

It is imperative, in most studies of this type, to acquire a broad knowledge of the general historical background of the population under study. Such knowledge should reveal the interplay of the various socio-economic and cultural forces which helped to mold the community life. Hence the brief history of the Fort Resolution Settlement to be found in Chapter I.

Chapter II will provide us a glimpse of the changes in population size from 1940 to 1970. We will then provide a general picture of the demographic structure of the Fort Resolution native population, through the analysis of the population distribution by age, sex and marital status. In the last section of this chapter, we compare these changes observed in the Native population of Fort Resolution with those of the Northwest Territories population.

Chapter III will deal with the general problem of methodology used in this study. This chapter will describe how the families were chosen, the sources of data, the techniques of data collection as well as the preliminary processing procedures. We will also spell out the measures to be used in the study of

nuptiality, fertility and mortality.

The fourth chapter will deal with the levels and trends of nuptiality, fertility and mortality. We will see how the number of births, deaths, and marriages varied from one period to another, from 1940 to 1970, as well as the variations in the level of fertility, mortality and nuptiality according to the size of the population. Other characteristics of nuptiality will also be discussed, such as distribution of the marriages and remarriages, mean age at first marriage, dissolution of marriages. After a look at the mortality levels for the 1940-49, 1950-59 and 1960-69 periods, we will discuss the mortality trend from 1940 to 1969 and child mortality. The characteristics of fertility discussed will include: number of births according to size of population, from 1940 to 1970; the relative importance of illegitimacy, age specific fertility levels, family size distribution, average number of children per family according to marriage duration, fertility level according to the age of the mother, birth intervals, ulteriorly fertile women, etc.

The final chapter will briefly state the three or four most important conclusions we arrived at from our study and our assessment of the implications of these conclusions.

Before proceeding to the history of the Fort Resolution native population, some definitions basic to our study must now be given: the native population of Fort Resolution, fertility and fecundity, family.

We are dealing basically with the native population of Fort Resolution, both the Indians and the Métis. The term 'native population' includes the Treaty Indians, the non-Treaty Indians and the Métis. We will define as 'Treaty Indians' those persons whose name appears on the Department of Indian Affairs' Treaty Indian Lists. Since there is often no distinction made between non-Treaty Indians and Métis in government documents (they are often classified as 'others'), we understand by the term 'Métis' any person -- excluding 'whites' -- whose name appears on the Housing Survey made in late 1969 but not on the Registered Indian Lists published by the Department of the Indian Affairs. Thus are excluded from this definition, those who are obviously 'whites' -- minister of the R.C. Mission, the R.C.M.P.'s, the school staff, the Hudson Bay Company manager, etc. -- who may appear on the Housing Survey.

According to the Multilingual Demographic Dictionary, "the capacity of a man, a woman or a couple to participate in reproduction (i.e., the production of a live child) is called fecun-

dity. Fertility on the other hand means actual reproductive performance -- whether applied to an individual or group: (1). Fertility is, therefore, the accomplished fact of giving birth to a child; it implies, initially, the physiological capacity of procreation. We are interested primarily in female reproduction.

The term 'family' will be used to mean the conjugal or nuclear family (as opposed particularly to the 'extended' family). The family is also a different unit which must be carefully distinguished from the household. It is defined primarily by reference to relationships which pertain to or arise from reproductive processes and which are regulated by law or by custom. The fundamental relationships are those established between a couple by marriage -- and that existing between a couple as parents, i.e. father and mother and their children, i.e. sons and daughters (whether these are married or not). Parents and their children are sometimes referred to as the biological family. (2) The family will be said 'completed' if the union last throughout the reproductive period of the mother (in the present thesis: -- till the mother is passed 44 years of age). If the marital union ends, due to divorce, death, separation, etc., before the mother reaches the age of 45, then it will be known as 'incompleted' family.

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(1) United Nations, "Multilingual Demographic Dictionary" (English Section), para. 621, p. 38

(2) United Nations, op.cit., paras. 112-115, p. 5

CHAPTER I

BRIEF HISTORY OF THE FORT RESOLUTION SETTLEMENT (1)

1. The Pre-Contact Era: (2)

D. Jenness gives us a fairly broad view of the historical socio-economic conditions as they existed before the Indians of the Great Slave Lake region met the first waves of fur brigades. Previous to this fur-trade period, tools of stone formed the basis of all the aborigines' material culture. These stone tools gave the Indians a certain mastery over the animal and vegetable resources. (3)

The Indians of the MacKenzie River Basin gathered crow-berries, cranberries, etc. However, hunting and fishing constituted the basic economic activities. The seasonal character of the food supply and the habits of the fish and animals greatly affected the daily life of these Indians. This compelled the various bands to move from one fishing or hunting ground to another. Hence, adaptation to this necessity was found in dwellings and household furniture, transport facilities, methods of preserving the supplies accumulated in season of abundance. Finally, the movements of fish in large schools, and the movements of buffalo and caribou in herds, favoured cooperative

rather than individual effort, and influenced not only the methods of fishing and hunting, but even the organization of the Indian communities. (4)

Frequent famines, and the hardships and accidents incidental to a migratory existence devoted to hunting and fishing, led to a short average span of life and caused a high mortality rate among all age groups. The infant death rate was appalling, partly through ignorance of some of the most elementary principles of child welfare and partly through lack of proper food. The total absence of milk, except what the mother herself could provide, and the absence of cereals among most tribes lengthened the period of lactation, because no infant under the age of three could assimilate a diet solely of meat and fish. Prolonged lactation affected the fertility of the women. Social factors -- such as blood-feuds, wars, etc., -- also helped to reduce the population. (5)

However, the important population checks on natural increase arose from the seasonal character and uncertainty of the food supply. The hardships of the never-ending quest for food fell heaviest on the weaklings, who were deliberately abandoned when they could no longer keep face with the wanderings of the main tribe. In seasons of famine, women were the first to suffer

and their loss seriously diminished the number of the next generation. Particularly in seasons of want, they would seek to escape the added burdens of maternity through pre-natal abortion and through infanticide. As the Indians generally hesitated to sacrifice their male offsprings, who would be hunters of the community, their constant destruction of girl babies seriously affected the balance of the sexes. High infant mortality, female infanticide and famines kept the hunting tribes to a marginal level of survival, so that many of them barely escaped extinction. (6)

Parents, in arranging the matches for marriage, usually gave more consideration to rank and influence, or to skill and courage in hunting, than to the inclinations of the young people themselves. Males generally married at about the age of 18 or 19, while the girls married at an earlier age (2 or 3 years younger). The first few months of marriage being considered as a period of trial, divorce was frequent -- particularly before the birth of children. Close companionship and the birth of children cimented the mutual affection between husband and wife. Marriage, increasing the responsibilities of the young people, brought greater division of labour in the family. (7)

2. The Fur-Trade Period:

The Chipewyans were the first of the Athabaskaw tribes within the MacKenzie River Basin to come in contact with western civilization. They controlled a vast area, one corner of which bordered the Hudson Bay at the mouth of the Churchill River and another on the eastern tip of the Great Slave Lake. Owing to their location, these Chipewyans were the first to trade directly with the Hudson Bay post of Fort Prince of Wales (established in 1717).

However, their land was soon depleted of its fur-bearing animals. The Chipewyans were thus forced to seek their furs from the other Athabaskaw tribes of the interior. They thus assumed the enviable position of middlemen between the Indian tribes of the interior and the agents of the Hudson Bay Company. Through their hands, the white man's goods filtered into the hands of the Indians of the interior. The position held by the Chipewyans was very profitable; hence their zeal in preventing any interior tribes from trading directly with the Hudson Bay Company (henceforth H.B.C.). (8)

The competition faced by the H.B.C. from the French traders ended with the transfer of Canada to Great Britain. Another serious menace to H.B.C.'s fur-trade monopoly soon arose from

another quarter -- the merchants of Montreal began to send brigades over the former French routes. This westward thrust of the fur-trade gradually undermined the monopoly of the H.B.C. and also the position of middlemen once held by the Chipewyans. The danger became critical when the Traders of Montreal pooled their goods together to establish their headquarters in the Athabasca country with outposts on the shores of the Great Slave Lake. The Chipewyans, thereafter traded at Fort Chipewyan on Lake Athabasca -- thus avoiding the long dangerous journey to the H.B.C. post of Fort Churchill.

This extension of the fur-trade to Great Slave Lake took place shortly after Peter Pond's successful winter on the Athabasca River. The famous trader, Cuthbert Grant, together with Laurent Leroux, built a post for the Northwest Company on the Slave River near its mouth in 1786. Leroux operated successfully from this post, Slave Fort, for about three years. The pressure exerted by the H.B.C. agents operating from York Factory forced the traders to move their post (in 1788) to Moose Deer Island, a few miles from the old site.

These log cabin fur-posts, forerunners of the permanent settlement of Fort Resolution, were built by the Canadians -- as the fur-traders from Montreal were then known -- for two main

purposes: first, to carry on local trading operations in the Slave delta; but also, to serve as supporting bases for the extension of commerce into the fur-rich areas lying beyond it.

The H.B.C. made three unsuccessful attempts to establish a firm foothold next to the 'new' Slave Fort on Moose Deer Island (1815-16; 1816-17; 1818-1819). On the fourth attempt in 1819-20, the H.B.C. built a post, Fort Resolution, at the opposite end of the Moose Deer Island, facing the North West Company (henceforth, N.W.C.) post.

The long and costly war between the two companies came to an end with the amalgamation of the two companies in 1821. The two rival trading posts on Moose Deer Island were united into one and named Fort Resolution. (9). Subsequently it became the largest and the most important fur-trading settlement dotting the shores of Great Slave Lake. It was soon moved to a new location on the mainland directly opposite the Island. Fort Resolution owed much of its prominence to serving as a road junction town on the lines of commerce for the northern fur-trade (10).

The period of 1820-1855 was a period of intensive exploration in Northern Canada. Fort Resolution then played a new role,

as a supply base for these expeditions; it also developed into a small 'cross-roads' town on the route of northern exploration. (11).

The only-residents at Fort Resolution in 1850, besides the native Indians, were the employees of the H.B.C. The little settlement contained about six log houses. Although population statistics were not available for 1850; it is estimated that 100 or more families of Indians were trading at Fort Resolution. These natives dwelt in tepees in the surrounding country-side where they hunted and trapped. The furs were carried over the local water routes to the trading post during the big spring rendez-vous.

After the arrival of the first missionary, Father Faraud, in 1852, the Mission of St. Joseph was established on Moose Deer Island (1856) -- Moose Deer Island henceforth becoming known as Mission Island. The Mission buildings were later moved (1890) to the mainland, next to the H.B.C. buildings.

In 1869, the Government of Canada secured Rupert Land from the H.B.C., who relinquished its exclusive control over the fur trade in the North. The door was then opened to competition from a firm of free traders. The Free Traders' first post on

the Great Slave Lake was established at Fort Resolution (about 1895). This was followed by the Swiggart Trading Company (1903), the Northwest Trading Company (1911) and the Nagle and Hislop Trading Company (1913).

Fort Resolution had now become a large settlement with four competing fur posts and numerous new mission buildings. St. Joseph Mission had been increased with the addition of a large convent and school attended by 43 children. A great number of men were employed by the fur companies; in consequence, problems of law and order were not uncommon. Hence, in 1913, a detachment of police was stationed in the settlement. Thus, another set of buildings, the R.C.M.P. Post, added to the size of the settlement (13).

The Grey Nuns went to Fort Resolution in 1903, when they established a convent with a school for Indian children (14), since the early education of Indians in the Territories was left to the Missionaries.

In 1899, the Chipewyans Indians of Slave River (and later, in 1900 the Slaves of Upper Hay River, the Dogribs, the Chipewyans and the Yellowknives of Great Slave Lake) signed the Indian Treaty No. 8. By this treaty, aboriginal title to a large triangle of land in the N.W.T., between the 60th parallel and

the south shores of Great Slave Lake was surrendered. The signing of the Treaty had little effect or no effect on the tratitional economy of the Northern Indians. They continued their nomadic hunting and fishing life, enduring intermittent hardships caused by the cyclical scarcity of game.

The First World War strongly affected the price of fur. Before the war, the Indians had been able to supply themselves with clothing, groceries, and other material from the proceeds from furs. But when the fur prices dropped, they could barely furnish tea and tobacco to their families. Fortunately the caribou still travelled in fairly large herds and fish were found in lakes scattered throughout the country. The end of the war marked the beginning of considerable changes in the way of life of the Far North. The fur-trade, however, continued as the main industry in the Territories.

In 1923, the Dominion government took steps to assist in maintaining the fur industry of the N.W.T. with the establishment of the first of the Native Game Preserves. Trapping on these preserves was confined to Indians, Eskimos, Métis living the life of natives, and such white trappers as were already operating in the areas. Sanctuaries, where trapping is entirely forbidden, were also established.

In 1927 a severe epidemic of influenza broke out at Fort Smith and spread quickly to Great Slave Lake. Whole settlements were stricken at once and the death toll was heavy.

The establishment of new industries and the construction of highways and buildings replaced the traditional means of livelihood which were becoming less and less reliable.

In 1945 the medical care and hospitalization of the Indians was made the responsibility of the Department of National Health and Welfare. The hospital at Fort Resolution was built to accommodate T.B. patients. At that time it had resident physicians and 100 patients. About 1960, the care of T.B. was transferred to the Camsell Hospital, Edmonton, and one of the large buildings was dismantled. Although still called a hospital, it is in effect a nursing station. With the down-grading of the hospital Fort Resolution suffered not only the loss of a major source of employment but also the leadership and guidance provided by the staff. Social assistance was given and the population became increasingly dependent upon it, to the point where such resources as did remain -- trapping and hunting -- were no longer used to capacity.

The changes experienced throughout the North had adverse

effect upon the Fort Resolution community. For many years Fort Resolution has been the main settlement on the Great Slave Lake. With the development of Fort Smith, and even more, after the development of the western alternate transportation route, Fort Resolution began to stagnate, losing its strategic importance that the original transportation route had given it. The problems of the town are basically economic: Fort Resolution did lose its economic base and did not find an alternate source of meaningful employment and of income for the majority of its population. (15)

The fur-trade era, running from the early part of the eighteenth century to the first quarter of the present century, brought profound changes on the native social and economic life. Not only did the stone tools give way to fire-arms and other white man's goods, but the whole economic fabric depended hitherto less on the caribou and on the other game animals than on the fur-bearing animals. Thus the native activity was not directed to satisfying their immediate basic food requirements but to satisfying the white man's fancies.

The introduction of fire-arms led to the gradual diminishing in the numbers of caribou and other game animals. As game grew scarce the Indians became more and more dependent on the

trading posts for food and other requirements. (16). This dependence on the trading posts was further accentuated by the gradual loss of ability to produce their own tools on which the natives depended formerly.

The introduction of the fire-arms made also a profound effect on the social order. The former social order of the native bands depended largely on cooperative effort in its quest for food. The method of hunting as well as the habits of the caribou and buffalo favoured the cooperative effort. Now the fire-arm freed the native from his band affiliations and permitted a much greater economic independence. His success depended less on communal cooperation than on his own ability to use a gun and traps, and also on the conditions imposed by the white man's demands for furs -- all of these conditions were more or less outside the scope of his band's social control mechanisms.

And thus the band as a unit of organization was gradually superseded by that of the family. Whereas the old traditional way of hunting favoured dependence on larger group -- and hence adding value to the additional members of the family, the dependence on fur-trade favoured a smaller family unit. Each additional child was a source of greater economic burden, instead of being an asset in the survival of the family.

It may well be, however, that other values -- more traditional values -- came in conflict with this change of economic perspective in regard to the value of the child, and thus neutralized, to some extent, the effects of such changes: traditional values which may have been reinforced by the new teachings of the Christian churches.

The emergence of a new group -- the Métis -- may be considered the most important sociological effect of the social interaction between the fur-traders and employees of the fur trading companies and the native population during the period presently under study. Numerically chey are second only to the Indians; socio-culturally, the Métis may be seen as a marginal group, in that they do not identify themselves completely with the Indians' nor the White men's world. And yet their role as middlemen in the social network of communication cannot be underestimated.

Due to their undetermined legal status, the Métis are often classified as "whites", as "Indians" or as "others" in most of the Government documents. It is therefore difficult to get an accurate picture of this segment of the population of the settlement. Even the historians have largely overlooked the Métis of the MacKenzie. These Métis have not held the spotlight in Cana-

dian History as did their brethren of the Western Provinces, and thus little can be learned of them in our history texts.

In his study of the Métis of the Mackenzie District, Richard Slobodin sees two distinctive types among the Métis. The 'Northern' Métis of the Mackenzie District -- northward of Fort Simpson -- are outside the scope of the present study. The Fort Resolution Métis belong to what R. Slobodin termed the 'Red River' Métis -- an ethnic group which retain with a surprising vitality the old traditions of Métis nationality and of the Red River conflict.

The original Indian-European unions in the geneologies of Southern Mackenzie District Métis are as a rule quite remote, dating in many cases from a century or more. The Métis here are of French-Roman Catholic traditions. "Country French" as well as various trade jargons and Indian dialects, have until very recently been the preferred modes of speech. Métis institutions were peculiarly those of the early North American fur-trade Frontier (17).

The Métis have been involved in transportation activities -- as their French Canadian forefathers, the famous voyageurs of old, were -- during the fur trade era as well as in the post-war period. They dominated the transportation industry of the

North in terms of manpower -- as canoemen, York boat men, mail-drivers, fore-runners, steamboat deck hands, stevedores, river-pilots. The predominance of the Métis within the transportation industry (for the fur-trade, and more recently for commerce and industry) had an important sociological impact: each Métis was involved in a far-flung communications network throughout the Mackenzie District, consisting to a large extent, although by no means entirely, of kinfolk (18).

However, the Métis were not represented only in the transportation industry. Particularly in the early period of the fur-trade, the Métis were also represented in trapping and fishing, many lived much the same way as the Indians and Eskimos, "the bush way of life". However, most of the Métis have trapped only sporadically or have trapped during winter and engaged in wage employment during the summer.

3. Post-war years:

From the end of World War I, and particularly during the last two decades, tremendous changes occurred in the life of the native people of the Far North, as the impact of the South became felt in all aspects of the socio-economic life of the North. Of particular importance were the developments of transportation

and communication, the progress of educational facilities, a greater diversification of the economic activities, wider implantation of governmental agencies, and finally, a growing wave of migrants of diverse origin and walks of life.

The Fort Resolution native population was affected in various ways by these many changes. The transportation system bypassed the community. The position of Fort Resolution as the 'cross-roads' town was neglected in favour of Hay River and Fort Smith. The mining developments at Pine Point offered another alternative as a source of employment, to the traditional economy; however, the full impact of Pine Point developments seemed to have been curtailed by lack of communications between the two communities. The road between Pine Point and Fort Resolution was completed only a couple of years ago -- a rough trail at best! With the access to Pine Point being so difficult for the residents of Fort Resolution, few are willing to leave their homes for work at the mine.

In the fifties, the H.B.C. changed its northern policies; as the demands of furs decreased, the Company decided to transform its fur-trading posts into department stores. The traditional way of life thus no longer afforded a means of living to the many hunters and trappers of the community. Trapping became

restricted mostly to the spring trapping of muskrats and beavers, etc. According to James W. Van Stone, "The Changing patterns of Indian Trapping in the Canadian Subarctic", (19), other important changes have been experienced in the traditional trapping-trading economy of the native population. Among these changes, let us mention some basic elements:

a) fewer native people depend upon the returns of trapping and fishing for their subsistence; most trappers and hunters must depend upon odd jobs to supplement their income;

b) most of the native families have now moved more or less permanently away from the discomforts of a bush trapper's camp to the settlement;

c) the relative importance of the income derived from trapping and hunting has declined generally whereas income from social welfare and wages generally increased;

d) finally, the socio-cultural factors favouring the persistence of trapping as a major economic undertaking are in rapid decline. Such socio-cultural factors are being neutralized by other values such as comforts and conveniences of the village, wage -- as a means to achieve financial stability at a higher standard of living.

As reported earlier, most northern trappers rely on the Spring hunt -- this is true for the Indians as well as for the Métis trappers. A distinction between the Indian and Métis trapping practices -- a distinction which may not be as marked today as in pre-war years -- is the greater diversity of Métis employment. (20).

We have already commented on the Métis contributions to the transportation industry; this is not the only sphere of economic activity in which they are represented however. A few have taken up seasonal jobs in governmental agencies, such as: labours, truck drivers, boat operators and members of fire-fighting crews, as well as construction laborers, drivers, maintenance men and mechanics for other agencies -- as industrialization expands in the North, particularly since the post war years. The Indians have also followed suite, since World War II, particularly.

The Fur-Trade Era in the Canadian North has consolidated the particular form of social structure -- a social structure resting upon the triumvirate, the H.B.C. agent, the missionary and the R.C.M.P. The post-war years have seen a gradual shift of power from these three agents of southern institutions into the hands of a number of governmental agencies (particularly

since the nineteen-fifties). The Federal Government agencies are permeating the various section of the social life -- education, economy, social welfare, health programmes, political life, etc.

Another social force, already mentioned earlier, has been industrialization. Though its impact has not been felt equally everywhere, most, if not all, communities are being gradually drawn within the industrial life through the opening of mines, land, water and air communication network developments, etc.

We may conclude the foregoing historical discussion by giving a broad picture of the Fort Resolution settlements as it appeared in the sixties. The Fort Resolution community is made up of three major ethnic groups: the Métis, the Indians and the 'Whites'. R. Slobodin describes Fort Resolution as a 'predominantly Métis town': he gives the following figures -- out of a population of 541 (1962), 332 are Métis as against 138 Indians and 37 Whites. (21) The community is also characterized by a clustering of the various Métis nuclear families into five or six family groups or extended families. A second characteristic of the social life of the Fort Resolution native population is the social conflicts and jealousies among these extended families of the Métis group as well as between the Métis and

the Chipewyan Indians. A third characteristic of the settlement is the general movement of the Indians living in the hinterland toward the settlement proper.

We have already mentioned the last characteristic: the general change from the trapping and hunting occupations structure toward a much greater diversification of the occupational structure of the labour force. However, a basic problem in the Fort Resolution community is the lack of job opportunities to absorb the manpower available. There are some odd jobs available at times; fire-fighting has absorbed much of the labor force at some period or other. But the overall number of year-round jobs are very limited. The closing of the Mission was a blow to the community by reducing still further the number of jobs available in the settlement. An element of hope for the manpower of the community was the Co-operative sponsored by the Territorial government for the local people. The Co-op was established in 1964; its main activity was lumbering. A logging operation and sawmill have been set up. However, the experiment was short-lived; it ceased operations, in the fall of 1967. Lately, the social and economic outlook of the native community seemed to have improved when the logging operations were taken over by McCaulder. (22).

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11. G.R. Rae, op.cit., p. 142.

12. G.R. Rae, op.cit., p. 154.

13. G.R. Rae, op.cit., p. 160. J. Alden Mason, gives a broad description of the material and socio-cultural conditions of the Athabaskan Indians as they appeared to him during his trip (Summer 1913), in "Notes on the Indians of the Great Slave Lake Area", Yale University Publications in Anthropology, No. 34, 1946.

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14. "Canada Indians of Yukon and Northwest Territories", Indian Affairs Branch, Ottawa, March 1967. This and the following paragraphs have borrowed their materials from this study.

15. D. Radojivic, "Great Slave Lake, South Shore. An Area Economic Survey", Industrial Div., Northern Adm. Branch, Department of Indian Affairs and Northern Development, Ottawa 1967, p. 47.

16. Canada, op.cit., p. 8.

17. R. Slobodin, "Métis of the Mackenzie District", Ottawa, University of St. Paul, 1966, p. 16.

18. R. Slobodin, op.cit., p. 65.

19. James W. Van Stone, "The Changing Patterns of Indian Trapping in the Canadian Subarctic", Arctic, 16, pp. 159-174.

20. R. Slobodin, op.cit., p. 92.

21. R. Slobodin, op.cit., p. 17.

22. The Co-op logging operations as well as McCaulder's were recently studied by Professor P. Deprez, G. Sigurdson, and G. Fields. Their findings are not available presently, but we can assume that their studies will reveal the important socio-economic (and perhaps psychological) impact of these operations upon the community.

CHAPTER II

CONTEMPORARY SITUATION IN FORT RESOLUTION

After a look at the total population figures, the present chapter will present an analysis of the structure of the Fort Resolution native population by age, sex and marital status. An attempt will also be made to determine the direction and intensity of the changes over from January 1940 to January 1970 in the age, sex and marital structure of that population.

1. Population Growth: (1)

But first, let's take a look at changes in population size from 1940 to the present. A glance at Table 2-1 below, reveals a steady growth of population since 1940. From a low of 237 in 1940, the native population increased to 625 in 1969. Thus, in 30 years, the population more than doubled in size.

TABLE 2-1

SIZE OF THE FORT RESOLUTION NATIVE POPULATION

FROM 1940 TO 1970

Year	1940	1950	1960	1965	1970
Fort Resolution Native Population	237	339	447	546	625

Source: Table 1 (A, B, C ...), pp. 150-154.

2. Age and Sex Structure:

Table 2-2 shows a percentage breakdown of the native population by age and by decade from 1940-1970. The data were grouped into three major age categories: the young, 0-14; the adult, 15-49; and the old, 50 plus age groups. 50 rather than 65 was used as the lower limit of the oldests class interval, due to the lower life expectancy of the Fort Resolution native population. More important still, this classification of age groups will answer the needs of our major theme of study, the fertility level and trends of the native population of Fort Resolution.

TABLE 2-2

PERCENTAGE DISTRIBUTION OF THE FORT RESOLUTION NATIVE POPULATION, BY AGE GROUP AND BY DECADE FROM 1940-1970

Age Groups	Years			
	1940 %	1950 %	1960 %	1970 %
0-14	54.0	46.3	44.5	43.5
15-49	43.8	49.8	46.3	45.5
50 plus	2.2	3.9	9.2	11.0
All ages	100.0	100.0	100.0	100.0
	N = 237	N = 339	N = 447	N = 625

Sources: Table 1 (A, B, C ...), pp. 150-154.

Table 2-2 reveals two important facts. First, the relatively high percentage in the "0-14" age group, compared to the "50 plus" age group. This situation was only intuitively suspected previously. (see chapter on the historical outline of the Fort Resolution native population; it conforms generally to a pattern observed for the whole of the Northwest Territories -- except that, in this case, the pattern is much more accentuated, if we bear in mind that the "old"

age group starts at 50 instead of the usual '65 plus').

The second important fact revealed by this table is that, whereas the "15-49" age group varies around the 45% level of the total population, the "0-14" age group experienced a gradual decline in relative importance, from 1940 to 1970 - a drop from 54.0% to 43.5%. For the same period, the "50 plus" age group inched upward from 2.2% to 11.0%. The fact that the percentage of people of 50 years and over has increased from 2.2% to 11.0% indicates clearly that there is a substantial increase in life expectancy taking place amongst the Fort Resolution Native population. This pattern of demographic change observed among the native population of Fort Resolution has also been experienced among the rest of the N.W.T. population and among many other societies. It has generally been termed "the aging process of a population".

The observations just made call for a closer look at the age and sex structure of the population. One of the simplest but revealing ways of analyzing population structures and changes is the population pyramid which graphically depicts the proportion that each age - sex group represents in relation to the total population. Not only the area of each rectangle (showing the relative importance of each age - sex group), but also the overall shape of the

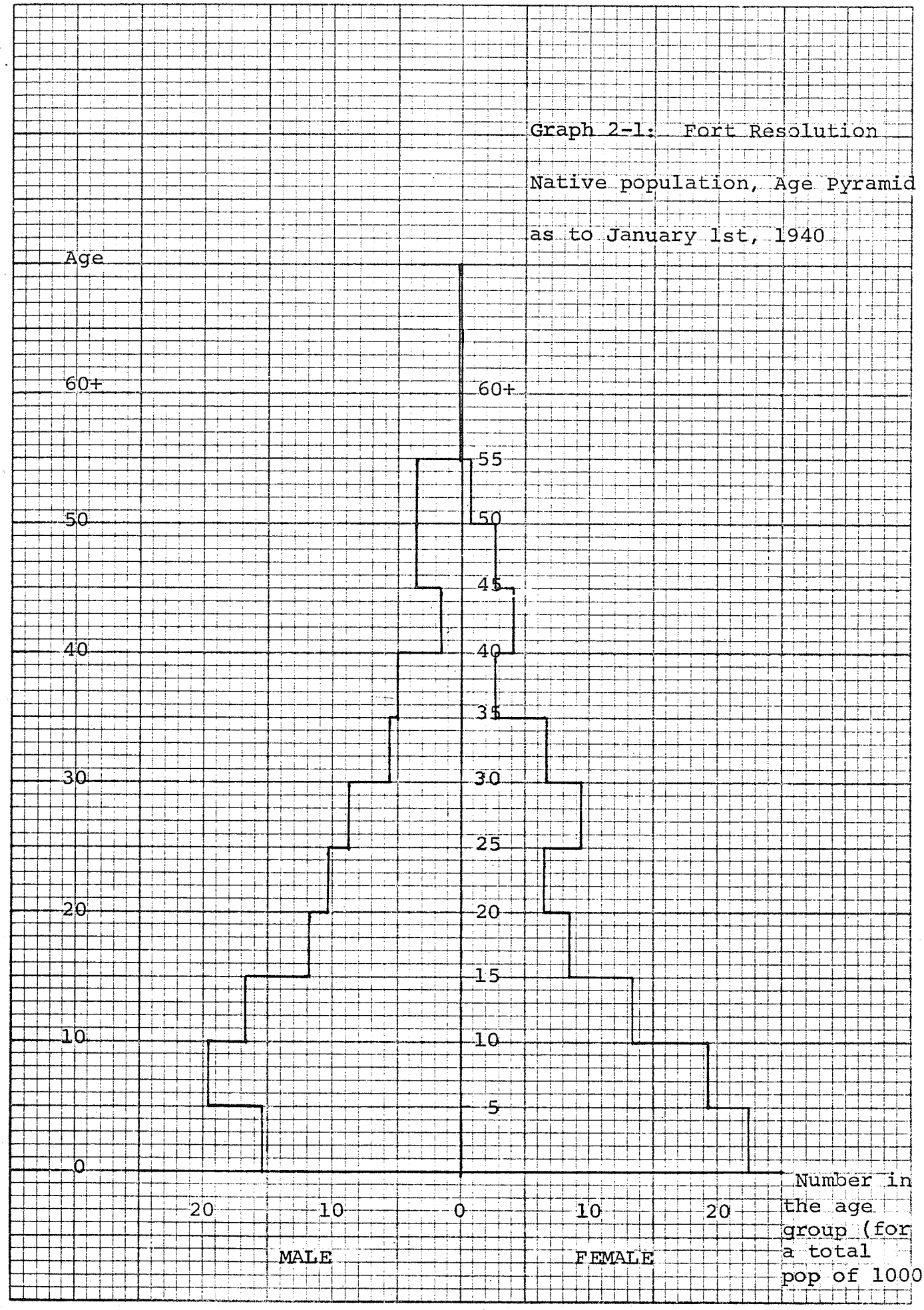
pyramid has special significance. (2). The shape of the pyramid is affected by past mortality, fertility and migration experience. Also, assuming no migration, the survivors of each age - sex group will graduate into older age - sex groups in time so that we have some clues to the future structure of the population.

Examining the age structure for males and females, respectively, as revealed by the 1940 age pyramid (3), we can detect very significant features. Although the number of males and females over the age of 50 is very small (4), more males than females have reached over 50 years of age. In fact, we can see from the 1940 age pyramid that the male population outnumbers the females in every age group except in the 0-4, 25-29, 30-34, and 40-44 age groups. Furthermore, the general shape of the 'male' section of the age pyramid is much more regular than the 'female' section -- except for the 0-9 age group.

Another interesting feature of the 1940 population pyramid is the proportion of males as compared to the females in the 0-5 age group: -normally we would expect a slightly higher proportion of males than females in that age group. The sex ratio at birth, 105 males for 100 fema-

les, is found in many (if not in most) societies; subsequently, an excess male mortality gradually reduces the male surplus, until the balance finally tips in favour of the female segment of the population. In the present case, the proportion of females of the 0-5 age group greatly exceeds the relative number of males. We find 64 males for 100 females in that group; this is presumably due to the small size of our population.

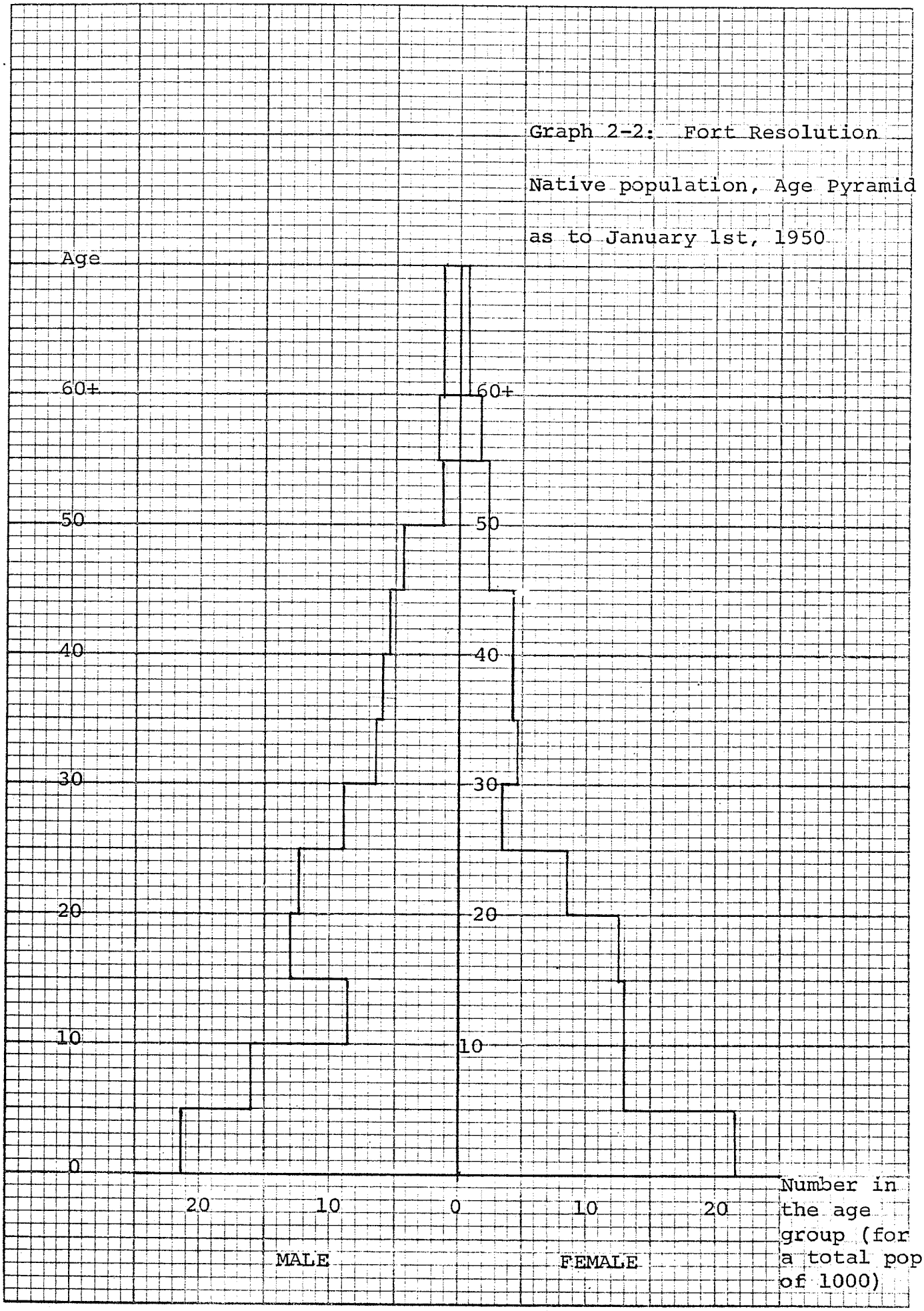
The 1970 age pyramid (5) presents two particular characteristics. First, the relatively important shift of the pyramid shape toward the top, indicating that a greater proportion of the population is now reaching the higher age strata -- 50 years of age and over. We have seen already that those 50 and over constituted 11% of the total population (6). Second, the narrower base of the age pyramid -- although the 0-14 age group still constitutes an important portion of the total population. Finally, when comparing both sides of the age pyramid we find it more difficult to discern the general picture of males - females ratios; the males do outnumber females at the age of 35 and over; they also outnumber females in the 0-14 age group. Otherwise, the male - female ratios in the various age strata vary widely.


Graph 2-1: Fort Resolution
Native population, Age Pyramid
as to January 1st, 1940
Age
60+
50
40
30
20
10
0
60+
55
50
45
40
35
30
25
20
15
10
5
20
10
0
10
20
MALE
FEMALE
Number in the age group (for a total pop of 1000)

Graph 2-2: Fort Resolution

Native population, Age Pyramid

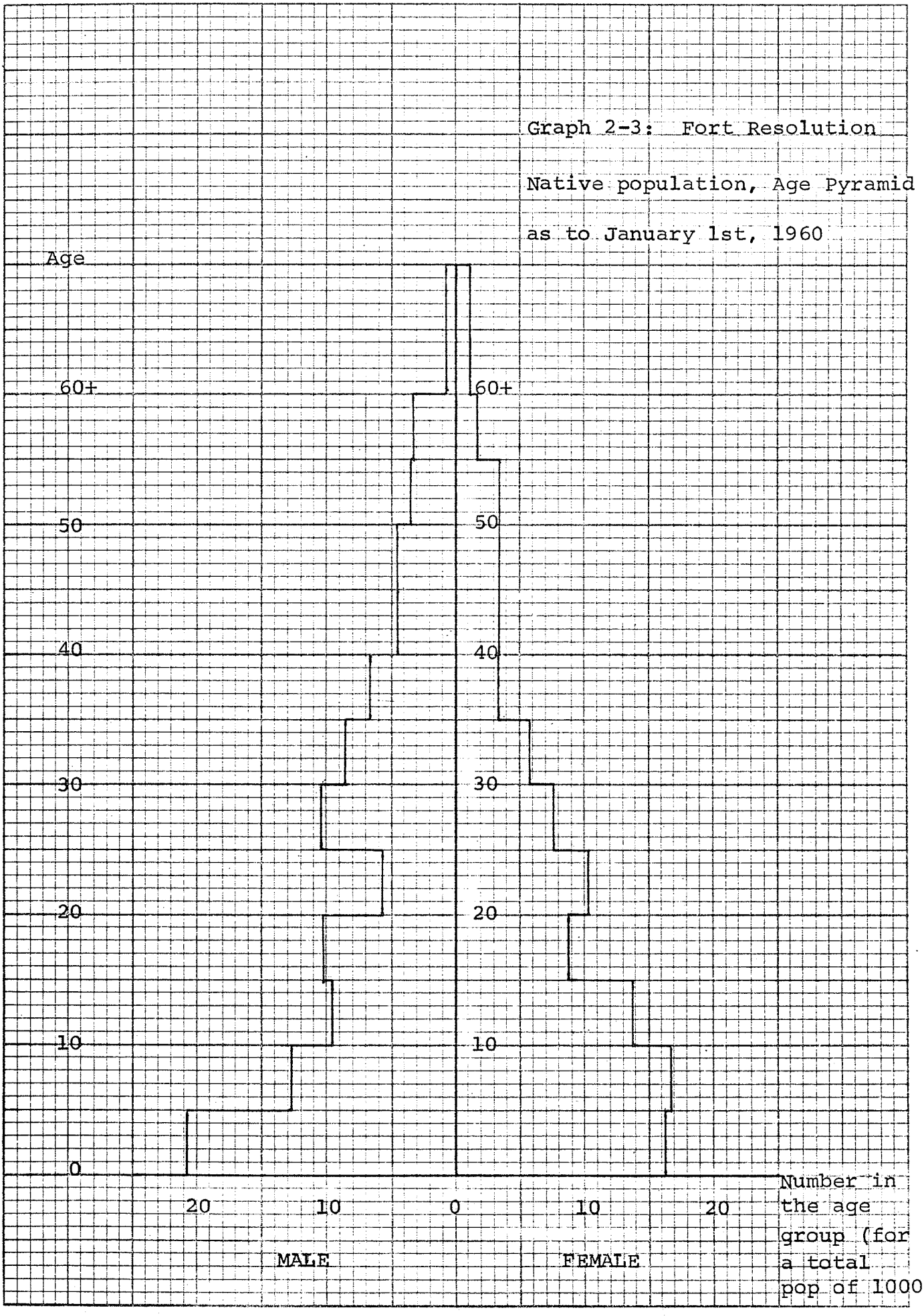
as to January 1st, 1950



Graph 2-3: Fort Resolution

Native population, Age Pyramid

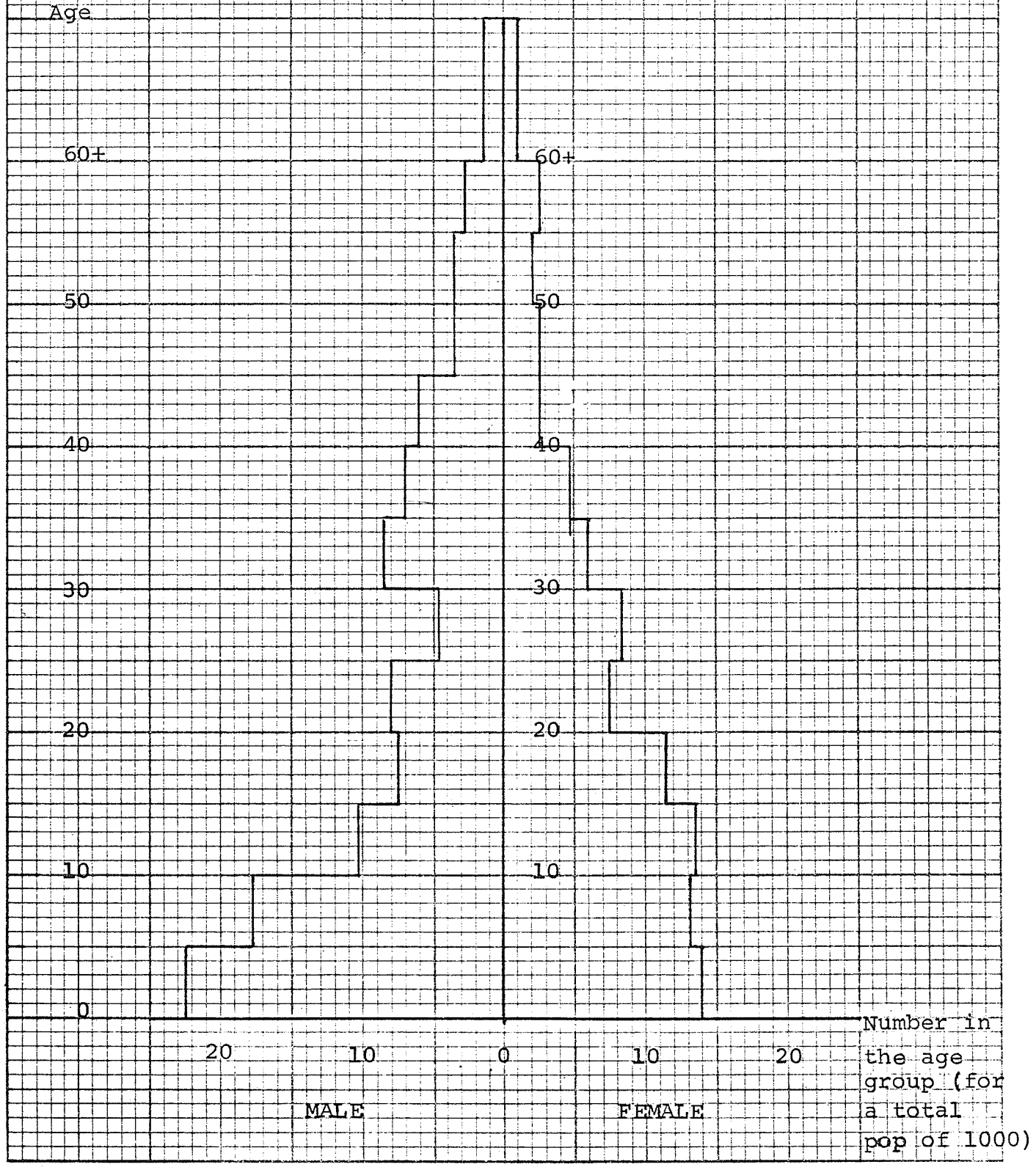
as to January 1st, 1960



Graph 2-4: Fort Resolution

Native population, Age Pyramid

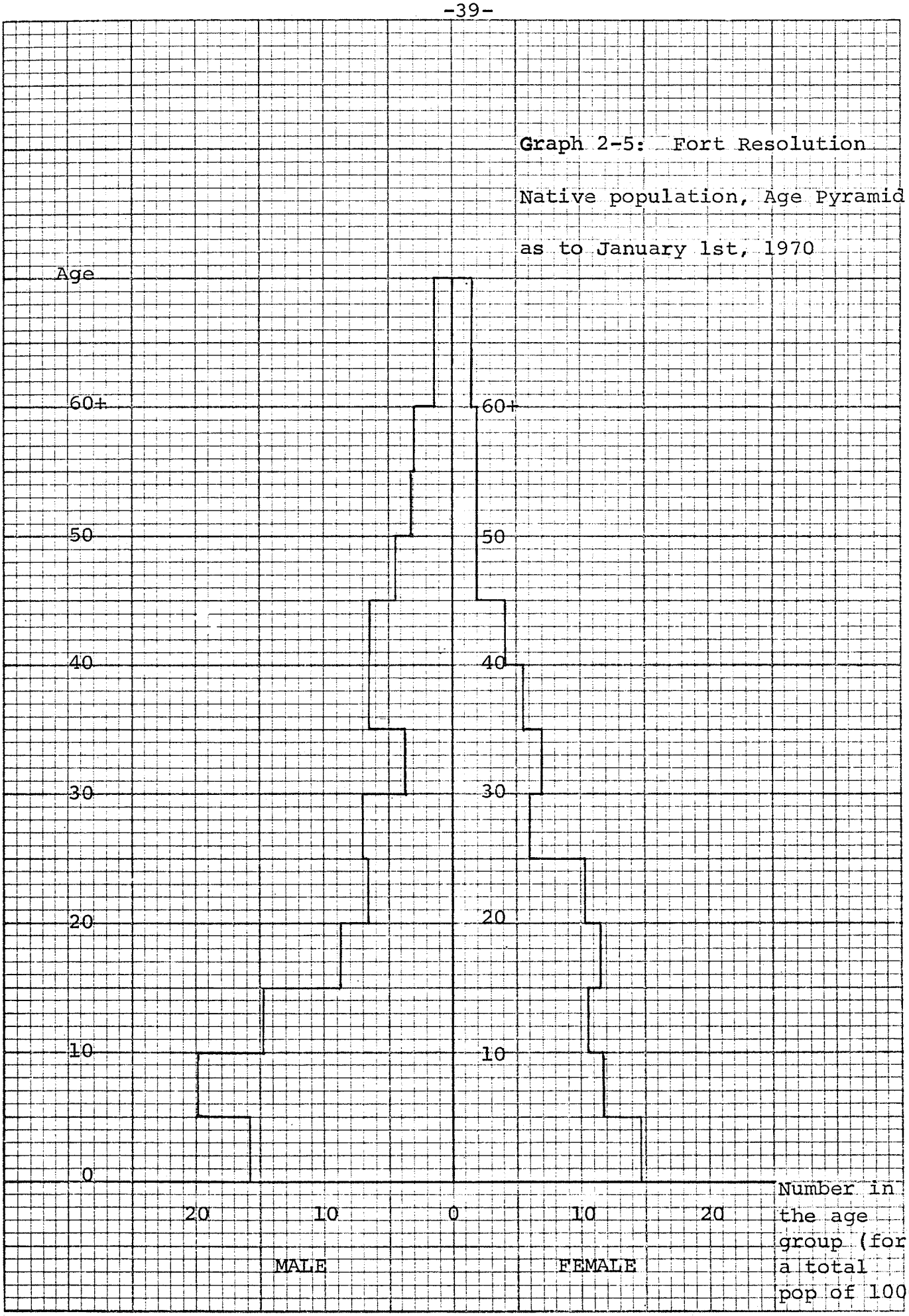
as to January 1st, 1965



Graph 2-5: Fort Resolution

Native population, Age Pyramid

as to January 1st, 1970



A comparison of the various age pyramids will help to determine the trends of change in direction and intensity as revealed by the changing shapes of the age pyramids, at successive intervals. In most countries of the Western World and to some extent among developing countries, we have observed two closely related trends in their demographic evolution; this evolution of the shape of the age pyramids reflects what has just been termed the aging of a population.

If we remember that the age pyramid of a given population reflects the historical experiences of the cohorts making up that population, the many changes just observed in the age pyramid of the Fort Resolution native population would seem to suggest changes in one or more of the following: mortality, fertility, and migration experiences. Furthermore, the dents in the age pyramid may reflect historical accidents such as famines or epidemics, etc. In the case of a small size population, these dents may also reflect contingencies due to the small numbers rather than accidents of history.

Another basic problem of interest in analyzing any population structure is the sex ratio of the population: - the

number of males per 100 females for each age group (7). The following table shows how this sex ratio stands.

TABLE 2-3

SEX RATIO (NUMBER OF MALES PER 100 FEMALES) ACCORDING TO AGE GROUPS AND YEAR OF OBSERVATION. (a)

Age Groups	1/1/70	1/1/65	1/1/60	1/1/50	1/1/40
0- 4	107	156	128	100	64
5- 9	168	133	76	81	100
10-14	135	76	68	64	125
15-19	76	68	115	105	140
20-24	62	110	57	140	150
25-29	116	57	135	250	91
30-34	55	135	146	138	100
35-39	116	146	214	143	200
40-44	154	229	143	129	40
45-49	214	142	143	175	133
50-54	143	167	114	50	--
55-59	129	100	175	100	--
60-64	100	175	67	--	--
65-69	125	67	33	--	--
70-74	67	33	--	--	--
75 +	60	150	--	--	--

Sources: Table 1 (A, B, C ...), pp. 150-154.

(a) Meaning of symbols: -------- Increase in sex ratio
..... Sex ratio remains constant
_____ Decline in sex ratio

The Fort Resolution native population presents particular variations in its sex ratios. The 1940 age structure shows a deficit in the number of males within the 0-4 age group, relatively to the number of females: 64 males per 100 females, respectively. But then the scale tipped in favour of the males. After a high of 156 in 1965, it declined to 107 in 1970. In general, the sex ratio in the 0-4 age group is determined by the number of males to the number of females at birth. At the higher age groups, other variables are often involved. In dealing with a small population, the sex ratio may also be a function of small numbers -- as reported earlier.

Of particular importance in our study is the sex ratio of the age groups over 15 -- an unbalanced sex ratio at these age levels has special implications on the availability of marrigeable partners and on the fertility level. There are exceptions to the rule, but we can see that the male population generally exceeds by far the number of females. The differences in sex distribution in most age groups over

15 are very dramatic, usually the male segment of the population far exceeding the number of females.

A look at the Sex Ratio Table, Table 2-3, (8) gives us only a static view of the age and sex structure of the population at a given moment. Another important question remains unanswered: "How this age and sex structure of the population evolved through time?" A comparison between columns should give a clue to that question; to facilitate this comparative analysis, we can draw diagonals between age groups as they evolved from one period to another -- (see the Sex Ratio Table 2-3). Changes in the sex ratio -- other than the sex ratio of the 0-4 age group -- are due mainly to differential migration experiences of the sexes and to differential mortality between the sexes, or both types of experiences.

To grasp more easily the changes in the sex ratio, we used the dash line (symbol: --------) to indicate an increase of the number of males per 100 females. On the other hand, the dotted line (symbol: .....) means that the number of males per 100 females remained constant. Finally, a solid line (symbol: _____) shows a decline in the number of males per 100 females of a particular age group. From

1940 to 1950, the most important change in the sex ratio -- as revealed by the types of lines -- is the increase in the number of males per 100 females (6 dash lines compared to 3 full lines); and one age group only has not changed its sex ratio. In the 1950-1960 decade, five age groups have experienced an increase in the sex ratio, as compared to five age groups that experienced a decline in the sex ratio; two cases were observed with no change in the sex ratio for the same period. A certain stability characterized the 1960-65 period: -out of the 14 age groups, 8 have not changed their male - female ratio. Of the 6 other age groups, half experienced a decline; however, the changes were not so dramatic. In the 1965-70 period we observe six age groups with increases and six others with declines in their sex ratio; three age groups experienced no change.

The sex ratio of the 15-49 age group was 117 males per 100 females in 1940 as compared to 90 males per 100 females in 1970. Offhand, this would seem to contradict the rumors of some local community leaders that upon reaching marriageable age, young females leave the community to find a job outside, and eventually a husband; it was assumed that many male adults were having difficulties in finding a marriageable partner. An analysis of the sex ratio does not bear out

the validity of such rumors; there are differences between the 1940 and the 1970 situation. The rumors may hold true for the 1940-60 period, but not necessarily for the following period.

We have seen the age and sex structure of the Fort Resolution native population. A look at the marital status structure of the population is now in order not only to gain a better understanding of its main characteristics, but also because of its use in studying fertility. This latter reason leads us to differentiate the marital status structure of the female population from that of the male population. For that same reason, we will deal more closely with the marital status structure of the 15-49 age group.

TABLE 2-4

PERCENTAGE DISTRIBUTION OF THE FORT RESOLUTION NATIVE POPULATION BY SEX AND MARITAL STATUS

	Male Population				Female Population				Total Population			
	S(a)	M(b)	W(c)	T(d)	S(a)	M(b)	W(c)	T(d)	S(a)	M(b)	W(c)	T(d)
1940	70.2	28.9	0.9	100	68.1	30.1	1.8	100	69.2	29.3	1.5	100
1970	70.5	28.0	1.5	100	64.8	31.2	4.1	100	67.8	29.4	2.8	100

Source: Data used were taken from Table 2 (A and E), pp. 155, 159.

(a) - "S" - single
(b) - "M" - married
(c) - "W" - widowed
(d) - "T" - total (per cent)

Table 2-4 shows some major changes in the marital structure of the Fort Resolution native population from 1940 to 1970. In evaluating these changes in the marital structure, one must keep in mind what has previously been said about the age and sex structures. The number of people, who were single, made up 69.2% of the total population in 1940; this ratio dropped to 67.8% in 1970 -- a drop of 1.4%. On the other hand, the percentage of married people changed only slightly; it varies around 29.3% of the total population. Finally, the proportion of widowed persons increased from 1.5% to 2.8% during that same period.

If we look, not at the marital structure of the total population, but at the marital structure of both the male and female populations, respectively, we can see that these two structures show differences in direction and magnitude of change. In the male as well as in the female population, the percentage of widowed persons increased from 1940 to 1970; but the female population experienced widowhood much

more intensely during that period (from 1.8% to 4.1% as compared to 0.9% - 1.5% for the male population). Furthermore, the percentage of the married females increased from 30.1% to 31.2%, while the percentage of married males declined (though slightly) from 28.9% to 28.0%. Finally, the percentage of spinsters dropped from 68.1 to 64.8; on the other hand, the percentage of bachelors increased (though slightly) from 70.2 to 70.5.

Though changes did occur in the marital structure of the population, the various figures would seem to indicate that these changes were not substantial -- particularly those changes observed in the marital status structure of the total population. We must still keep in mind the most important changes just observed in the marital status structure of the male and female population, respectively.

Of particular interest to our present study is the marital structure within the 15-49 age group, because of its relevance to fertility. Table 2-5 describes statistically that structure for 1940 and 1970.

TABLE 2-5

PERCENTAGE DISTRIBUTION OF THE FORT RESOLUTION NATIVE POPULATION, BY SEX AND MARITAL STATUS, AMONG THE 15 - 49 AGE GROUP, IN 1940 AND 1970

	Male Population				Female Population				Total Population			
	S[a]	M[b]	W[c]	T[d]	S[a]	M[b]	W[c]	T[d]	S[a]	M[b]	W[c]	T[d]
1940	42.8	55.4	1.8	100	25.0	70.8	4.2	100	34.6	62.5	2.9	100
1970	56.4	43.6	--	100	51.7	48.3	--	100	53.9	46.1	--	100

Source: Data taken from Table 2 (A and E), pp. 155, 159.

(a) - "S" - single
(b) - "M" - married
(c) - "W" - widowed
(d) - "T" - total (per cent)

The changes in the marital status structure of the 15-49 age group are much more substantial than those observed within the total Fort Resolution native population. For both the male and female population (15-49 age group), the changes experienced in the marital structure went in the same directions -- an increase in the percentage of spinsters and bachelors, with a corresponding drop in the percentage.

of married males and females. The changes are particularly important in the females with the percentage of spinsters more than doubling from 1940 to 1970. We have seen earlier that the total male population generally exceeds by far the number of females throughout that period, but that the sex ratio of the 15-49 age group shows a drastic drop from 117 to 90 (from 1940 to 1970). The increase in the percentage of spinsters is partially explained by the change in the sex ratio, as males of marriageable age become a premium and more difficult to find. On the other hand, assuming no change in the marriage patterns, the percentage of married males should be expected to increase, or at least to hold its own -- since there are now relatively less males of marriageable age to meet the marriage demands of the female population. But we see that, in fact, not only did the percentage of married males decreased, but the percentage of bachelors also increased. We must then explain these changes in the marital structure not only as a change in sex ratio, but also as a change in marriage patterns.

3. Comparative Figures:

After an analysis of the Fort Resolution native population structure according to age, sex, and marital status,

it will be instructive to make comparison with the demographic structures of the Northwest Territories population.

The total population figures for the Northwest Territories, were as follows: (9)

TABLE 2-6

SIZE OF THE NORTHWEST TERRITORIES POPULATION, FROM 1941 - 1961, 1966

Year	Numbers
1941	12,028
1951	16,004
1961	22,998
1966	28,738

Thus, in 25 years, the Northwest Territories increased substantially from 12,028 to 28,738 -- or an increase of 138 per cent from 1941 to 1966. From 1940 to 1970, the Fort Resolution native population experienced important increase also, 163% in 30 years. This compares favorably with the increase of the N.W.T. -- an annual increase of 5.5 per cent.

3.1 Age Structure of the N.W.T. population:

The Census of Canada gives us the following distribution of the N.W.T. population according to the age characteristic:

TABLE 2-7

AGE DISTRIBUTION OF THE NORTHWEST TERRITORIES

POPULATION, 1941 - 1961, 1966 (10)

Age Groups	Census			
	1941 %	1951 %	1961 %	1966 %
0- 4	13.68	15.79	16.91	18.21
5- 9	12.45	11.45	12.71	14.10
10-14	9.93	9.13	10.49	10.16
15-19	8.69	8.92	7.39	8.54
20-24	8.70	10.12	9.74	8.59
25-29	8.82	9.28	9.37	8.19
30-34	8.39	8.04	8.04	7.38
35-39	7.11	6.49	6.45	6.11
40-44	5.64	5.45	4.98	4.79
45-49	4.53	4.41	4.04	3.80
50-54	3.92	3.53	3.27	3.13
55-59	2.68	2.61	2.40	2.53
60-64	2.57	2.07	1.62	1.74
65-69	1.37	1.08	1.13	1.13
70-74	0.94	0.93	0.72	0.80
75 +	0.58	0.70	0.74	0.80
All Ages	100.0	100.0	100.0	100.0
	N = 12,028	N = 16,004	N = 22,998	N = 28,738

Table 2-7 is given primarily to show the changes observed in the 0-4 age group. Since changes observed in that age group reflect particularly differences in fertility, it will be possible to get an indication of the trend in fertility among the N.W.T. population. As can be observed from Table 2-7, the percentage of children in the 0-4 age group increased gradually from 1941 to 1966, from 13.68 to 18.21%. This means an increase of over 4% during that 25 years period.

We may also redistribute the N.W.T. population into the following age groups: 0-14, 15-49, and 50+. This will give us the following table:

TABLE 2-8

PERCENTAGE DISTRIBUTION OF THE N.W.T. POPULATION INTO THE THREE MAJOR AGE GROUPS, 0-14, 15-49, AND 50+, 1941-61, 1966

Age Groups	Census Year 1941 %	1951 %	1961 %	1966 %
0-14	36.04	36.40	40.12	42.47
15-49	51.24	52.72	50.01	47.39
50+	12.72	10.88	9.87	10.14
All ages	100.0	100.0	100.0	100.0
	N = 12,028	N = 16,004	N = 22,998	N = 28,738

The data were calculated for both sexes taken together, as in the case of Table 2-2, to permit better comparisons with the Fort Resolution native population age structure. Similarities exist between the age structure of both the N.W.T. population and the Fort Resolution native population. The most important aspect of similarity among both age structures is the relative importance of the 0-14 age group as compared to the '50 and over' age category, as well as the percentage of the 15-49 relatively to the other.

But important differences also exist between the N.W.T. population age structure and the Fort Resolution native population age structure. Table 2-8 shows a smaller proportion of 'young' people in the 0-14 age group among the N.W.T. population than among the Fort Resolution native population. The proportion of the 'adult' people (in the 15-49 age group) is generally higher among the N.W.T. population. The most important difference lies in the "50 and over' age category; in that age group, the percentage of people is constantly higher among the N.W.T. population (except for 1966) than for the Fort Resolution native population.

The various changes observed in the age structure also show marked differences. Whereas the Fort Resolution native population had experienced a gradual decrease in the relative number of young people in the 0-14 age group from 1940 to 1970, the N.W.T. population has shown a constant increase in the relative number of people of that age category. Furthermore, the relative number of people in the old age group ("50 and over") increased from 2.2% to 11.0%, from 1940 to 1970, among the native population of Fort Resolution, as compared to a decrease from 12.72 to 10.14%, from 1941 to 1966, among the N.W.T. population. Thus, in spite of the many important differences in the age structure of both populations, there is a general tendency for both populations to converge toward a similar age structure. As far as the 15-49 age group is concerned, a gradual decrease from 51.24 to 47.39%, with a high of 52.72% in 1951, is observed among the N.W.T. population; on the other hand, that age group increased from 43.8 to 49.8% from 1940 to 1950 then declined steadily to 45.5% in the Fort Resolution native population.

The sex ratio of the N.W.T. population is presented in Table 2-9.

TABLE 2-9

NORTHWEST TERRITORIES POPULATION BY SEX, AND PROPORTION OF MALES TO FEMALES, 1941-1961, 1966

Census Year	Males	Females	Males to 100 Females
1941	6,700	5,328	126
1951	9,053	6,951	130
1961	12,822	10,176	126
1966	15,566	13,172	118

Sources: = 1961 Census of Canada, D.B.S. Cat. no. 92-541, vol. 1, part 2, Table 15.

= 1966 Census of Canada, D.B.S. Cat. no. 92-613, vol. 1 (1-13), April, 1968, Table 34.

Table 2-9 shows an excess of the number of males over the number of females. Whereas the sex ratio varies around 105 for the whole Canada (11), there are from 118 to 130 males per 100 females among the N.W.T. population. The highest disparity observed in the number of males per 100 females, among the N.W.T. population, was in 1956 when the sex ratio stood at 139. The regions of northern Canada were facing particular demographic conditions; if the sex ratio

can be taken as an indication of such demographic disturbances, the Yukon Territory population presents a very special case. Its sex ratio climbed to a high of 558 in 1901 -- presumably due to the number of young men lured by the Klondike Gold Rush. Gradually the sex ratio experienced a slow decline, so that in 1961, there were 127 males per 100 females in the Yukon. Compared to the sex ratio observed among the N.W.T. population or the Yukon population, the Native population of Fort Resolution presents a more 'normal' sex ratio; it varied from 105 to 114 males per 100 females, from 1940 to 1970.

The sex ratio among the 15-49 year old groups, for the whole of the N.W T. population is given in Table 2-10.

TABLE 2-10

NUMERICAL DISTRIBUTION OF THE 15-49 AGE GROUP, NORTHWEST TERRITORIES POPULATION, BY SEX AND CENSUS YEAR; AND NUMBER OF MALES PER 100 FEMALES BY CENSUS YEAR

Census Year	Males	Females	Sex Ratio
1941	3,634	2,607	139
1951	6,036	3,401	177
1961	6,713	4,789	140
1966	7,650	5,971	111

Except for 1966, the number of males per 100 females among the 15-49 year olds, always exceeded that observed among the same age group in the Fort Resolution native population. The differences are very important. Whereas the sex ratio among the 15-49 age group of the native population of Fort Resolution varied from 117 to 90, that ratio varied from 177 to 111 among the 15-49 year olds of the N.W.T. population.

The N.W.T. population distribution by maritus status is given below:

TABLE 2-11

NORTHWEST TERRITORIES POPULATION BY MARITUS STATUS, BY AGE GROUP, 1941-61 and 1966

Census Years	Singles <15	Singles 15+	Married	Widowed	Divorced
1941	4,335	2,424	4,695	568	6
1951	5,826	3,524	5,970	646	38
1961	9,227	4,728	8,307	646	90
1966	12,204	5,588	10,132	730	84

Sources: = 1961 Census of Canada, D.B.S. Cat. no. 92-544, vol. 1, part 2, Table 28.

= 1966 Census of Canada, D.B.S. Cat. no. 92-613, Table 34.

We have already calculated the percentage of those who are under 15 years of age (Table 2-8); this age group, -- which is constituted entirely of "singles", increased from 36 to 42% of the total population, from 1941 to 1966. On the other hand, the proportion of the "singles" in the "15+" age group, relatively to the rest of the population, varied from 21.5 (in 1941) to 16% (in 1966). Hence, the percentage of all 'singles' varied from 57.5 to 58% of the total N.W.T. population, whereas the 'single' group constituted from 70 to 64% of the Fort Resolution native population.

The 'married' category made up 39% of the total N.W.T. population in 1941. This percentage then dropped to 35% in 1966. This ratio of married group to the total population of the N.W.T. is much higher than that observed among the Fort Resolution. As we have seen, Table 2-4, the 'married' group constituted approximately 30% of the total native population of the settlement.

As for the "other" category, which includes the widowed

and divorced, etc., it constituted 4.7% of the total N.W.T. in 1941; this group then decreased in relative importance, where in 1966 it represented only 2.8% of the N.W.T. population. These percentages are close to that computed for the native population of Fort Resolution.

References and Comments:

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1. The Total population figures are given in Table 1, A, B, C,... pp. 150-154.

2. Our primary aim in examining these population pyramids being to compare them, we will standardize the Fort Resolution native population size to a total of 1000 for each period, in the construction of our pyramids. The techniques and principles underlying the construction of standard population pyramids are well described by R. Pressat, "Principes d'Analyse", pp. 104-105.

3. See Graph 1: "Fort Resolution native population age pyramid as of January 1, 1940" in present chapter, pp. 35.

4. 2.2% as shown of Table 2-2, p. 31.

5. See Graph 5: "Fort Resolution native population age pyramid, as of January 1, 1970" pp. 39.

6. See Table 2-2, p. 31.

7. The sex ratio is the ratio of the number of one sex to that of the other; the ratio of the number of men to the number of women is called the masculinity ratio, cf. Multilingual Demographic Dictionary, English Section, para. 320, p. 19.
   Hence, the masculinity ratio formula would be given by:

$$\frac{\text{no. of males}}{\text{no. of females}}$$

   This masculinity ratio may be computed for the whole population or for a given age group.

8. Table 2-3, p. 41.

9. 1966 Census of Canada, Cat. no. 92-601, vol. I, 1 - 1, August 1969, Table 1, pp. 1 - 1.

10. 1961 Census of Canada, D.B.S., Cat. no. 92-542, vol. I, part 2, pp. 20-9, 20-10.

1966 Census of Canada, D.B.S., Cat. no. 92-610, vol. I, (1-10), March 1968, pp. 19-1.

11. 1961 Census of Canada, D.B.S., Cat. no. 92-541, vol. I, part 2, Table 15.

CHAPTER III

METHODOLOGY

The present chapter will deal with the general problems of methodology: sources of data, steps in data collecting and classifying, and techniques of analysis. Basically the method used in collecting, classifying and processing the raw data will be the same as that outlined by Louis Henry in the 'Nouveau Manuel de Dépouillement et d'Exploitation de l'Etat Civil Ancien' (1). The method developed by Louis Henry has been used in a number of important demographic studies by Jacques Henripin (2), E. Gautier and L. Henry (3), Peter Laslett et al. (4), etc. Because of its particular importance to our research project, we will describe that method in some detail in the present chapter.

1. The Family Reconstitution Method: (5)

The Family Reconstitution Method, designed by Louis Henry, can be defined as the bringing together of relevant information about the members of a family to enable its chief demographic characteristics to be described as fully as possible (6). It is complementary, in its nature, to other methods of investigating population history. Whereas

other methods deal with their study in breadth, the Family Reconstitution Method can be used for an in-depth analysis of demographic characteristics.

1.1 Choice of families:

The Indian families chosen were those who appeared on the Department of Indian Affairs Registered Indian Lists of Fort Resolution. For our study, we obtained from the Department of Indian Affairs the Registered Indian Lists of the following years: 1961, 1965 to 1968 inclusive.

As for the Métis families of Fort Resolution, we used a housing survey list made in late 1969, by the Department of Indian Affairs. The housing survey contained the name of every household head of the settlement. By comparing these names with those that appear on the Registered Indian Lists, it has been possible to determine the Métis and the 'White' families who lived in the settlement.

1.2 Sources of Data:

The Family Reconstitution Method is generally based upon the exploitation of information gathered from the registers of a parish or of a group of parishes. However, other sour-

ces may also be used. In the present study on the native population of Fort Resolution, the information required to complete the family reconstitution forms were obtained from the following sources:

(a) Department of Indian Affairs Lists: as mentioned earlier, these include the 1969 Housing Survey as well as the Registered Indian Lists of 1961, 1965, 1966, 1967 and 1968. The 1969 Housing Survey List gives the name of household head, his marital status, number of dependants living with him, source of income, type of house, etc. Though much of this information could have been used, the 1969 Housing Survey List was used exclusively to identify the Métis head of families, as opposed to the Registered Indian families.

The Registered Indian Lists, generally established on December 31 of each year, offer a wealth of information on every household; - Indian Treaty Band, family number of every member of the family, Surname and given names, birth date, religion, sex, marital status, etc. The marital status includes seven catagories: single, married, widowed, divorced, separated, unwed mother, and married by Indian custom. The informations obtained

from these lists were used in the first draft of family files.

(b) Files of the Vital Statistics Branch of the N.W.T. Government at Yellowknife:

These files contain certificates of birth, deaths and marriages; they were particularly useful in supplementing the Registered Indian Lists, as a source of information on deaths; name of deceased and parents, date at death, age, etc. This information was not available from the Registered Indian Lists. The Vital Statistics Branch had also compiled a family register with name, date of birth, date of marriage, date of death or members of every family. These two sources of the Vital Statistics Branch were used extensively. Among other shortcomings, however, these sources had one major drawback: - the information before 1940 were often lacking.

(c) Birth, death and marriage registers of the R.C. Mission of Fort Resolution:

These sources of data were used to supplement the information already obtained from the Registered Indian Lists

and the files of the Vital Statistics Branch. Since these Church Registers were kept in order since the early years of the Mission, they were a precious source of information not obtainable elsewhere -- particularly to complement the information already at hand. These Church registers were of particular use in giving information on the Métis families. The data on the Métis families were available also from the Vital Statistics Branch, Yellowknife; though available, they were very difficult to use. Since the Mission also kept a family file on every household of the settlement, it was thus a much easier task to gather the necessary data. From the information thus obtained from these various sources, a 'master-copy' was constructed for every family -- a family file containing all data relevant to the members of that family. These 'master-copies' then became the immediate documents for our analysis of the Fort Resolution native population.

1.3 Family reconstitution: the sequence of operations (7)

According to E. A. Wrigley, family reconstitution involves the following steps:

a) Preliminary analysis of the register;

b) Transfer of raw data from the register to the standard slips;

c) Sorting of the slips into sets;

d) Reconstitution of Families on Family Reconstitution Forms (F R F's);

e) Calculations done on the FRF's;

f) Derivations of measures of fertility, mortality, etc.

These various steps which are normally carried out in the reconstitution of families from information obtained in parish registers, were not necessary in our present research project. The families of the native population of Fort Resolution were already reconstituted in the three documents mentioned earlier: - the Indian Affairs Registered Indian Lists, the Vital Statistics Branch Family Registers and the R.C. Mission of Fort Resolution Family Records. The information of these Records were transferred directly to the FRF's. The collecting of information on each family was thus greatly facilitated. The information contained in these family documents was counter-checked against the original entries in the marriage, births, and deaths certificates found in the Vital Statistics Branch; when such certi-

ficates were not available, a check through the Parish Registers practically always provided a good source of the information needed.

Before dealing with the next steps in the reconstitution of the families, a general description of the Family Reconstitution Form is now in order. It will greatly help in understanding the rest of the operations to be carried out.

1.4 Family Reconstitution Form:

As shown in the Form -- presented on page 70, the 'family form' contains two main parts. The first section holds information on the heads of the family: name of husband and wife; the name of their respective parents; place of birth, marriage and death; date of birth, marriage and death; profession; etc...

The second section of the family form gives relevant information on the name, date of birth, etc., of all the children born from that union. In that second section, to the left of the information on the children, can be found six columns to be used in establishing the numerical data which will allow us to evaluate the fertility.

NAME MAN: GREVET
WIFE: DACHEUX

Pr.
GIVEN NAME
Ma.

Daughter{ _____
_____

PROFESSION _____

Marriage nº	Celebrated at	Rank of mar.	Age at mar	Dates Marriage	Dates End observ.	Period	Age at end observ-atia	Following wedding date		
					18.8.1727					
born at living at				birth	death	age		Period of widowship in months		
MAN					18.8.1727	XX				
WIFE					30.12.1750	60				

Grp.	Period (yrs.)	No. birth	Age mother	Yrs. mar.	Intervals	Sex	Rng.	Births	Deaths	s.m.	Age	Marriage	Age	Given Name	Name of Husband
							1								
15-19							2								
20-24							3								
25-29						m	4		16.1.1780	M.V	74	25.6.1736	X	Carl = Ma. Frse.	COFFIN
30-34						f	5					15.9.1737	25	Gened. = Frs.	DUMEIGE
35-39			26			m	6	8.9.1716						Ls.	
40-44			28		17	m	7	11.2.1718						Frs.	
45-49			31		45	m	8	11.11.1721	28.11.1721	C.	17j			Martin	
——			31		0	m	9	11.11.1721	28.11.1721	C.	17j.			Jn.	
0-4			33		17'	m	10	17.4.1723	10.5.1785	V.	62	23.10.1755		Ant. = Ma. Cat.	BUTEUX
5-9			36		44	f	11	31.12.1726	17.1.1727	C.	17j			Ma.	
10-14							12								
15-19							13								
20-24							14								
25-29							15								
30-34															
Total															
Boys															
Girls															

Source of data: Louis Henry, "Nouveau Manuel ...", Hors-texte No. 10

In the first column, are, first, the possible age groups, 15-19, 20-24, etc., and below, the groups of marriage duration: 0-4, 5-9, etc. The second column gives the lapse of time of marital life (in years) lived in the various groups. The third column includes the number of children born in the corresponding periods. Columns 4 and 5 are reserved for the age of mother, and marriage duration at time of each birth; finally the sixth column gives the interval (in months) between marriage and first birth and between each successive birth.

We have included here the family record of Grevet and Dacheux -- as an example of such family file (8). E.A. Wrigley comments the importance of such family records: "Records of this sort are the building blocks which, when put together, reveal the demographic structure of the past, and allow this structure to be related to many aspects of economic and social life. If it is true that 'family structures in all societies share a special set of characteristics which make the family structure a strategic starting point for general social analysis', then the value of family reconstitution, which provides much information about family structure is evident." (9)

1.5 Preliminary computations done on the F R Fs:

The main calculations to be made were:

- In the top half of the F R F:

    1) Age at marriage.
    2) Age at burial (death).
    3) Age at end of marriage.
    4) Length of marriage.
    5) Interval between end of marriage and remarriage.

- In the bottom half of the F R F:

    6) Age at marriage for children of the marriage.
    7) Age at burial (death) for children of the marriage.
    8) Duration of marriage in age periods.
    9) Age of mother at baptisms (births) of children.
    10) Intervals between baptisms (births).
    11) Number of children (total, and by sex).

The calculations of 5 and 10 is done in months. The calculations of 7 is done in days if burial occurs within one month of baptism, in months if age at burial exceeds one month but is less than one year and in years at greater age... The calculation of all other intervals (1, 2, 3, 4, 6, 8, 9)

is done in years.

All calculations done in years or in months are made in completed units. For example:

= baptised 17 - 4 - 1577
buried 25 - 9 - 1611 age at death 34 years
buried 20 - 2 - 1611 age at death 33 years

or (interval between end of marriage and remarriage)

= burial of spouse 15 - 6 - 1753
remarriage 19 -10 - 1758 5x12+4 = 64 completed months.

Calculations done in days are made by simple subtraction:

= baptised 15 - 4 - 1630
buried 2 - 5 - 1630 age at death 17 days.

In the calculation of 8 above (duration of marriage in five year age-groups) the number of years lived in any age-group is 5 if the marriage began before and ended later than the period in question. If this is not so the figure is equal to the number of completed years lived in the period plus 0.5.

2 - Derivations of measures of fertility, mortality, and nuptiality:

A very large number of calculations can be made using

tha data on the F R Fs -- age at marriage, average length of marriage, interval between end of marriage and remarriage, average family size, frequency of families of different sizes, age specific fertility, intergenesic interval, percentage of illegitimate births, percentage of pre-nuptial conceptions, infant mortality, child mortality, mortality of married couples, and so on.

Many of these calculations are fairly well described in most introductory Statistical texts and need not be dealt with here in detail. Thus in calculating the average interval which elapses between marriage and first birth:

- 622 marriages
- 10,263, a total of month-time elapsed between marriage and first birth: $\frac{10,263}{622} = 16.5$ months

or again, the average age of women at first marriage:

- number of women 373
- total of their ages at first marriage 10,090

Then, the average age of women at first marriage is:

$$\frac{10,090}{373} = 27.1 \text{ years}$$

One common measure used in analyzing such events as births, deaths or marriages is the rate. A rate is used to indicate the relative frequency of the occurrence of a particular event within a population or sub-population. The number of events that occur during some time period will depend primarily upon the number of potential actors that might change. This latter number is referred to as the number of individuals exposed to the risk of the event. Births occur only among sexually mature females, for example, so the number of births will depend upon the number of such females as well as upon the underlying process that leads them to have babies. To compute a rate, then one has to compare the number of events with the number of potential events, that is, with the number of individuals exposed to the risk of the event. The comparison is accomplished by dividing the number of occurrences by the number of individual exposed. This fraction is called a rate or a rate of occurrences. Often this fraction is multiplied by some standard number such as 1000 and we speak of the number of occurrences per 1000 exposures. Since the events always occur during some time period, we ordinarily refer to this time period in identifying the rate (a.g. the no. of births per 1000 exposures per year).

In many cases it is difficult to determine just who is and who is not exposed to a given risk. Furthermore, the extent of exposure may well vary from one person to another. For this reason it is possible to compute many different rates, depending upon how we define the population of exposed individuals. These rates are usually defined as either crude or refined rates. A crude rate uses as the denominator a total population without concern for whether or not each individual in the population is actually exposed. A refined rate uses as the denominator some more carefully defined population relative to exposure.

Example of a crude rate: the crude death rate of the Fort Resolution native population for the 1940-49 period:

- No. of events (deaths) during that period 25
- Average (total) population 250

Then $\frac{25}{250} \times 1000 = 100.0$ deaths per 1000 exposures, 1940-49.

Example of a more refined rate: the age specific death rate of the 0-4 age group among the Fort Resolution native population for the 1940-49 period:

- No. of events (deaths among the 0-4 age group) 15
- Average 0-4 age group sub-population. 45

Then, the age specific mortality rate among this age group for the 1940-49 period will be:

$$\frac{15}{45} \times 1000 = 333.3 \text{ per } 1000$$

Fundamentally, the same method of computing rate is used in the analysis of nuptiality and fertility.

3 - Mechanical treatment of data:

The present study is limited to a rather small population; in spite of this, the number of operations to be carried out through all the phases of the project make it already onerous when these operations must be carried out manually. These last years, population genetics and demography have developed to the point that it has become increasingly difficult to carry out manually these operations, particularly since these projects are more numerous and of much wider scope. Already in 1956, J. Sutter and L. Tabah had elaborated a mechanical technique to establish the genealogy of a population. Since then, a need of such a method grew as more studies were undertaken on villages and communities, using a multidisciplinary approach. We need only to recall, in particular, the reconstitution of families from parish registers, according to Henry's method. Such methods can easily be applied to mechanical treatment of the

raw data. The programme has already been elaborated by M. Mugnier, J. Sutter, and J. M. Goux, "Organigrammes pour l'étude mécanographique de la parenté et la fécondité dans une population". (10)

And now A. P. Mange had used (in 1964) the computer for a genetic study of the Hutterite population.

References:

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1. M. Faury et Louis Henry, "Nouveau Manuel de Dépouillement et d'Exploitation de l'Etat Civil Ancien", l'Institut National d'Etudes Démographiques, Paris, 1965.

2. J. Henripin, "La population canadienne au début du XVIII^{e} siècle: nuptialité, fécondité, mortalité infantile", Presses Universitaires de France, 1954, p. 51.

3. E. Gautier et L. Henry, "La population de Crulai, paroisse normande, Etude historique", Presses Universitaires de France, 1958.

4. Peter Laslett, D.E.C. Eversley, W.A. Armstrong, "An Introduction to English Historical Demography", Edited by: E.A. Wrigley. Basic Books Inc., Publishers, New York, 1966.

5. The method is fully described by E.A. Wrigley, in "An Introduction to English Historical Demography", Chapter 4, pp. 96-159. In our present description of the method developed by Louis Henry, we will borrow much of our information from that chapter 4.

6. E.A. Wrigley, op.cit., pp. 96-97.

7. E.A. Wrigley, op.cit., pp. 111-153.

8. Source of data, L. Henry, "Nouveau Manuel de dépouillement et d'Exploitation de l'Etat Civil Ancien", 1965, hors-texte, No. 10.

9. E.A. Wrigley, "Population and History", Toronto, McGraw-Hill Book Co., 1969, p. 86.

10. M. Mugnier, J. Sutter and J.M. Goux, "Organigrammes pour l'étude mécanographiques de la parenté et de la fécondité dans une population", Population, No. 1, Jan-Fév., 1966, pp. 83-93.

CHAPTER IV

ANALYSIS OF THE DEMOGRAPHIC PROCESSES

After describing the Fort Resolution native population as to its size and composition and measuring the extent of the changes that have taken place in these major demographic variables of population size and composition, we are now interested in the means by which such changes were being achieved: that is, nuptiality, mortality and fertility.

1. Nuptiality:

In as far as nuptiality does affect the composition of the population, its study has a meaning in demographic analysis. We will attempt to observe and measure the nuptiality levels and trends among the Fort Resolution native population -- with special emphasis on female nuptiality.

From 1940 to 1969, we counted 95 marriages: -- 24 marriages occurred from 1960 to 1969, as compared to 39 for the 1950-59 period and 32 for the 1940-49 period respectively. (1).

The nuptiality rate of those of 'marriageable' age (taken here as '15 and over') would be:

TABLE 4-1

NUPTIALITY RATE OF 'MARRIAGEABLE' AGE,

PER DECADE, FROM 1940 TO 1969:

Years	Nuptiality Rate (per 1000)
1940-49	220
1950-59	181
1960-69	80

One must emphasize the importance of this decrease in the level of nuptiality, particu'arly when one considers not only the increase in percentage of the 15-49 year olds, but also the increasing number of single people in the Fort Resolution native population.

Table 4 shows the distribution of the marriages and re-marriages according to age at marriage and year of marriage among the female population (2). As can be seen, not all marriages could be classified according to the two variables -- age at marriage and year of marriage. For the 1960-69 period, 23 out of the 24 marriages were thus classified. Of these, 22 were first marriages for the women concerned, while for one woman it was her second marriage. Among the 39

marriages recorded during the 1950-59 period, 32 were classified: 29 of these were first marriages. As for the 32 marriages of the 1940-49 decade, only 25 were classified; of these 22 were first marriages and 3 were remarriages.

An important question arises: "What is the mean age at first marriage?" In most societies, age at marriage is generally the starting point of permanent sexual experience for the individuals concerned, and thus has a direct relation to fertility. Louis Henry has found, for instance, that in a non-malthusian population, the average number of children born from a woman is directly related to her age at marriage. (3).

Using the data of Table 4, we find that the average age at first marriage for the females concerned was as follows:

TABLE 4-2

AVERAGE AGE AT FIRST MARRIAGE, FEMALE NATIVE POPULATION OF FORT RESOLUTION, PER DECADE, FROM 1940 TO 1969:

Years	Average age at first marriage
1940-49	19.0
1950-59	20.0
1960-69	20.6

This gradual increase in the average age of women at first marriage is a very important phenomenon. This trend would be expected, due to the relative shortage of marriageable bachelors to meet the demands of the 15-49 year old spinsters of the Fort Resolution native population. We have already seen, that the sex ratio of the 15-49 age group was 117 males per 100 females in 1940 as compared to 90 males per 100 females in 1970. (4).

Related to the analysis of marriages, is the dissolution of the conjugal unions. No divorces were recorded for any of the periods under study. The two major types of marriage break-downs were separations and deaths of either spouse. Analysis of dissolution of marriages through separa-

tions presents special difficulties; no complete records are available as to the exact amount of time that these separations lasted. Furthermore, separations may be permanent, although they more often last a few years only -- the usual pattern is a woman who 'shacks up with another man' and then decides to return to her former husband. Very few cases are known where either spouse has left permanently. Given that such cases were rare, separations would probably have little effect on the ultimate fertility level of the population. As for dissolution of marriages through the death of either spouse, 9 such cases were recorded from 1940-49, and 3 for 1950-59 and 1960-69 respectively.

2. Mortality:

We will study mortality among the Fort Resolution native population under three headings: (a) mortality levels for the 1940-49, 1950-59, and 1960-69 periods; (b) mortality trend from 1940 to 1969; (c) child mortality.

The highest number of deaths was recorded in the 1940-49 period, when 70 persons died; this means a crude death rate of 24.3 per 1000. For the 1950-59 period, the crude death rate declined to 11.9 per 1000. A further decline in the

crude death rate was recorded in 1960-69 when a low of 4.5 per 1000 was reached (5).

This can be compared to the Canadian population crude death rate: -this rate fluctuates around 10‰ from 1931 to 1944, and then experiences a slow decline which brings it to a level of 7.6% in 1964. Two major variables account primarily for the mortality level of a population: its age structure and its health conditions.

Crude death rates of over 20 per 1000 indicate especially poor health and living conditions. In the less developed nation the range is 13 to 18 per 1000. The crude death rates of the more advanced urban-industrial nations fall roughly within the 9 to 13 range. Crude rates of 6-9 per 1000 are found only in exceptionally youthful populations (6). Two factors thus seem to have influenced the mortality trend in the Fort Resolution native population: the very young age structure as revealed by the age pyramids; and second, the gradual improvements of their health and living conditions. Particularly since the Second World War, medical care has been greatly improved. Furthermore, the gradual drift of the native people toward the settlement, where they began to settle more or less permanently, brought them in closer con-

tact with these medical services. Before that period, the natives used to come to the settlement only to get some provisions and to trade their furs -- particularly in the Spring. (7)

An inventory of child deaths gives the following distribution deaths by age for the three decades (for both sexes taken together):

TABLE 4-3

CHILD DEATHS ACCORDING TO AGE OF DEATH AND YEAR OF DEATH

Age	1940-49	1950-59	1960-69
Less than 1	19	23	10
1	11	3	2
2	3	1	--
3	6	1	--
4	10	1	--
0 - 4	49	29	12

Death took a heavy toll among the children of the 0 - 4 age group. Out of the 70 deaths recorded during 1940-49

(for the whole of the Fort Resolution native population), 70% were deaths of children aged 0 - 4. Of the total 47 deaths recorded during 1950-59, 62% were child death of that age group. For the 1960-69 period, the children of the 0 - 4 age group contributed 50% to the total number of deaths recorded (12 out of 24). The general living conditions must have greatly improved throughout that whole period if we consider the substantial drop in the mortality among the 0 - 4 age group. The 1940-49 age specific mortality rate (0-4 age group) was 83.1 per 1000. This rate declined to its lowest level yet attained, 13.8 per 1000, during the 1960-69 decade. (This is an annual rate; the same remarks holds for the various rates given above.)

The number of marriages, deaths and births within a given period, depends, among other things, upon the size of the population. We should expect therefore that a greater number of births, deaths and marriages be recorded in the Fort Resolution native population as it increased from a low of 237 (in 1940) to 625 people (in 1970) -- assuming that the fertility, mortality, and nuptiality levels remain constant. We have seen, however, that this has not been verified, at least for nuptiality and mortality (for the period studied).

3. Fertility:

The expectations are verified for the birth pattern: from 149 in the 1940-49 decade, the number of births reached 213 in 1960-69. Even though the number of births increased substantially from 1940 to 1970, it has not increased at the same rate as the population size. This is revealed by the crude birth rate: the crude birth rate shows a sharp decline, from 51.7 per 1000 to 39.7 per 1000 from 1940 to 1970.

Compared to the rest of the Canada, the Fort Resolution native population can still be defined as a population of very high fertility. In 1940 the Canadian crude birth rate was 21.5, whereas the 1964 crude birth rate was 23.5 per 1000. The N.W.T. crude birth rate is not available for 1940, but it fluctuates around 48 per 1000 from 1961 to 1964. Thus, in spite of a sharp decline from 51.7 to 39.7 per 1000, the fertility level of the Fort Resolution native population still remains well within the 'high' fertility range.

Crude death rate and crude birth rate are the two elements needed in computing the crude rate of natural increase. The crude rate of natural increase, obtained by substracting the crude death rate from the crude birth rate, was 27.4 and 35.2 per 1000, respectively, for the 1940-49

and the 1960-69 period.

If we subtract the total number of deaths from the total number of births, in a given time period, we obtain the natural increase of that population, for the given time period. Thus, for the 1940-49 period, the births exceeded deaths by 79, as compared to 189 during the 1960-69 decade. The population, however, increased from 237 to 339 from the beginning to the end of the 1940-49 period; given the balance of births over deaths of 79, it would mean that the population gained 23 persons through migration. However, for the 1960-69 period, there was a net loss of 11 persons through migration.

An important aspect of fertility analysis is the relative importance of illegitimacy. Table 5 shows the annual distribution of legitimate and illegitimate births. Over 32% of all births which were registered during 1960-69 were illegitimate. For the 1950-59 period, 12.4% of all births were illegitimate; finally, 24.8% of all births were illegitimate during 1940-49. (8)

The level of illegitimacy is rather high, particularly for the 1960-69 period. The ratio of illegitimate births to legitimate births seems to suggest that extra-marital sexual

relations are indulged in. Although a greater proportion of the births occurred within marriage, legitimate fertility measures should give way to general fertility measures to get a more accurate knowledge of fertility. This, because of the important proportion of children born outside of wedlock. In fact, the number of illegitimate children would be even greater if we had counted as illegitimate those children who were born from separated women.

It would be useful to measure the fertility level of married women, for each age group. Such age specific fertility rates have little meaning when calculated for a small group. Instead, we will compute the general fertility rates which "usually relate all births to all women of reproductive age regardless of marital status". (9)

TABLE 4-4

AVERAGE FEMALE NATIVE POPULATION OF FORT RESOLUTION AGE 15-49, AND GENERAL FERTILITY RATE (PER 1000) PER DECADE, FROM 1940 TO 1969:

Periods	(Average) Female Population, 15-49	No. of births	General Fertility Rates (per 1000)
1940-49	58	149	256
1950-59	76	185	243
1960-69	120	213	177

Though far from refined, the general fertility is still to be preferred (somewhat) to the crude birth rate. The denominator includes only women aged 15-49. Therefore, it excludes those who do not bear children. Two variables are thus taken into account by these measures: -sex and age. We can observe a steady decline in the general fertility rate; from a high of 256 per 1000, the general fertility rate dropped to 177 through the 1940-70 period.

Chapter II has given us a first glimpse of the population structures -- age, sex, and marital status -- of the Fort Resolution native community. We then tried to observe

and measure the levels and trends of nuptiality, mortality and fertility -- the three major demographic processes which affected the population structures. With a better understanding of these variables which affected the Fort Resolution native population structures, we can now delve more deeply into the very core of our problem -- fertility of the native families. Till now, in our analysis of fertility, we have considered fertility within the 'total population' framework. Modern demographic researches tend also to use the 'family' framework in their analysis of fertility. Such a perspective seems more "natural", since fertility as a socio-demographic process is a prime variable of the family life cycle.

4. The native families and fertility:

In order to proceed with our analysis of fertility, the Family Reconstitution Forms were first classified into two sets (10): a) unusable Family Reconstitution Forms - those containing at least one child whose data of birth was not indicated; or files of couples not 'regularly' married. There were ten such F.R.Fs. b) usuable family reconstitution forms - those forms on which the date of birth of all the children were given.

After the elimination of the 'unusable' family reconstruction forms, the 'usuable' family reconstruction forms were classified into three categories according to the duration of the parents' union, in terms of the age of the mother. This second classification gives us three types of families:

a) 'completed' families - when unions were known to have lasted at least until the wife reached her 45th birthday. To classify a family in this first category, we must know the fate of the wife at least until her 45th birthday.

b) 'incompleted' families - those unions which were dissolved before the wife reached 45 years of age; and also, those unions which are still presently in force while the wives are not yet 45.

c) 'unknown' families - in this third category were classified families who should, in fact, be listed in either one of the first two categories; but the information on them does not permit us to know if the women concerned have reached their 45th birthday. (8 cases - in which the date of birth of the woman is unknown).

Six unions occurred after the wife reached 45 years of age -- all of which were children. These were therefore rejected, as they were not relevant to our study of fertility.

4.1 Marriage Characteristics of the Various Types of Families

4.1.1 - Marriage order:

There are 39 F.R.Fs. of 'completed' families; that is 39 families in which the wife has reached at least her 45th birthday before the dissolution of marriage or the end of observation. For 31 out of these 39 women, this was their first marriage; of the 8 other cases 6 were remarriages (2nd) and 1 case was a third marriage for the woman concerned. In one case, the order of marriage of the woman concerned is unknown.

As mentioned earlier, a family is considered "incompleted" when the mother has not yet reached her 45th birthday at the end of the union or at the end of observation. In fact we find two main categories in this class of families. First, there are those families that were dissolved (through the death of at least one of the spouses) before the wife reached her 45th birthday. This group of 'incompleted' families will henceforth be called Type I. There is a second

category of 'incompleted' families which consists of those families that still hold good but the mother has not yet reached her 45th birthday by January 1st, 1970. This second group of 'incompleted' families will henceforth be called Type II families.

Of the 15 families of Type I, all except two were first marriages for the women concerned. Of the two other marriages one is a second marriage and the other cannot be determine. Furthermore, all wives of Type II families were married for the first time.

4.1.2 - Age at first marriage:

As mentioned above, 31 out of the 39 'completed' unions were first order marriages, i.e. for 31 out of these 39 women, this was their first marriage. The average age at marriage for these 31 women was 20.4 years and the modal age was 16 years. The average age at marriage of women of Type II unions (all of which were first marriages) was 19.1 years, the modal age being 17 (11 cases). The average age at marriage of the women of Type I unions, who were married for the first time, was 17.4 years and the modal age was 16 years.

4.1.3 - Marriage duration according to types of families

Table 4-5 below gives the distribution of families according to types of families and marriage duration:

TABLE 4-5

DISTRIBUTION OF FAMILIES ACCORDING TO TYPES OF FAMILIES AND MARRIAGE DURATION:

	Types of Families								
	Completed			Type I			Type II		
Marriage duration (in years)	<10	10-19	20+	<10	10-19	20+	<10	10-19	20+
No. of families	5	11	22	4	8	2	9	21	10
Total no. of years	39	168	623	23	116	42	23	311	226
Average no. of years	7.8	15.2	28.3	5.7	14.5	21.0	2.5	14.8	22.

a) - 'completed' families:

Out of the 39 'completed' families, one has not been classified in Table 4-5 due to lack of information on the actual date of marriage. Of the 38 others, 5 marriages lasted 9 years or less; these five marriages lasted on the average, 7.8 years. (In this discussion, we are dealing with 'useful' years, i.e. years of the reproduction life of

the mother.) Eleven of the 38 marriages lasted 10 to 19 years each before the women reached their 45th birthday -- with an average of 15.2 years of marriage. Finally, 22 out of the 38 marriages lasted 20 years or more (before the women reached their 45th birthday) - these women lived in wedlock an average of 28.3 years. Altogether, the average duration of these 38 'completed' unions was 21.8 years.

b) 'Incompleted' families:

The actual date of marriage of one union of Type I is unknown. For the 14 other marriages, the wives lived an average of 12.9 years in the "actual" marital unions. This can be broken down thus: -four unions lasted 9 years or less; eight unions lasted from 10 to 19 years. Finally, two lasted 20 years or more.

The unions of Type II lasted an average of 14.0 years per union. Nine of the 40 union of Type II lasted less than 10 years -- an average of 2.6 years. We also counted 21 women who lived 10 to 19 years in wedlock -- for an average of 14.8 years. The remaining 10 women who have been married for 20 years or more, accumulated an average of 22.6 years in wedlock.

4.2 - "Unknown" Families

Eight family are classified in this third category. In all eight cases, the date of birth of the woman (spouse) is unknown. It is therefore impossible to determine the age at marriage, and the average age at marriage.

Furthermore, in one case, the date of marriage is unknown as well as the date of dissolution of that marriage. In all seven other cases, the date of marriage is given. These seven unions lasted altogether 145 years, or an average of 20.7 years. However, it cannot be determined what proportion of these 145 years are "useful" years of reproduction since the age of the woman is undetermined.

Only one union has lasted 9 years or less; two lasted from 10 to 19 years. And four lasted 20 years or over - one of which accumulated 46 years. This would indicate that we are not, in fact, dealing with total "useful" years.

We will not deal with the fertility of these "unknown" unions in the rest of the chapter because of the lack of information concerning these unions.

4.3 - Family Size Distribution

For numerous problems, it becomes imperative not to

dissociate the data relevant to each single family. For this, we must prepare some basic tables. These tables give, for each family and at the rate of one line per family, the number of years lived in wedlock and the number of children born in each age group: 15-19 (or, less than 20), 20-24, 25-29, ... These tables are further subdivided into partial tables, related each to an age group, at marriage of the woman (Table 7: A, B, C, at end of present study). (11)

From these basic tables, we obtain the following tables which give the distribution of families and children according to size of families. (12). Before commenting on these tables, we must make one important remark: the children born outside of the actual unions were not taken into account here, even though these children were born from the same woman, but before the marriage took place (in some cases, after dissolution of that marriage).

The 'completed' families varied in size from 0 to 17, the modal number of children being 0, 1, and 5. A total of 229 children were born within these 39 'completed' families -- we are dealing with live births only. This gives an average of 5.6 children per family. Since this is calculated by taking into account only those children born within the

'actual' marriage, this average number of children would be much higher if we computed the total number of children born per woman, as 26 were born outside of the actual wedlock. The average would then be 6.4 children per woman as compared to the 5.6.

One union of Type I was not fruitful. Of the 14 others, 66 children were born, giving an average of 4.4 children for the 15 families of Type I. The number of children per family ranged from 0 to 9, the modal number being 5.

Among the 40 families of Type II, six were without any children. These 40 families of Type II registered 262 live births, for an average of 6.6 children per family. The number of children per family ranged from 0 to 14, the modal numbers being 0 and 6.

The 'incompleted' families of Type I and Type II taken together have a total of 328 children, for an average of 6.0 children per family. This should be compared to the 5.6 average for 'completed' families. The difference seems minimal; however, if we remember that the incomplete families -- particularly those of Type II -- may be expected to increase in size since the women concerned have not yet

TABLE 4-6

DISTRIBUTION OF 'COMPLETE' FAMILIES AND OF CHILDREN ACCORDING TO SIZE OF FAMILIES

No. of Children per Family	NUMBER OF FAMILIES in absolute figures	in %	NUMBER OF CHILDREN in absolute figures	in %
0	5	12.8	0	-
1	5	12.8	5	2.2
2	3	7.6	6	2.7
3	2	5.1	6	2.7
4	5	12.8	20	9.1
5	1	2.5	5	2.2
6	3	7.6	18	8.2
7	2	5.1	14	6.5
8	1	2.5	8	3.7
9	2	5.1	18	8.2
10	4	10.2	40	18.3
11	1	2.5	11	5.0
12	2	5.1	24	11.0
13	1	2.5	13	5.9
14	1	2.5	14	6.5
15	-	-	-	-
16	-	-	-	-
17	1	2.5	17	7.8
TOTAL	39	100.0	219	100.0

TABLE 4-7

DISTRIBUTION OF 'INCOMPLETED' FAMILIES (TYPE I) AND OF CHILDREN ACCORDING TO SIZE OF FAMILY

No. of Children per Family	TYPE I NUMBER OF FAMILIES in absolute figures	in %	NUMBER OF CHILDREN in absolute figures	in %
0	1	6.6	0	-
1	2	18.2	2	3.0
2	1	6.6	2	3.0
3	1	6.6	3	4.6
4	0	-	0	-
5	5	33.3	25	37.9
6	3	20.0	18	27.3
7	1	6.6	7	10.6
8	0	-	0	-
9	1	6.6	9	13.6
10	0	-	-	-
11	0	-	-	-
12	0	-	-	-
13	0	-	-	-
14	0	-	-	-
TOTAL	15	100.0	66	100.00

TABLE 4-8

DISTRIBUTION OF 'INCOMPLETED' FAMILIES (TYPE II) AND OF CHILDREN ACCORDING TO SIZE OF FAMILY

No. of Children per Family	TYPE II NUMBER OF FAMILIES in absolute figures	in %	NUMBER OF CHILDREN in absolute figures	in %
0	6	15.0	0	-
1	1	2.5	1	0.4
2	1	2.5	2	0.8
3	2	5.0	6	2.3
4	0	-	0	-
5	4	10.0	20	7.6
6	6	15.0	36	13.7
7	3	7.5	21	8.0
8	3	7.5	24	9.2
9	3	7.5	27	10.3
10	3	7.5	30	11.5
11	4	10.0	44	16.7
12	2	5.0	24	9.2
13	1	2.5	13	5.0
14	1	2.5	14	5.3
TOTAL	40	100.0	262	100.0

passed through their reproductive period, it would seem that the younger couples today tend to have larger families than previously.

The children born out of the wedlock were not taken into account, which had reduced the average number of children per family -- although these children may have been born from pre-marital sexual experiences among the same couples. Taking into account these children, we have seen that the average number of children per family in unions of 'completed' fertility rose from 5.6 to 6.4. For the present unions of 'incompleted' fertility, the average number of children would then be 6.3 (instead of the 6.0, for Type I and Type II taken together). Instead of seven unions of Type I and of Type II, only 3 unions would then be without children.

4.3.1 - Family size distribution and age at marriage

We will try to see if the size of the family is affected by the age at marriage of the women. It would appear, on first impression, that the age at marriage would be one important determinant of the family size distribution within a given population: since the age at marriage, in most popu-

lations, determines the time when a couple generally starts to indulge in sexual experiences on a regular basis, that moment thus determines to a certain extent the chances of conception. The age at marriage also determines, among other variables, the length of the reproductive period during which a woman can experience conceptions; everything else being equal, the earlier the age at marriage, the longer would normally be the span of the reproductive period. It would thus be important to isolate both variables, so as not to allot to one variable (in this case, age at marriage) what is due in fact to the other variable (marriage duration or number of 'useful' reproduction years.)

We have already calculated the age at first marriage of women of all categories of unions, we thus obtain the following situation:

TABLE 4-9

AVERAGE AGE AT FIRST MARRIAGE AND AVERAGE NUMBER OF CHILDREN PER FAMILY BY CATEGORY OF FAMILIES

	'Completed' Families	'Incompleted' Families Type I	Type II
Age at marriage	20.4	17.4	19.1
Average no. of children per family	5.6	4.4	6.6

The average age at marriage holds for ages at first marriage only; since most cases were first marriages, the way of calculating this average should not influence too much the relationship expected. How is it then that, although the relationship between family size distribution and the average age at marriage holds good for the 'completed' unions and those of Type II, those of Type I deviates from the expected direction. The average age at first marriage being lower for the unions of Type I, we would expect a higher average number of children per family than either that of the 'completed' families and of the Type II families. Would it be due to the often suggested phenomenon of physiological maturity: -it is often pointed out in de-

mographic studies that women are somewhat less fertile during the early years of reproduction? Or is it due to the intervening variable mentioned earlier, the span of reproductive life? This we will see presently.

4.3.2 - Family size distribution and span of reproductive life

It would seem that the number of children per family depends, among other things, upon the number of years spent in marital life, the greater the number of years of marital life, the greater the number of children per family.

The average number of 'useful' years of reproduction per family, as seen earlier, for each category of families was as follows:

TABLE 4-10

AVERAGE NUMBER OF YEARS SPENT IN WEDLOCK AND AVERAGE NUMBER OF CHILDREN PER FAMILY ACCORDING TO CATEGORY OF FAMILIES

	'Completed' Families	'Incompleted' Families Type I	Type II
Average no. of years	21.8	12.9	14.0
Average no. of children per family	5.6	4.4	6.6

TABLE 4-11

AVERAGE NUMBER OF CHILDREN PER FAMILY, AND AVERAGE NUMBER OF YEARS SPENT IN MARRIAGE BY WOMEN MARRIED BEFORE THE AGE OF 20, BY CATEGORY OF FAMILIES

	'Completed' Families	'Incompleted' Families Type I	Type II
Average no. of 'marriage' years	27.5	14.3	17.2
Average no. of children per family	7.5	4.4	8.1

Table 4-11 should be compared to the previous table (Table 4-10): -it can be seen that the age at marriage had an 'intervening' effect upon family size, and thus, the family size could not be totally attributed to married life span. When compared to those of Table 4-10, the data of Table 4-11 show not only an increase in the average number of 'marriage' years but also in the average number of children per family (except Type I families). These differences would seem to be due to differences in 'age at marriage'.

The average length of time spent in wedlock also seems to have a positive effect upon the average family size:

-the higher the average number of years spent in wedlock by those women married before the age of 20, the higher the average family size. This can be seen when one compares unions of Type I with those of Type II or with 'completed' families. But the relation does not hold when comparing families of Type II and those of 'completed' fertility. We have already observed that couples of Type II tend to have a higher fertility level than those of 'completed' fertility. This may explain the discrepancy between them. Two other variables may intervene here: the 'child spacing' differential as well as the number of years spent in the later period of reproductive life (particularly the years after the age of 40).

4.4 - Fertility Level and Age of Mother

An important aspect of fertility analysis is the study of fertility level according to the age of the mother. The data, found in Table 7 (A, B, C) pp. 173-7, were used to calculate the following fertility rates:

TABLE 4-9

LEGITIMATE FERTILITY RATE ACCORDING TO THE AGE GROUP OF THE MOTHER AND CATEGORY OF FAMILY

Categories of families	Age of the mother					
	20	20-24	25-29	30-34	35-39	40+
'Complete'	.123	.169	.205	.230	.266	.125
Type I	.186	.240	.212	.120	.026	.026
Type II	.180	.385	.380	.275	.085	.005
All Categories	.157	.270	.280	.231	.151	.059

When considering all categories of families, we can see that the fertility levels vary considerably according to the age of the mother. The lower levels of fertility are found among the youngest age groups (those under 20) and among the oldest age groups (35 and over). The lowest level (.059) is found among mothers aged 40 and over. The highest fertility level, as measured by rate, is reached in the 25-29 age period.

We can thus detect a very definite trend in the fertility level according to the age period of the mothers: after a low of .157 in the first period of the reproduction life

(under 20), the fertility level gradually increased to a high during the 25-29 age period, then declined, more gradually at first but abruptly in the last period of the reproductive life (when the lowest fertility level is reached). Although various populations show peculiarities, the same general outline is also found in the fertility levels of most populations. Many authors have explained this general phenomenon through the law of sexual physioligical maturity of the female. Other variables may also intervene, such as frequency of intercourses and birth planning (of which we are not concerned here). The various categories of couples show particular variations in their fertility trends as the mothers pass from one age group to the next. The law of small numbers may explain some of these variations, but generally speaking, the same general outline described above also holds good in these particular categories.

4.5 - Birth Intervals

An interesting aspect of modern research on fertility, particularly, is the study of intervals between marriage and first births, and between successive births of different order. We will first study the way the native families of Fort Resolution have spaced their births; and then we will

compare our findings to other research done on this problem.

4.5.1 - Interval between marriage and first birth

Table 6A gives the data on the intervals between marriage and first birth. Fourteen families of all categories were without children; and there are three families whose date of marriage is unknown. This leaves us with 85 families of all categories who had at least one child, and whose date of marriage is known.

If we consider births recorded during the first eight months of marriage life as due to prenuptial conceptions, then a total of 21 such births must be counted as derived from prenuptial conceptions (assuming no premature births). This last assumption can be considered more valid if we note that these 21 births in fact occurred from 0 to 7 months following marriage. Out of the 85 first births, 21 occurred before the 8th month, or 24.7% of total birth of first order. Such a level of prenuptial conceptions can definitely be considered high. Among the Crulai couples, Gauthier and Henry found a low of 3%. (14). Perhaps a better standard of comparison than the Crulai data can be obtained by comparing our percentages with the percentages encountered at different periods in Canada. In his study of fertility trends

and factors in Canada, J. Henripin shows that the illegitimacy level is relatively low. (15) These percentages of illegitimate births varied from 2.2% (in 1921-1925) to 6.7% (in 1965). Assuming that we are dealing with a population which practices little birth control, this high frequency of pre-nuptial conceptions shows that sexual relations before marriage were themselves rather frequent. This confirms the findings made earlier on illegitimacy level. Thus, it would seem that, on the whole, the population studied did not observe the rules of Christian morals; -practically all the native population call themselves "Catholics".

This observation on community morals, a by-product of a research on demography, is not to be neglected. Through observations of this type, we can come to a more complete understanding of fertility than by examining only the legitimate births.

A low frequency of prenuptial conceptions is a very favourable factor in the study of biological factors affecting fertility of non-malthusian couples. (16) The fact is that extra-marital conceptions may result in a lower marital fertility. This, in turn, may result in an underestimation of general fertility when one would be inclined to extrapolate

the characteristics of marital fertility to general fertility.

Excluding the births of the first eight months of married life, we find that 64 births altogether occurred after the eighth month. The percentage distribution of these 64 births according to length of intervals between the month of birth and marriage is given below (Table 4-10). The mean interval between marriage and first births for the 64 births which occurred after eight months of married life is 22.8; another good measure would be the median interval, that is, the interval before which 50% of the first births occurred. In our present case, 50% of the first births occurred 15.6 months after marriage.

TABLE 4-13

INTERVALS BETWEEN MARRIAGE AND FIRST BIRTHS

Month of birth after marriage	Number of Births in absolute figures	% of total	Cumulative frequency (%)
9-11	17	26.6	26.6
12-14	10	15.7	42.3
15-17	13	20.3	62.6
18-20	7	10.9	73.5
21-23	2	3.1	76.6
24-26	0	-	76.6
27-29	2	3.1	79.7
30-32	2	3.1	82.8
33-35	1	1.6	84.4
36-38	3	4.7	89.1
39-41	0	-	-
42 +	7	10.9	-
TOTAL	64	100.0	100.0

Mean interval 1,462 ÷ 64 = 22.8

4.5.2 - Intervals between successive births:

Table 6 (A, B, C, etc.) gives the distribution of the

nth order births according to the lengths of intervals separating them from the previous order births, the (n - 1)th order births. The table below shows this distribution for all categories of families; the first order births are also included for comparison purposes. Multiple births are here considered as one; thus the figures below will not fit exactly with figures of other tables.

TABLE 4-14

INTERVALS BETWEEN SUCCESSIVE BIRTH ORDER

Intervals between the (n - 1)th and nth order births (in months)	DISTRIBUTION OF THE nTH ORDER BIRTHS (in absolute figures)									
	1	2	3	4	5	6	7	8	9	10
9-11	17	2	2	2	1	-	2	3	-	1
12-14	10	15	6	6	4	8	6	7	2	5
15-17	13	6	6	8	5	9	4	8	3	2
18-20	7	12	6	8	12	6	5	2	7	4
21-23	2	7	13	10	8	10	10	1	3	1
24-26	0	7	10	12	7	5	3	4	4	4
27-29	2	5	6	4	8	2	5	2	3	1
30-32	2	4	3	2	3	3	1	4	1	-
33-35	1	4	3	4	3	3	1	-	2	1
36-38	3	3	4	2	2	1	-	1	3	1
39-41	0	3	1	-	3	1	-	-	-	-
42 +	7	13	12	10	6	4	3	1	-	-
TOTALS	64	81	72	68	62	52	40	33	28	20
Mean interval (in months)	22.8	27.8	31.3	27.3	26.5	23.6	22.9	20.2	23.6	20.3

The intervals between the nth order births and the (n - 1)th order births have been calculated as described earlier in Chapter III of the present study. The intervals are thus expressed in completed months.

The births in the first column include only those that occurred after the eighth month of married life; since 21 births were recorded during the first eight months, the total appearing at the bottom of column 1 would be 85 instead of 64 if these were also included. In that case, the mean interval would definitely be smaller than the 22.8 months actually given.

The mean intervals vary in length from 20.2 to 31.3 months. From 22.8 months, mean interval between the first order birth and marriage, the mean interval then rises sharply to 31.3 between the third order birth and the second order birth. From then on, the mean interval experiences a slow but significant decline so that between the 10th order birth and the 9th order birth, the mean interval has now reached a low of 20.3. The mean of means is 24.6 months.

A comparison of our data with those of Jacques Henripin

(17) and Louis Henry (18) should be very instructive. These data are given below.

TABLE 4-15

THE MEAN INTERVAL ACCORDING TO BIRTH ORDER n, AMONG THE FORT RESOLUTION NATIVE FAMILIES, THE CRULAI FAMILIES AND THE CANADA FAMILIES

.lies	Mean interval according to birth order n											
	1	2	3	4	5	6	7	8	9	10	11	12
›lution	22.8	27.8	31.3	27.3	26.5	23.6	22.9	20.2	23.6	20.3	-	-
.ai	16.6	22.4	25.3	27.2	28.6	-	-	-	-	-	-	-
ıda	17.3	22.5	21.0	22.6	22.9	25.2	23.8	25.1	25.9	24.6	-	-

Table 4-15 shows the mean interval between the births of each successive order among the Fort Resolution native families as well as among the Crulai and French Canadian families. In the Crulai population, the mean interval continues to increase from a low of 16.6 months to high of 28.6 months. As for the Canada population, the trend is not so clear-cut; from a low of 17.3 months, the mean interval then reaches a mean length of approximately 22 months up to the fifth birth;

between the sixth to the ninth birth, the mean interval finally varies around 25 months. The mean interval between marriage and first birth, among the Fort Resolution native families, is 22.8 months -- this is much longer than observed in Crulai or Canada. This mean interval increases rapidly to a high of 31.3 months between the second and third birth; it then declines gradually.

Methods in computing the mean intervals varied from one study to the other, particularly since the definitions used in computing these measures are not exactly the same. In the three studies mentioned earlier, the mean interval was computed over all categories of couples. But the definitions of these categories of families, for the Fort Resolution native population, differ somewhat from those given by Jacques Henripin and Louis Henry - at least for the 'incompleted' families. In the Crulai study as well as that of Canada, the definition of 'incompleted' families comes closer to that of the Type I families given in our study. No cases of 'incompleted' families Type II are included in Jacques Henripin's and Louis Henry's studies. These families of Type II -- who constitute after all an important segment of our population -- are still actually capable of bearing children and can

thus be expected to affect the measures used here.

According to Gautier and Henry (19) the distribution of the interval between two maternities depends upon three essential factors:

a) the delays in the reappearance of ovulation after the first of the two maternities

b) the probability of conceiving during a menstrual cycle or fecundability

c) the proportion of conceptions which result in live births.

A gradual increase of birth spacing may hence, be imputed, either to an increase of the delays in the reappearance of ovulation, or to a decrease in fecundability, or again to an increase in the frequency of stillbirths or spontaneous abortions; or finally to the combination of any two or more of these cases.

4.5.3 - Intervals of last and second last order births

Louis Henry has shown that there is a general tendency among couples to increase the birth interval as the higher birth order increases; and, that a marked increase is noted between the mean intervals of the last and second last birth order. (20).

We will check if such an observation is valid for our population. Of course, the 'incompleted' families Type II cannot be used in this analysis as we cannot determine which couples have completed their fertility before the women reached their 45th birthday. We will, therefore, use only those 'completed' families and families of Type I who had six children and over. Altogether, twenty-three families had six children or over, among 'completed' and 'incompleted' Type I families.

From the F.R.Fs of these twenty-three families, we obtained the intervals between each birth order. Then for each interval between the (n - 1)th and the nth birth, we computed the mean intervals (in months).

TABLE 4-16

MEAN INTERVALS (IN MONTHS) BETWEEN THE (n - 1)th AND THE nth BIRTH, AMONG THE 'COMPLETED' FAMILIES AND FAMILIES OF TYPE I WHO HAD SIX CHILDREN OR MORE

	Birth order intervals				
Mean intervals	1-2	2-3	3-4	Second last	Last
(in months)	28.4	42.0	30.2	25.3	34.6

The variations in the mean interval for the different birth ranks are important; much of this fluctuation is due to our small sample. However, the difference between the mean interval of the last birth order and the mean interval of the second last birth order, 34.6 months as compared to 25.3, confirms Louis Henry's finding that a marked increase is noted between the mean intervals of the last and the second last birth order.

4.6 - Ulterior fertility:

We can get a different aspect of fertility if we consider how a group of women experiences the chances of reaching a higher birth order. Ulterior fertility would thus show what proportion of a group of women reaches the subsequent birth order. An analysis of this type is inspired by the notion of survivorship of the members of a cohort as implied in a mortality table: -the way the members of this cohort gradually fall under the impact of mortality, until the complete disappearance of the cohort. In the same manner, we follow a group of women throughout their reproduction life until none of them are capable of bearing children. They are thus gradually eliminated under the impact of infertility.

From the tables on the family size distribution (Table 6: A, B, C, etc.), we want to follow the 85 women who had a first birth, throughout their reproductive life. The distribution of these 85 women according to order of births is given in the first column, in absolute figures. The second column shows a percentage distribution of these women who will have a second, a third birth, etc. In the third column appears the relative proportion of those women who are ulteriorly infertile. (See Table 4-17, pp. 126).

TABLE 4-17

DISTRIBUTION OF THE 85 MARRIED WOMEN, AMONG THE FORT RESOLUTION NATIVE POPULATION, WHO ALREADY HAD ONE CHILD, ACCORDING TO THE ORDER OF BIRTHS

	ULTERIORLY FERTILE WOMEN		
Number of women (in absolute figures)	Ratio of ulteriorly fertile women	Ratio of ulteriorly infertile women	Sum of columns (2) & (3)
85	-	-	-
81	95%	5%	100
72	84%	16%	100
68	80%	20%	100
62	72%	28%	100
52	61%	39%	100
40	47%	53%	100
33	38%	62%	100
28	32%	68%	100
20	22%	78%	100

Source: Table 6 (A, B, C, ...) pp. 163-172.

Naturally, the sum of any one line of column (2) and (3) is 100%, since the probability bearing another child added to the probability of not bearing another child is equal to unity. This appears in column (4).

To compute the ratio of ulteriorly fertile women, we simply divide the number of women of n parity by 85. And to compute the ratio of ulteriorly infertile women of n parity, we simply subtract the ratio of ulteriorly fertile women from one, and then multiply by 100 to find the per cent.

A look at Table 4-14 shows the rate of change in the probability of bearing another child among 100 women who would experience the same fertility trend as observed among our 85 women. We can see that this probability declines, at first slowly, but then at a much higher rate of change, so that gradually an ever increasing number of women drops out of observation. The ratio of ulteriorly fertile women will eventually become 0.

The ratio of ulteriorly infertile women change at the same rate as the ratio of ulteriorly fertile women, but in the opposite direction. Whereas the ratio of ulteriorly

fertile women eventually become 0%, the ratio of ulteriorly infertile women increase gradually as more and more women cease to bear children. This ratio eventually becomes 100%, since all women must cease to bear children eventually.

4.7 - Age at marriage:

Age at marriage is an important factor affecting fertility. The higher the age at marriage, generally the lower the fertility level, all other factors being held constant. The reverse is also true -- the lower the age at marriage, the higher generally will be the fertility level -- every other factor being held constant.

Three basic reasons may account for this relation between age at marriage and fertility level:

a) Assuming no premarital conceptions, then the age at marriage usually determines the beginning of sexual experiences. We have seen, however, that in the case of the Fort Resolution population, premarital sexual experience is rather frequent. Even then, it still remains that marriage constitutes the starting point of regular sexual relations.

b) The age at marriage determines the 'useful' length of the reproductive period.

c) Then, also, the age at marriage affects fertility inasmuch as the reproductive capacity of women varies with her age.

Our population is really too small to sub-divide it into sub-groups according to age at marriage. The fluctuations due to small numbers will conceal the true pattern of change. However, to get a general idea of the impact of age at marriage, we have chosen among women of 'completed' fertility, those who were married at 19 years of age or less and those who were married between the age of 30-34. Because we are dealing only with women of 'completed' fertility, the length of reproductive life spent in marriage for those who married at 19 or before would range from 26 years or more; this should be compared to a range of 11 or 15 years for those who got married between the age of 30 to 34.

The table below (Table 4-18) gives the number of children born from the 23 (one of which was infertile) women who married before their 20th year of age, and from the 6 women who married between 30 and 34 (two of whom were infertile). The distribution of these births are also given according to the age group of women concerned.

TABLE 4-18

NUMBER OF CHILDREN BORN, ACCORDING TO AGE OF MOTHER AND AGE AT MARRIAGE OF MOTHER

Age at maternity	AGE AT MARRIAGE: 19 and less absolute figures	19 and less average	30-34 absolute figures	30-34 average
15-19	24	1.04	-	-
20-24	31	1.35	-	-
25-29	33	1.43	-	-
30-34	30	1.30	3	.50
35-39	35	1.52	3	.50
40 +	13	.56	2	.33
Total	166	7.22	8	1.33

The two columns 'average' give the average number of children born during the age intervals among both groups of married women. The 'total' average is obtained simply by dividing the number of women of each marriage category into the number of children born from them.

As shown in most studies dealing with non-malthusian populations, the age at marriage does affect the fertility

level here also -- if we consider the 'total' average as an indication of such a measure of fertility level.

Another feature revealed in the table is the relatively low average of number of children born in the 15-19 and 40 + age groups among the women married before their 20th years of age. This seems to confirm what we just said about the changing pattern of the reproductive capacity of a woman with the age; we have already pointed this out in the present chapter, when we commented on the relative infertility of young adult women and of those who approach menopause. This relative infertility among women who approach menopause is also revealed here among women married between 30 and 34.

The analysis carried out in our present chapter applies measures of fertility which are becoming of greater interest in modern demographic research. The present study has an added interest in that very few studies on these aspects of fertility were carried out in Canada; the most remarkable study in this line was that of Jacques Henripin to which we have already referred. The aspects of fertility touched upon in the present chapter revealed characteristics which could not be shown in the traditional 'transversal' type of analysis. Of particular interest is the study of family size

distribution, of birth intervals and of the ulterior fertility.

References and comments

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1. See Table 3: "Annual Movement of Births, Deaths, and Marriages".

2. See Table 4: "Distribution of First marriage and remarriages according to age and decades, Female Population".

3. Cited from Chevalier, Louis. "Démographie générale".

4. See Chapter II, p 44.

5. See Table 3: "Annual Movement of Births, Deaths, and Marriages".

6. Dennis H. Wrong, "Population and Society".

7. See Chapter I of present study, p 13.

8. Table 5: "Annual Distribution of Legitimate and Illegitimate Births".

9. Multilingual Demographic Dictionary, paragraph no. 631, p. 40.

10. This method of classification was used, for instance, by Jacques Henripin, "La population canadienne au début du XVIII^{e} siècle", pp. 35-38.

11. E. Gautier et L. Henry, "La Population de Crulai, paroisse normande", pp. 92-93.

12. J. Henripin, op.cit., p. 50.

13. Present Chapter IV, p 104.

14. E. Gautier et L. Henry, op.cit., p. 135.

15. J. Henripin, "Tendances et facteurs de la fécondité au Canada", pp. 332-337.

16. E. Gautier et L. Henry, op.cit., p. 136.

17. J. Henripin, "La population canadienne", p. 50.

18. Louïs Henry et E. Gautier, op.cit., p. 136.

19. E. Gautier et L. Henry, op.cit., p. 146.

20. E. Gautier et L. Henry, op.cit., pp. 141-146.

21. M. Spiegelman, "Introduction to Demography", p. 257.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

The present chapter will state briefly some of the important conclusions we arrived at from our study and then comment on the implications of these conclusions.

The first important fact revealed by our study was the rapid growth of the Fort Resolution native population (1). The annual increase of 5.5% observed from 1940 to 1970 (2) cannot be accounted for by an influx of migrants; in fact, we can well define the native population as a 'closed' population since the migration movements have been practically null. (3). Two important factors seemed to have influenced this change in population size: mortality and fertility. Mortality, as such, has no positive impact on population growth. However, we can consider a decrease of mortality -- as observed among the Fort Resolution native population (4) -- as indirectly influencing this increase of population. This indirect influence of a declining mortality level on population size can work in two ways: -the most obvious is that a declining mortality means that such a population does not suffer a so drastic reduction in the number of its members.

Furthermore, that proportion of the population who is spared may then become a positive asset in promoting fertility, and hence population growth -- depending upon what segment of the population is thus spared. For example, if the people spared are in the 50 years age group or over, they may not contribute much to population growth through fertility; however, if these people belong to the 0-14 age group, they may eventually be capable of reproduction. In the case of the Fort Resolution native population, we have seen that mortality has been particularly important in the 0-4 age group (5); the 0-4 age group mortality declined from 70% to 50% of the total deaths.

Fertility level, on the other hand, has a direct impact upon an increase of population: the higher the fertility level, the greater the increase in population size -- everything else being equal. The data obtained on the native population of Fort Resolution have revealed a very high level of fertility, even though this fertility level declined from 1940 to 1970 (6). Assuming that the observed level of fertility continue to decline at present rate, population growth will still be important for the foreseeable future.

The second outstanding fact revealed by this study was

the 'aging process' of the Fort Resolution native population (7). In thirty years, the proportion of people who climbed into the '50 years and over' age group increased fivefold. It implies that the health conditions have improved dramatically. The social and economic impact of this process cannot be underestimated; particularly in such fields as the labor market, age pensions, social welfare to widowed people, family disorganization through death of either spouse, social control mechanisms and transmission of culture, etc..

Perhaps the most interesting section of this study deals with fertility levels and trends as well as the underlying determinants of fertility. We have shown that the fertility level declined steadily from 1940 to 1970, from 51.7 to 39.7 per 1000 -- a decline of 23% in thirty years in the crude birth rate. We already mentioned the possible impact of this declining fertility level upon population size. The decline in fertility level will also mean that a smaller influx of children will be felt in schools -- a trend often observed recently in many other regions of the country, with the resulting surplus of teachers in the labor market and with the emptying of classrooms, and eventually a smaller influx of manpower on the labor market.

Another aspect of fertility of great concern was the level of illegitimacy, that is, the proportion of children born out of wedlock (8). Approximately one out of every three live birth occurred out of wedlock during the 1960-69 period. This level of illegitimacy is definitely high when compared to the Canadian situation (9). This may indicate that the values transmitted by the new teaching of the Christian churches have not been fully integrated in the cultural system of the native community (10). On the other hand, it may be an indication of social disentergration of the family structure. Illegitimacy often implies a greater economic and social responsibility falling on the community. Finally, illegitimacy often creates psychological problems for the children concerned.

A basic concern in our study was fertility in the 'family' framework. The average family varied in size -- according to the type of families -- from 5.6 to 6.0 for 'completed' and 'incompleted' families, respectively (11). For a population to maintain itself, each couple must reproduce an average of over 2 children. In the present situation, the reproduction level is over double that average.

Many factors may account for the high fertility level

observed among the Fort Resolution native families. Among these we can mention age of mother, age at marriage, marriage duration and child spacing. Obviously other factors -- of social, economic or psychological nature -- may be involved (12). These factors generally exert an influence on fertility in a more or less concerted way; although some factors may exert greater influence than others, they seldom if ever play an independent role. Because of this interplay of the various fertility factors, it is often very difficult to determine to what extent these factors do influence fertility. We have seen, for instance, that the earlier the age at first marriage, the greater the average number of children per family (13), if we take into account the average number of years spent in wedlock -- everything else being equal. We have seen furthermore that as the mother passes through the various age groups during the reproductive life span, the fertility level starts to increase gradually to reach its peak in the 25-29 age group, it then experiences a gradual decline till the 40 + age group (14). The child spacing experience of a population also has a direct impact on the level of fertility.

Finally, a word about the Family Reconstitution Method.

Though this method makes use of data obtained primarily from parish registers, we could very well complement these data on births, deaths and marriages through the use of records on education, professional experiences, etc., available from the various government and social agencies (school, hospital, Manpower, etc...) A prime advantage of this method is thus its ability to make use of information readily available from existing documents. We thus avoid the time-consuming task of gathering field data; why not make use of this vast reservoir of existing information records? Another important characteristic of this method is that it permits to organize in a systematic fashion information relevant to a family and its members. It then become possible to study such demographic problems as marriage, fertility, divorce, etc. in a very different light: within the social system of the family. This method can become a very useful tool in sociological studies of the family, and even in studies such as social mobility, inter-ethnic relations, etc.

References and comments

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1. Chapter II, p. 29.
2. See Chapter II, p. 50.
3. See Chapter IV, p. 89.
4. See Chapter IV, pp. 84-85.
5. See Chapter IV, p. 87.
6. See Chapter IV, p. 88.
7. See Chapter II, pp. 31-32.
8. See Chapter IV, p. 89.
9. See Chapter IV, p. 114.
10. See Chapter I, p. 19.
11. See Chapter IV, p. 100.
12. One such factor has been mentioned in our Chapter I: the change from the hunting and fishing economy to that of the fur trade economy and the labor economy.
13. Chapter IV, p. 106.
14. Chapter IV, p. 111.

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APPENDIX

TABLE 1A: AGE AND SEX STRUCTURE OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1940

Age Groups	ABSOLUTE FIGURES Males	Females	FOR 1000 (TOTAL POP.) Males	Females	SEX RATIO (for 100 females)
0-4	18	28	76	118	64
5-9	23	23	97	97	100
10-14	20	16	84	68	125
15-19	14	10	59	42	140
20-24	12	8	51	34	150
25-29	10	11	42	46	91
30-34	8	8	34	34	100
35-39	6	3	25	13	200
40-44	2	5	8	21	40
45-49	4	3	17	13	133
50-54	4	-	17	-	-
55-59	-	1	-	4	-
60-64	-	-	-	-	-
65-69	-	-	-	-	-
70-74	-	-	-	-	-
75 +	-	-	-	-	-
All ages	121	116	510	490	105
Total Pop.	237		1,000		

TABLE 1B: AGE AND SEX STRUCTURE OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1950

Age Groups	ABSOLUTE FIGURES Males	Females	FOR 1000 (TOTAL POP.) Males	Females	SEX RATIO (for 100 females)
0-4	36	36	106	106	100
5-9	27	22	80	65	81
10-14	14	22	41	65	64
15-19	22	21	65	62	105
20-24	21	15	62	44	140
25-29	15	6	44	18	250
30-34	11	8	32	23	138
35-39	10	7	29	21	143
40-44	9	7	26	21	129
45-49	7	4	21	12	175
50-54	2	4	6	12	50
55-59	3	3	9	9	100
60-64	3	-	9	-	-
65-69	-	3	-	9	-
70-74	1	-	3	-	-
75 +	-	-	-	-	-
All ages	181	158	538	467	114
Total Pop.	339		1,000		

TABLE 1C: AGE AND SEX STRUCTURE OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1960

Age Groups	ABSOLUTE FIGURES Males	Females	FOR 1000 (TOTAL POP.) Males	Females	SEX RATIO (for 100 females)
0-4	46	36	103	80	128
5-9	28	37	63	83	76
10-14	21	31	47	69	68
15-19	23	20	51	45	115
20-24	13	23	29	51	57
25-29	23	17	51	38	135
30-34	19	13	42	29	146
35-39	15	7	34	16	214
40-44	10	7	22	16	143
45-49	10	7	22	16	143
50-54	8	7	18	16	114
55-59	7	4	16	9	175
60-64	2	3	4	7	67
65-69	1	3	2	7	33
70-74	3	-	7	-	-
75 +	-	3	-	7	-
All ages	229	218	511	489	104
Total Pop.	447		1,000		

TABLE 1D: AGE AND SEX STRUCTURE OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1965

Age Groups	ABSOLUTE FIGURES Males	Females	FOR 1000 (TOTAL POP.) Males	Females	SEX RATIO (for 100 females)
0-4	61	39	112	71	156
5-9	48	36	88	66	133
10-14	28	37	51	68	76
15-19	21	31	38	57	68
20-24	22	20	40	37	110
25-29	13	23	24	42	57
30-34	23	17	42	31	135
35-39	19	13	35	24	146
40-44	16	7	29	13	229
45-49	10	7	18	13	142
50-54	10	6	18	11	167
55-59	7	7	13	13	100
60-64	7	4	13	8	175
65-69	2	3	4	5	67
70-74	1	3	2	5	33
75 +	3	2	5	4	150
All ages	291	255	532	468	114
Total Pop.	546		1,000		

TABLE 1E: AGE AND SEX STRUCTURE OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1970

Age Groups	ABSOLUTE FIGURES Males	Females	FOR 1000 (TOTAL POP.) Males	Females	SEX RATIO (for 100 females)
0-4	48	45	77	72	107
5-9	62	37	99	59	168
10-14	46	34	74	54	135
15-19	28	37	45	59	76
20-24	20	32	32	51	62
25-29	22	19	35	31	116
30-34	12	22	19	35	55
35-39	20	17	32	27	116
40-44	20	13	32	21	154
45-49	15	7	24	11	214
50-54	10	7	16	11	143
55-59	9	7	15	11	129
60-64	7	7	11	11	100
65-69	5	4	8	7	125
70-74	2	3	3	5	67
75 +	3	5	5	8	60
All ages	329	296	527	473	111
Total Pop.	625		1,000		

TABLE 2A: AGE, SEX AND MARITAL COMPOSITION OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1940

Age Groups	MALES			FEMALES		
	Single	Married	Widowed	Single	Married	Widowed
0-4	18	-	-	28	-	-
5-9	23	-	-	23	-	-
10-14	20	-	-	16	-	-
15-19	14	-	-	9	1	-
20-24	7	5	-	1	7	-
25-29	3	7	-	2	9	-
30-34	-	8	-	-	8	-
35-39	-	5	1	-	2	1
40-44	-	2	-	-	5	-
45-49	-	4	-	-	2	1
50-54	-	4	-	-	-	-
55-59	-	-	-	-	1	-
60-64	-	-	-	-	-	-
65-59	-	-	-	-	-	-
70-74	-	-	-	-	-	-
75 +	-	-	-	-	-	-
All ages	85	35	1	79	35	2
		121			116	
Total Pop.			237			

TABLE 2B: AGE, SEX AND MARITAL COMPOSITION OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1950

Age Groups	MALES			FEMALES		
	Single	Married	Widowed	Single	Married	Widowed
0-4	36	-	-	36	-	-
5-9	27	-	-	22	-	-
10-14	14	-	-	22	-	-
15-19	22	-	-	17	4	-
20-24	16	5	-	3	12	-
25-29	6	9	-	3	3	-
30-34	2	9	-	-	8	-
35-39	1	8	1	1	6	-
40-44	-	8	1	-	7	-
45-49	-	4	3	-	4	-
50-54	-	1	1	-	3	1
55-59	-	3	-	-	2	1
60-64	-	3	-	-	-	-
65-59	-	-	-	-	2	1
70-74	-	1	-	-	-	-
75 +	-	-	-	-	-	-
All ages	124	51	6	104	51	3
		181			158	
Total Pop.		339				

TABLE 2C: AGE, SEX AND MARITAL COMPOSITION OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1960

Age Groups	MALES			FEMALES		
	Single	Married	Widowed	Single	Married	Widowed
0-4	46	-	-	36	-	-
5-9	28	-	-	37	-	-
10-14	21	-	-	30	1	-
15-19	21	2	-	14	6	-
20-24	9	4	-	10	13	-
25-29	11	12	-	5	12	-
30-34	6	13	-	-	13	-
35-39	2	13	-	1	6	-
40-44	-	10	-	-	7	-
45-49	1	6	3	-	5	2
50-54	-	7	1	-	6	1
55-59	-	5	2	-	4	-
60-64	-	2	-	-	2	1
65-69	-	1	-	-	2	1
70-74	-	3	-	-	-	-
75 +	-	-	-	-	1	2
All ages	145	78	6	133	78	7
		229			218	
Total Pop.			447			

TABLE 2D: AGE, SEX AND MARITAL COMPOSITION OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1965

Age Groups	MALES			FEMALES		
	Single	Married	Widowed	Single	Married	Widowed
0-4	61	-	-	39	-	-
5-9	48	-	-	36	-	-
10-14	28	-	-	37	-	-
15-19	21	-	-	29	2	-
20-24	19	3	-	9	11	-
25-29	8	5	-	8	15	-
30-34	9	14	-	6	11	-
35-39	5	14	-	-	13	-
40-44	3	13	-	1	6	-
45-49	-	10	-	-	7	-
50-54	1	6	3	-	4	2
55-59	-	6	1	-	6	1
60-64	-	4	3	-	2	2
65-69	-	2	-	-	2	1
70-74	-	1	-	-	1	2
75 +	-	2	1	-	-	2
All ages	203	80	8	165	80	10
		291			255	
Total Pop.			546			

TABLE 2E: AGE, SEX AND MARITAL COMPOSITION OF THE FORT RESOLUTION NATIVE POPULATION, JANUARY 1, 1970

Age Groups	MALES			FEMALES		
	Single	Married	Widowed	Single	Married	Widowed
0-4	48	-	-	45	-	-
5-9	62	-	-	37	-	-
10-14	46	-	-	34	-	-
15-19	27	1	-	36	1	-
20-24	13	3	-	19	13	-
25-29	13	9	-	7	12	-
30-34	7	5	-	8	14	-
35-39	8	12	-	5	12	-
40-44	5	15	-	-	13	-
45-49	2	13	-	1	6	-
50-54	-	10	-	-	6	1
55-59	1	6	2	-	4	3
60-64	-	6	1	-	6	1
65-69	-	3	2	-	2	2
70-74	-	2	-	-	2	1
75 +	-	3	-	-	1	4
All ages	232	92	5	192	92	12
		329			296	
Total Pop.			625			

TABLE 3: ANNUAL MOVEMENT OF BIRTHS, DEATHS AND MARRIAGES

Year	Births	Deaths	Marriages
1969	15	2	5
1968	23	4	4
1967	15	4	4
1966	23	2	-
1965	28	1	2
1964	26	2	1
1963	18	4	4
1962	21	-	1
1961	27	4	2
1960	17	1	1
1960-1969	213	24	24
1959	16	2	1
1958	21	4	1
1957	21	2	6
1956	21	2	4
1955	21	3	3
1954	18	5	7
1953	20	1	9
1952	13	7	4
1951	13	11	3
1950	21	10	1
1950-1959	185	47	39
1949	18	7	4
1948	19	5	4
1947	14	7	4
1946	12	12	2
1945	12	13	1
1944	20	8	7
1943	14	7	2
1942	14	8	5
1941	14	2	2
1940	12	1	1
1940-1949	149	70	32

TABLE 4: DISTRIBUTION OF FIRST MARRIAGE AND REMARRIAGES ACCORDING TO AGE AND DECADES, FEMALE POPULATION

Age Groups	1960-1969		1950-1959		1940-1949	
	1st Marriage	Remarriage	1st Marriage	Remarriage	1st Marriage	Remarriage
10-14	1	-	-	-	2	-
15-19	4	-	19	-	14	-
20-24	15	-	6	-	2	-
25-29	2	-	1	-	3	-
30-34	-	-	2	-	-	1
35-39	-	1	-	1	-	-
40-44	-	-	1	-	-	-
45-49	-	-	-	2	1	-
50-54	-	-	-	-	-	-
55-59	-	-	-	-	-	-
60-64	-	-	-	-	-	2
65-69	-	-	-	-	-	-
70-74	-	-	-	-	-	-
75 +	-	-	-	-	-	-
	22	1	29	3	22	3

TABLE 5: ANNUAL DISTRIBUTION OF LEGITIMATE AND ILLEGITIMATE BIRTHS

	Legitimate	Illegitimate	TOTAL
1969	10	5	15
1968	15	8	23
1967	10	5	15
1966	12	11	23
1965	19	9	28
1964	16	10	26
1963	13	5	18
1962	14	7	21
1961	20	7	27
1960	14	3	17
	143	70	213
1959	16	0	16
1958	18	3	21
1957	20	1	21
1956	16	5	21
1955	19	2	21
1954	16	2	18
1953	19	1	20
1952	13	0	13
1951	10	3	13
1950	15	6	21
	162	23	185
1949	12	6	18
1948	16	3	19
1947	9	5	14
1946	9	3	12
1945	9	3	12
1944	14	6	20
1943	9	5	14
1942	12	2	14
1941	11	3	14
1940	11	1	12
	112	37	149

TABLE 6A: DISTRIBUTION OF FIRST ORDER BIRTHS ACCORDING TO INTERVALS SEPARATING THEM AND MARRIAGES

MONTH OF BIRTH OF MARRIAGE	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
0-4	4	-	7	-	11
5-8	2	-	6	2	10
9-11	5	3	9	-	17
12-14	5	1	4	-	10
15-17	5	3	4	1	13
18-20	2	-	3	2	7
21-23	2	-	-	-	2
24-26	-	-	-	-	-
27-29	1	1	-	-	2
30-32	2	-	-	-	2
33-35	-	1	-	-	1
36-38	2	1	-	-	3
39 +	3	3	1	-	7
TOTAL	33	13	34	5	85
Marriages without children	5	1	6	2	14
Marriage date unknown	1	1	-	1	3

TABLE 6B: DISTRIBUTION OF SECOND ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS SEPARATING THEM FROM FIRST ORDER BIRTHS

Intervals Between 1st & 2nd Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
8-11	1	-	1	-	2
12-14	4	1	10	-	15
15-17	2	-	4	-	6
18-20	2	3	5	2	12
21-23	4	1	1	1	7
24-26	1	1	4	1	7
27-29	3	1	1	-	5
30-32	3	-	1	-	4
33-35	2	-	2	-	4
36-38	1	1	1	-	3
39-41	1	1	1	-	3
42 +	9	2	2	-	13
TOTAL	33	11	33	4	81

TABLE 6C: DISTRIBUTION OF THIRD ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM SECOND ORDER BIRTHS

Intervals Between 2nd & 3rd Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
8-11	-	-	2	-	2
12-14	2	-	4	-	6
15-17	-	2	4	-	6
18-20	2	1	3	-	6
21-23	2	1	8	2	13
24-26	4	1	4	1	10
27-29	2	1	3	-	6
30-32	1	1	1	-	3
33-35	2	-	1	-	3
36-38	2	-	1	1	4
39-41	-	1	-	-	1
42 +	9	2	1	-	12
TOTAL	26	10	32	4	72

TABLE 6D: DISTRIBUTION OF FOURTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM THIRD ORDER BIRTHS

Intervals Between 3rd & 4th Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	TYPE II	"Unknown" Families	All Families
8-11	2	-	-	-	2
12-14	1	-	5	-	6
15-17	1	1	6	-	8
18-20	1	2	4	1	8
21-23	3	4	3	-	10
24-26	4	1	6	1	12
27-29	4	-	-	-	4
30-32	1	1	-	-	2
33-35	-	-	4	-	4
36-38	-	-	-	2	2
39-41	-	-	-	-	-
42 +	7	1	2	-	10
TOTAL	24	10	30	4	68

TABLE 6E: DISTRIBUTION OF FIFTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM FOURTH ORDER BIRTHS

Intervals Between 4th & 5th Order Births	NUMBER OF BIRTHS:				
	Completed Families	INCOMPLETED FAMILIES TYPE I	TYPE II	"Unknown" Families	All Families
8-11	-	-	1	-	1
12-14	1	1	2	-	4
15-17	-	-	4	1	5
18-20	3	2	6	1	12
21-23	2	1	4	1	8
24-26	2	1	4	-	7
27-29	3	1	4	-	8
30-32	2	1	-	-	3
33-35	2	-	1	-	3
36-38	-	2	-	-	2
39-41	2	1	-	-	3
42 +	2	-	3	1	6
TOTAL	19	10	29	4	62

TABLE 6F: DISTRIBUTION OF SIXTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM FIFTH ORDER BIRTHS

Intervals between 5th & 6th Order Births	NUMBER OF BIRTHS:				
	Completed Families	INCOMPLETED FAMILIES TYPE I	TYPE II	"Unknown" Families	All Families
8-11	-	-	-	-	-
12-14	4	-	3	1	8
15-17	3	1	5	-	9
18-20	1	-	4	1	6
21-23	3	1	6	-	10
24-26	1	1	3	-	5
27-29	-	2	-	-	2
30-32	-	-	2	1	3
33-35	2	-	1	-	3
36-38	-	-	-	1	1
39-41	-	-	1	-	1
42 +	4	-	-	-	4
TOTAL	18	5	25	4	52

TABLE 6G: DISTRIBUTION OF SEVENTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM SIXTH ORDER BIRTHS

Intervals Between 6th & 7th Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
8-11	-	-	1	1	2
12-14	4	-	1	1	6
15-17	1	-	3	-	4
18-20	1	-	3	1	5
21-23	4	1	5	-	10
24-26	2	-	1	-	3
27-29	1	-	4	-	5
30-32	1	-	-	-	1
33-35	-	-	1	-	1
36-38	-	-	-	-	-
39-41	-	-	-	-	-
42 +	1	1	1	-	3
TOTAL	15	2	20	3	40

TABLE 6H: DISTRIBUTION OF EIGHTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM SEVENTH ORDER BIRTHS

Intervals Between 7th & 8th Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
8-11	2	-	1	-	3
12-14	3	-	4	-	7
15-17	2	-	5	1	8
18-20	1	-	1	-	2
21-23	1	-	-	-	1
24-26	1	-	3	-	4
27-29	2	-	-	-	2
30-32	1	-	3	-	4
33-35	-	-	-	-	-
36-38	-	-	-	1	1
39-41	-	-	-	-	-
42 +	-	-	1	-	1
TOTAL	13		18	2	33

TABLE 6I: DISTRIBUTION OF NINTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM THE EIGHTH ORDER BIRTHS

Intervals Between 8th & 9th Order Births	NUMBER OF BIRTHS: Completed Families	INCOMPLETED FAMILIES TYPE I	INCOMPLETED FAMILIES TYPE II	"Unknown" Families	All Families
8-11	-	-	-	-	-
12-14	-	-	2	-	2
15-17	-	-	3	-	3
18-20	5	-	2	-	7
21-23	-	-	3	-	3
24-26	1	-	3	-	4
27-29	2	-	1	-	3
30-32	-	1	-	-	1
33-35	1	-	-	1	2
36-38	3	-	-	-	3
39-41	-	-	-	-	-
42 +	-	-	-	-	-
TOTAL	12	1	14	1	28

TABLE 6J: DISTRIBUTION OF TENTH ORDER BIRTHS ACCORDING TO LENGTH OF INTERVALS (IN MONTHS) SEPARATING THEM FROM THE NINTH ORDER BIRTHS

Intervals Between 9th & 10th Order Births	NUMBER OF BIRTHS: Completed Families	UNCOMPLETED FAMILIES TYPE I	TYPE II	"Unknown" Families	All Families
8-11	1	-	-	-	1
12-14	1	-	4	-	5
15-17	-	-	2	-	2
18-20	-	-	4	-	4
21-23	-	-	-	1	1
24-26	4	-	-	-	4
27-29	1	-	-	-	1
30-32	-	-	-	-	-
33-35	1	-	-	-	1
36-38	1	-	-	-	1
39-41	-	-	-	-	-
42 +	-	-	-	-	-
TOTAL	9		10	1	20

TABLE 7A: DURATION OF MARRIED LIFE (F-Y) AND NUMBER OF BIRTHS (N) PER FAMILY, BY AGE GROUPS AND BY AGE AT MARRIAGE OF FEMALES

Total Number of Children	'COMPLETED' FAMILIES											
	AGE GROUPS OF THE FEMALE											
	< 20		20 - 24		25 - 29		30 - 34		35 - 39		40+	
	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N
	WOMEN MARRIED BEFORE THE AGE OF 20											
9	45	2	50	1	50	3	50	2	50	1	50	0
4	15	1	50	1	50	2	50	0	50	0	50	0
12	15	1	50	3	50	3	50	1	50	3	50	1
17	50	2	50	5	50	2	50	3	50	4	50	2
10	50	2	50	1	50	2	50	2	50	2	50	1
10	05	0	50	2	50	3	50	2	50	2	50	1
12	25	1	50	2	50	2	50	4	50	3	50	0
13	35	3	50	2	50	3	50	2	50	3	50	0
14	25	1	50	2	50	3	50	3	50	2	50	3
8	35	1	50	2	50	1	50	3	50	1	50	0
10	15	1	50	1	50	0	50	2	50	5	50	1
9	05	0	50	1	50	2	50	1	50	4	50	1
6	05	0	50	2	50	1	50	2	50	1	50	0
6	35	1	50	1	50	0	50	1	50	1	50	2
6	15	1	50	0	50	1	50	1	50	2	50	1
5	35	1	50	2	50	1	50	1	50	0	50	0
4	35	0	50	2	50	2	50	0	50	0	50	0
4	15	1	50	0	50	2	50	0	50	1	50	0
0	05	0	50	0	50	0	50	0	50	0	50	0
2	45	2	50	0	50	0	50	0	50	0	50	0
2	35	2	50	0	50	0	50	0	50	0	50	0
3	25	1	50	2	50	0	50	0	50	0	50	0
	570	24	1100	31	1100	33	1100	30	1100	35	1100	13
	WOMEN MARRIED BETWEEN THE AGE OF 20-24											
7	-	-	45	2	50	1	50	1	50	1	50	2
			45	2	50	1	50	1	50	1	50	2

Total Number of Children	'COMPLETED' FAMILIES — AGE GROUPS OF THE FEMALE											
	⩽20		20 - 24		25 - 29		30 - 34		35 - 39		40+	
	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N
WOMEN MARRIED BETWEEN THE AGE OF 25-29												
10	-	-	-	-	15	0	50	4	50	4	50	2
11	-	-	-	-	45	3	50	3	50	3	50	2
7	-	-	-	-	25	1	50	3	50	3	50	0
4	-	-	-	-	45	2	50	0	50	1	50	1
					130	6	200	10	200	11	200	5
WOMEN MARRIED BETWEEN THE AGE OF 30-34												
2	-	-	-	-	-	-	35	1	50	1	50	0
1	-	-	-	-	-	-	15	0	50	0	50	1
1	-	-	-	-	-	-	15	0	50	1	50	0
0	-	-	-	-	-	-	45	0	50	0	50	0
0	-	-	-	-	-	-	45	0	50	0	50	0
4	-	-	-	-	-	-	35	2	50	1	50	1
							190	3	300	3	300	2
WOMEN MARRIED BETWEEN THE AGE OF 35-39												
3	-	-	-	-	-	-	-	-	25	2	50	1
0	-	-	-	-	-	-	-	-	25	0	50	0
									50	2	100	1
WOMEN MARRIED AT THE AGE OF 40 & OVER												
1	-	-	-	-	-	-	-	-	-	-	45	1
1	-	-	-	-	-	-	-	-	-	-	35	1
0	-	-	-	-	-	-	-	-	-	-	35	0
											115	2
WOMEN - AGE AT MARRIAGE UNKNOWN												
1	-	0	-	0	-	0	-	1	-	0	-	0
								1				
Column Total	570	24	1145	33	1280	40	1540	45	1700	52	1865	25

TABLE 7B : DURATION OF MARRIED LIFE (F-Y) AND NUMBER OF BIRTHS (N) PER FAMILY, BY AGE GROUP AND BY AGE AT MARRIAGE OF FEMALE

Total Number OF Children	TYPE II 'INCOMPLETED' FAMILIES — AGE GROUPS OF THE FEMALE											
	<20		20 - 24		25 - 29		30 - 34		35 - 39		40+	
	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N
WOMEN MARRIED BEFORE THE AGE OF 20												
14	25	1	50	2	50	4	50	3	50	4	25	0
11	25	2	50	3	50	3	50	3	50	0	15	0
12	35	1	50	3	50	4	50	3	50	1	25	0
5	50	2	50	3	50	0	50	0	50	0	05	0
6	45	2	50	3	50	1	50	0	50	0	15	0
11	25	2	50	3	50	3	50	3	25	0	-	-
13	50	3	50	3	50	2	50	4	05	1	-	-
12	05	1	50	3	50	4	50	2	35	2	-	-
10	05	0	50	3	50	3	50	4	05	0	-	-
0	25	0	50	0	50	0	50	0	45	0	-	-
8	15	1	50	2	50	2	45	3	-	-	-	-
11	25	2	50	3	50	2	45	4	-	-	-	-
9	25	1	50	3	50	3	45	2	-	-	-	-
11	05	1	50	4	50	4	25	2	-	-	-	-
8	15	1	50	3	50	2	25	2	-	-	-	-
6	25	2	50	3	50	1	45	0	-	-	-	-
5	25	2	50	1	50	2	25	0	-	-	-	-
7	25	0	50	2	50	3	45	2	-	-	-	-
5	15	2	50	3	50	0	15	0	-	-	-	-
9	25	3	50	3	45	3	-	-	-	-	-	-
7	25	2	50	2	45	3	-	-	-	-	-	-
6	45	2	50	3	25	1	-	-	-	-	-	-
6	45	2	50	2	35	2	-	-	-	-	-	-
	610	36	1165	61	1100	52	815	37	365	8	85	0
WOMEN MARRIED BETWEEN THE AGE OF 20-24												
1	-	-	25	1	50	0	50	0	50	0	35	0
5	-	-	45	0	50	1	50	1	50	2	25	1

Total Number of Children	'INCOMPLETED' FAMILIES TYPE II											
	AGE GROUPS OF THE FEMALE											
	<20		20 - 24		25 - 29		30 - 34		35 - 39		40+	
	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N
	WOMEN MARRIED BETWEEN THE AGE OF 20-24 (cont'd)											
3	-	-	45	0	50	3	50	0	25	0	-	-
6	-	-	35	1	50	2	50	3	15	0	-	-
10	-	-	35	3	50	2	50	3	35	2	-	-
10	-	-	45	3	50	4	50	2	25	1	-	-
8	-	-	35	3	50	1	50	3	35	1	-	-
9	-	-	25	1	50	4	50	3	45	1	-	-
6	-	-	35	3	50	3	05	0	-	-	-	-
0	-	-	35	0	05	0	-	-	-	-	-	-
3	-	-	35	1	25	2	-	-	-	-	-	-
0	-	-	20	0	-	-	-	-	-	-	-	-
0	-	-	15	0	-	-	-	-	-	-	-	-
0	-	-	15	0	-	-	-	-	-	-	-	-
0	-	-	15	0	-	-	-	-	-	-	-	-
			450	16	480	22	405	15	280	7	60	1
	WOMEN MARRIED BETWEEN THE AGE OF 25-29											
7	-	-	-	-	35	2	50	3	50	2	25	0
					35	2	50	3	50	2	25	0
Column Total	610	36	1615	77	1615	76	1270	55	695	17	170	1

TABLE 7C: DURATION OF MARRIAGE (F-Y) AND NUMBER OF BIRTHS (N) PER FAMILY, BY AGE GROUPS & BY AGE AT MARRIAGE OF FEMALE

Total Number of Children	'INCOMPLETED' FAMILIES TYPE I — AGE GROUPS OF THE FEMALE											
	20		20 - 24		25 - 29		30 - 34		35 - 39		40+	
	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N	F-Y	N
WOMEN MARRIED BEFORE THE AGE OF 20												
7	15	0	50	2	50	1	50	3	50	0	15	1
6	15	1	50	2	50	2	50	1	45	0	-	-
1	35	0	50	0	50	1	50	0	05	0	-	-
6	25	0	50	2	50	2	50	2	25	0	-	-
9	35	3	50	2	50	2	25	2	-	-	-	-
6	35	2	50	2	50	2	05	0	-	-	-	-
0	25	0	50	0	50	0	15	0	-	-	-	-
5	50	2	50	1	25	2	-	-	-	-	-	-
5	45	3	45	2	-	-	-	-	-	-	-	-
2	35	2	15	0	-	-	-	-	-	-	-	-
1	25	1	15	0	-	-	-	-	-	-	-	-
	340	14	475	13	375	12	245	8	125	0	15	1
WOMEN MARRIED BETWEEN THE AGE OF 20-24												
5	-	-	45	2	50	3	15	0	-	-	-	-
3	-	-	45	3	-	-	-	-	-	-	-	-
			90	5	50	3	15	0				
WOMEN MARRIED BETWEEN THE AGE OF 20-29												
5	-	-	-	-	35	1	50	1	50	2	15	1
					35	1	50	1	50	2	15	1
DATE OF MARRIAGE UNKNOWN												
	-	2	-	3	-	0	-	-	-	-	-	-
Column Total	340	14	565	18	460	16	310	9	175	2	30	2