

Royal Canadian Mounted Police Superannuation Act, Part I

Report on the Actuarial Examination of the
Royal Canadian Mounted Police Superannuation Account
in the Consolidated Revenue Fund as at December 31, 1969*

In accordance with instructions and pursuant to section 25 of the Royal Canadian Mounted Police Superannuation Act, we have made an actuarial examination of the Account as at December 31, 1969,* and have the honour to report thereon.

The report is divided into the following sections:

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In 1970, legislation was enacted to provide supplementary retirement benefits to persons in receipt of annuities or annual allowances under the Royal Canadian Mounted Police Superannuation Act. Although those provisions do not affect the operation of the R.C.M.P. Superannuation Account, it was felt desirable to include a description of the provisions in Appendix 2 to this report, in order to present a more complete picture of the total pension provisions for contributors to the R.C.M.P. Superannuation Account in addition to benefits available under the Canada Pension Plan.

I. Terms of the Superannuation Plan (including 1970 amendments)

A. Recent Amendments

The last examination of this Account was made as of December 31, 1964. Since that date, a number of significant changes have been made in the provisions of the Royal Canadian Mounted Police Superannuation Act. The most important of these changes made in the years 1966, 1969 and 1970 are as follows:

1. In 1966, current service contributions to the Account by any member were reduced by the amount that would be required as contributions under the Canada Pension Plan in respect of pay received by him as a member of the Force. In general, annual current service contributions by members were reduced by 1.8% of that portion of their pay that falls between the Canada Pension Plan contributory earnings lower and upper limits. (For 1966, these limits were \$600 and \$5,000, respectively.)

Effective April 1, 1969, the basic contribution rate was increased from 6.0% to 6.5% of pay for male members. The rate for female members remains unchanged at 5.0%. Both rates are subject to the reduction stated above.

*Allowance was made in this valuation for the 1970 legislation which amended the formula for integration of the R.C.M.P. Superannuation Plan benefits with the Canada Pension Plan benefits. This amendment is explained in detail in Section I of this report. (~~In this report, references to the Canada Pension Plan should be read as including the Quebec Pension Plan~~).

2. By the terms of the amendments in 1966, the amount of any annuity to which a contributor became entitled under the Act was to be reduced by a portion of any disability or retirement pension to which he was concurrently entitled under the Canada Pension Plan. Such portion was to be determined by reference to contributions made under the Canada Pension Plan in respect of the contributor's service as a member of the Force prior to completion of thirty-five years of pensionable service.

When the Act was amended in 1970, this formula for integration of the benefits under this plan with those payable from the Canada Pension Plan was changed. The plan now provides that any annuity to which a contributor becomes entitled under the Act will be reduced, commencing at age 65, or earlier upon becoming entitled to a disability pension under the Canada Pension Plan by 0.7% of the average annual pay received by him during the next six years of pay, but not exceeding his Average Maximum Pensionable Earnings, multiplied by the number (not exceeding 35) of his years of pensionable service after 1965 or after attaining age 18, if later. Average Maximum Pensionable Earnings is defined as the average of the Year's Maximum Pensionable Earnings under the terms of the Canada Pension Plan for the last three calendar years of his service.

3. Prior to the 1966 amendments, the Act provided for payment of a cash termination allowance under certain circumstances equal to one month's pay for each year of pensionable service. With the reduction in members' contributions to the Superannuation Account as the result of integration with the Canada Pension Plan, the amount of this allowance was reduced by the total reduction in contributions. However, a similar benefit payable to the widow and children of a contributor who dies with less than 10 years of pensionable service was not so reduced.

4. The limiting age for payment of allowances to children of deceased contributors was extended from 18 to 25, provided that any child over age 18 to be entitled to an allowance must (i) be in full time attendance at a school or university, (ii) have been in attendance substantially without interruption since his 18th birthday, or the death of the contributor, whichever occurred later and (iii) be unmarried.

5. Prior to the 1966 amendments to the Act, civilian members were entitled to the same benefits as officers in the Force. This was changed in 1966 in one respect, namely, that a civilian member who retires with at least ten but less than twenty years of service in the Force now has a choice between a return of contributions and a deferred annuity. Formerly, he was only entitled to the return of contributions.

6. Formerly, if the Treasury Board was not satisfied that anticipation of impending death was not a consideration affecting the agreement to marry, the annual allowance otherwise payable to the widow and children of a contributor was subject to a reduction if the contributor died within five years of his marriage. The stipulated reduction was set at 100% for deaths within the first year of marriage, and decreased by 2% for each month of marriage after the first twelve.

This provision was liberalized by the 1966 amendments. There are now no reductions in allowances to widows and children in cases of death after the first year of marriage. In cases of death within the first year of marriage no allowance is payable to the widow or children of that marriage if the Minister of Justice is not satisfied that the contributor was at the time of his marriage in such a condition of health as to justify him in having a reasonable expectation of surviving for at least one year thereafter.

7. The Act now also provides that a widow's allowance which has been suspended because of her remarriage will be reinstated upon annulment or dissolution of that marriage, or the death of her husband by that marriage. A widow may request, prior to her becoming entitled to any reinstatement, that, in lieu of any further claim to payment of the annual allowance, an amount equal to the return of contributions less the total amount paid as benefits to the contributor, or to his widow and his children be paid to her, provided there are no children of the contributor entitled to an annual allowance.

8. The 1966 amendments also provide that, following the laying before Parliament of an actuarial report on the Account, an amount must be credited to the Superannuation Account which, in the opinion of the Minister of Finance together with the amount then to the credit of the Account, is required to meet the cost of the benefits payable. Such amounts as well as amounts required to be credited as a result of pay increases applicable to at least one per cent of the members of the Force are charged to the Consolidated Revenue Fund in five equal annual instalments commencing in the fiscal year in which the report is laid before Parliament.

9. In 1969, further amendments were made to require that the amount representing interest on the balance in the Superannuation Account is to be calculated at the interest rate used in the most recent actuarial valuation. However, a further amount representing additional interest on the Account based on the difference between any higher rate of interest, as may be prescribed, and the valuation rate of interest is also to be credited each year.

The Minister of Finance may in any fiscal year apply an amount not exceeding the amount representing additional interest toward reducing the amount of any instalment required to be charged to the Consolidated Revenue Fund in that year as the result of statutory credits to the Account of the type described in paragraph 8 above. The additional interest credit is reduced by any amount that is so applied.

B. Coverage

Persons covered by this plan include:

- (a) members of the Royal Canadian Mounted Police referred to in this report as the "Force", who
 - (i) were contributors under the former Act immediately prior to the date on which this Act came into force,
 - (ii) not having been members of the Force at the date on which the Act came into force, became members of the Force after that date,
 - (iii) having been members of the Force at the date on which the Act came into force, thereafter ceased to be members and subsequently were re-appointed or re-enlisted in the Force, and
 - (iv) having been members of the Force but not contributors under the former Act at the date on which this Act came into force, elected to become contributors under this Act within one year from that date;
- (b) former members of the Force who are entitled to annuities or annual allowances payable out of the Account; and
- (c) widows and children who are entitled to annual allowances or other benefits payable out of the Account as dependants of contributors who died either in service or while entitled to an annuity or annual allowance.

C. Service in the Force

For a contributor to be entitled to an annuity or annual allowance when he ceases to be a member of the Force, he must have served in the Force at least ten years except if he is compulsorily retired because of disability, in which case he is entitled to an annuity if he has ten or more years of pensionable service.

For purposes of the plan, "service in the Force" includes any period of service as a special constable of the Force before the date on which the Act came into force and any period of service as a member of a provincial or municipal police force that has been taken over by the Force.

D. Pensionable Service

The amount of any annuity, annual allowance, refund of contributions or cash termination allowance, to which a contributor or his dependants may become entitled under the Act, depends upon the number of years of "pensionable service" to the credit of the contributor at the date he ceases to be a member of the Force.

Pensionable service is described in detail in the Act. In general, the pensionable service of a contributor includes any period of service in the Force for which he has contributed or has elected to contribute. It may also include other periods of prior service not in the Force for which he has elected to contribute in accordance with the provisions of the Act, namely:

- (a) a period of service as a member of a provincial or municipal force that has been taken over by the Force,
- (b) a period of service
 - (i) on active service in the armed forces during World War I or World War II,
 - (ii) in the Canadian Army Special Force established in 1950,
 - (iii) in the regular forces,
 - (iv) in forces raised by Canada other than the regular forces, provided that such service was full-time service lasting for six months or more, and
- (c) a period of full-time paid employment in the Public Service.

E. Summary of Benefits

Further explanatory notes regarding benefits, as indicated in the following summary, are given in Appendix 1 of this report.

1. Contributors who are members of the Force

<u>Type of Termination</u>	<u>Period of Service (Note 1)</u>	
	<u>Under 10 years</u>	<u>10 years or over</u>
Retirement because of age (Note 2)	Return of contributions (Note 3), or Cash termination allowance (Note 4), whichever is the greater	Immediate annuity (Note 5)
Compulsory retirement because of disability	Return of contributions, or Cash termination allowance, whichever is the greater	Immediate annuity

<u>Type of Termination</u>	<u>Period of Service (Note 1)</u>	
	<u>Under 10 years</u>	<u>10 years or over</u>
Compulsory retirement to promote economy or efficiency in the Force	Return of contributions	1. With 10 to 20 years at option of contributor: return of contributions, deferred annuity (Note 6), or reduced immediate annuity (Note 7) 2. With 20 or more years: immediate annuity
Compulsory retirement because of misconduct	Return of contributions, or in the discretion of the Treasury Board, (Note 8) cash termination allowance	Return of contributions, or in the discretion of the Treasury Board (Note 8) (i) if the contributor has reached retirement age: immediate annuity (ii) if the contributor has not reached retirement age: deferred annuity, reduced immediate annuity, or immediate annuity
Voluntary retirement - contributors other than officers	Return of contributions	1. With 10 to 20 years, at option of contributor: return of contributions, or deferred annuity 2. With 20 to 25 years: annual allowance (Note 9) 3. With 25 or more years: immediate annuity
Voluntary retirement - officer contributors	Return of contributions	1. With 10 to 20 years: return of contributions 2. With 20 to 35 years, at option of contributor: return of contributions; deferred annuity, or annual allowance (Note 10) 3. With 35 or more years: immediate annuity
Death leaving no widow or eligible children under age 25 (Note 11)	Return of contributions	Return of contributions
Death leaving widow and/or eligible children under age 25 (Note 11)	Return of contributions, or Cash termination allowance, whichever is the greater	Annual allowance to widow and/or children (Notes 12 and 13)

2. Former contributors entitled to immediate annuities, annual allowances or deferred annuities

<u>Type of Termination</u>	<u>Benefit</u>
Death leaving no widow or eligible children under age 25 (Note 11)	Return of excess contributions to estate (Note 13)
Death leaving widow and/or eligible children under age 25 (Note 11)	Annual allowance to widow and/or children (Notes 13 and 14)

F. Contributions

1. By Contributor

(a) Current Service

The rates of contribution for members of the Force covered by the Act are

(i) for males, $6\frac{1}{2}\%$ of pay, and

(ii) for females, 5% of pay,

reduced by the amount that the contributor would be required to contribute under the Canada Pension Plan in respect of pay received by him as a member of the Force. (For example, in 1970, the reduction was 1.8% of the pay between \$600 and \$5,300 per annum.)

Contributions for current service cease when a contributor has to his credit 35 years of pensionable service.

(b) Prior Service

A contributor may elect to contribute in respect of any period of prior pensionable service as described on page 6 of this report.

In general, if the election to contribute for a period of prior pensionable service is made within one year of the member becoming a contributor, the amount that the member is required to contribute is equal to the total contributions that he would have had to make during that period of prior pensionable service if the contributions had been computed according to the rate of pay applicable to the contributor on the most recent occasion on which he became a contributor under the Act and at rates of contributions of 6% for male members for service prior to April 1, 1969, and $6\frac{1}{2}\%$ for service after that date and 5% for female members for all prior service and with adjustment for integration with the Canada Pension Plan for any prior pensionable service after 1965 for which the member has elected to contribute. All contributions are increased by simple interest at the rate of 4% per annum from the middle of each fiscal year of prior service to the date of election.

There are a few minor exceptions to this general rule which it was considered unnecessary to give in detail in this report.

If a contributor fails to make an election in respect of a period of prior pensionable service within the prescribed time, he may make an election at any later time while he is still a member of the Force provided that he is in good health at the date of election. However, the rate of pay used in determining the contributions for such prior service will be the rate of pay authorized to be paid to the contributor at the time he makes his election.

Contributions in respect of prior service may be paid in a lump sum, or by monthly instalments, payable for life, or for a period ceasing upon death or completion of a fixed number of years whichever is earlier. Monthly instalments are computed on the basis of the Canadian Life Table No. 2 (1941), Males or Females, as the case may be, and interest at 4% per annum.

B. Persons Entitled to Annuities or Annual Allowances

Retired Contributors

<u>Entitled on Jan. 1/65</u>	<u>New Entitlements Jan. 1/65 to Dec. 31/69</u>	<u>Terminated By Death Jan. 1/65 to Dec. 31/69</u>	<u>Entitled on Dec. 31/69</u>
167	186	30	323*

*including 5 deferred annuities

Widows

<u>Entitled on Jan. 1/65</u>	<u>New Entitlements Jan. 1/65 to Dec. 31/69</u>	<u>Terminations Jan. 1/65 - Dec. 31/69</u>		<u>Entitled on Dec. 31/69</u>
		<u>By Death</u>	<u>By Remarriage</u>	
45	40	6	7	72

Children

<u>Entitled on Jan. 1/65</u>	<u>Entitled on Dec. 31/69</u>
41	44

III. Valuation Bases and Assumptions

A. Civilian Members

It is reasonable to expect that rates of retirement, withdrawal and disability as well as salary scales applicable to male civilian members and female members would be different from those applicable to regular male members of the Force. However, since civilians, including female members of the Force, constitute only about 6% of the total number of contributors, it was considered appropriate to make no distinction between these groups in the valuation except to allow for the fact that females contribute at the rate of 5% rather than 6½%.

B. Interest Rates

Until the quarter ending June 30, 1969, interest was credited to the Superannuation Account on the last day of each quarter in the fiscal year at the rate of 1% of the balance to the credit of the Account on the last day of the preceding quarter. This is a rate equivalent to approximately 4% per annum which is the rate that has been assumed in preceding actuarial valuations and has been retained for the current valuation.

As noted above, the 1969 amendments to the Act made provision for crediting interest to the Account in excess of the rate used in the preceding actuarial valuation. The total rate at which interest is now credited changes every three months and is calculated as if the amounts not required for payment of benefits in each quarter had been invested on a basis similar to that applied under the Canada Pension Plan, i.e., in 20-year bonds having a yield equivalent to the average yield on Government of Canada bonds with 20 or more years to maturity outstanding at that time.

For the quarter ending December 31, 1969, the total rate of interest credit was 1.2575%. The total annual rate of interest credit has remained above 5% since that time and is likely to continue at that level for some time, given the current climate of high interest rates. Since, under such circumstances the continued use of an assumed rate of 4% may be questioned, the following observations seem in order.

An assumed rate of interest at 4% per annum is considered to constitute a reasonably safe allowance for the long-term effect of interest earnings into the indefinite future in the calculation of required rates of contribution. In this connection it is well to remember that while it may be difficult now to anticipate a return to the low levels of interest experienced from the 1930's to the 1950's, it appeared at least as difficult then to anticipate a return to the high levels of interest which have been experienced in recent years.

Moreover, although it is generally desirable to select each of the actuarial assumptions on its own merits, in order to judge the reasonableness of the results, it is also necessary to consider all the assumptions together. In judging the reasonableness of the interest assumption in valuations of pension plans such as the R.C.M.P. Superannuation Plan where benefits are based on final average salaries, it is particularly relevant to have regard to the assumptions used for purposes of estimating future salaries.

For reasons which will be noted in the discussion of salary scales later in this report, it was decided, for purposes of the current as well as preceding valuations, to include no provisions for increases in general levels of salaries. It is consistent with this decision to guard as much as possible against overly optimistic assumptions regarding future interest earnings, so that possible interest earnings in excess of the assumed rate might provide at least some offset to the substantial effect of general salary increases on pension costs. As noted earlier, specific provision was made in the 1969 amendments for the application of interest earnings in excess of the valuation rate to the deficiencies arising from various sources of which increases in liabilities arising out of general salary revisions are by far the most important.

C. Salary Scales

Where used in this report, the term "salary scale" means the assumed pattern of future increase in pay for a member as his age increases year by year. It is essential to use such a scale for valuation purposes, because both benefits and contributions that become payable in the future depend on the rates of pay that will be received in the future.

There are two main forces that tend to generate increases in the salary of an employee during his period of service. One, which we shall call the "promotional" force results from the experience that he gains through service and the new and improved skills that he acquires through training both of which normally earn him increased remuneration. The other, which we shall call the "economic" force, is related to factors such as increased productivity and inflation which result in periodic revisions in the salaries of groups of employees. Increases in pay resulting from this second force are hereinafter referred to as "general" increases.

The pattern of average promotional increases in salary is fairly predictable on the basis of past experience. On the other hand, relatively little confidence can be placed in predictions of future increases in salary that depend on varying economic and social pressures. Even if salary scales were constructed to include provision for general salary increases on what might be considered a reasonable long-term level, the use of such scales for valuation would only go part of the way in solving the financing problem created by the very substantial rates of general pay increases that have taken place in recent years. On the other hand, if salary scales were constructed to include provision for general salary increases at the level that has been experienced in recent years, this could be considered as tantamount to an attempt at prefunding inflation, which could be expected to prove self-defeating, if practised by large segments of society.

For these reasons, in the current and preceding examination of the operation of the R.C.M.P. Superannuation Account, the salary scales used for purposes of calculating the net liabilities in respect of current contributors and the required contribution rates in respect of new contributors have provided for promotional increases only.

This practice is reflected in the terms of the R.C.M.P. Superannuation Act which, as indicated earlier, provide that the Account shall be credited with an amount equal to the additional net liability created by a salary increase applicable to at least 1% of the members of the Force. The implication in this provision is that the Government, as employer, has assumed responsibility for the additional net liabilities created under the plan as a result of general salary increases, and that such net liabilities will be provided for as and when they do materialize.

Salary scales were constructed from data relating to the rates of pay of members of the Force at the time of the preceding actuarial valuation. These scales were considered to remain appropriate for the current valuation and are shown in Appendix 3. Also shown in Appendix 3 are illustrations of how the pay of an average member might increase as his age increases, if he joins the Force at age 20, 25 or 30 with an initial salary of \$1,000 per year. For other initial salaries the projected salaries may be obtained by multiplying the figures shown by the ratio of the actual initial salary to \$1,000.

D. Rates of Mortality and Remarriage

To determine the liability for future benefits, mortality rates which it is assumed might be experienced in the future were chosen for each of the following groups:

- (a) active contributors,
- (b) former contributors entitled to annuities or annual allowances,
- (c) widows of deceased contributors,
- (d) children of deceased contributors.

As mentioned earlier in this report, widows' allowances are suspended on remarriage. Rates of remarriage were assumed in determining the effect of this provision. The possibility of reinstatement of the allowance after the termination of the remarriage was ignored.

The bases used in the valuation are described below.

1. Active Contributors

During the five-year period January 1, 1965 to December 31, 1969, there were 48 deaths of active members of the Force who were contributors. The small numbers of deaths and of members do not provide sufficient data to determine a mortality table based solely on this experience.

As a result of our studies, the mortality tables used in the 1954, 1959 and 1964 valuations, namely, the Canadian Institute of Actuaries 1949-52 Ultimate Table of Mortality was considered to be reasonably representative of the experience during the past five years, and for the future, and was used again.

2. Former Contributors entitled to annuities or annual allowances

Different mortality rates generally apply to persons entitled to pensions because of disability as compared to persons entitled for other reasons. However, for this valuation as the group of disability pensioners is small both in number and as a percentage of the total, being 8.5% of the 318 entitled to pensions at December 31, 1969, we have assumed the same rates of mortality for both groups. The assumed rates are the same as those used in the two previous valuations, namely, those according to the a-1949 Table of Mortality. These rates and annuity values based on them are shown in Appendix 5.

3. Widows

The bases chosen for the valuation of both present and prospective widows' allowances were the same as for the 1959 and 1964 valuations, namely,

- (i) for mortality - aggregate rates derived from the 1948-57 experience of widows entitled to annual allowances under the Public Service Superannuation Act and
- (ii) for remarriage - select and ultimate rates derived from the 1940-57 experience of widows awarded pensions under the Pension Act and previous Government administrative orders from August 4, 1914 to December 31, 1957.

In Appendix 6 are shown:

- (i) select remarriage rates for quinquennial ages at widowhood 25 to 55 and specimen durations from widowhood.
- (ii) ultimate remarriage rates and aggregate mortality rates for quinquennial ages commencing at age 39, and
- (iii) values for annuities ceasing at death or remarriage for the ages and durations stated in (i) and (ii) above.

4. Children

As indicated earlier in this report, the Act was amended in 1969 to provide that benefits payable to all children under age 18, may be continued from age 18 to age 25, provided the children are attending school or university and have been doing so substantially without interruption since age 18 and are not married. To simplify the valuation of these benefits, we have ignored mortality amongst these annuitants and have assumed that all benefits cease at age 18. Although these two assumptions partially offset each other the benefit will be slightly under-valued. As more experience is obtained with the payment of benefits to children above age 18, appropriate allowance will be made in future valuations for the expected average duration of such benefits.

E. Rates of Retirement

- 1. Rates of retirement with entitlement to an immediate annuity, a reduced annuity or an annual allowance for reasons other than disability

The graduated rates used in the 1964 valuation which were determined from the 1960-64 experience were used again in this valuation after a comparison with the actual experience for the period 1965 to 1969 indicated that they were satisfactory for the time being. It was assumed that contributors retiring with at least twenty years of service would receive immediate annuities and those retiring with less than twenty years service would receive lesser benefits which for valuation purposes were assumed to be equal in value to deferred annuities commencing at age 60.

The rates are shown in Appendix 7.

2. Rates of retirement with entitlement to a lump sum or a deferred annuity for reasons other than disability

There were 1,262 contributors who retired for reasons other than disability during the period January 1, 1965 to December 31, 1969, and who were entitled to a lump sum or a deferred annuity. Of these, only one out of the ninety-five who had ten or more years of service elected to take a deferred annuity. The remainder elected a return of contributions which normally is less than the present value of the deferred annuity. We have assumed that in the future a higher percentage, namely, 25% of contributors in this category retiring with ten or more years of service will elect deferred annuities.

Rates of retirement based on 1960-64 experience and used in the 1964 valuation were compared with the 1965-69 experience and found to remain appropriate for this valuation. The rates used are shown in Appendix 7.

3. Rates of retirement because of disability

The graduated rates of retirement due to disability used in the 1964 valuation and based on 1960-64 experience were used in this valuation. Actual retirements during the period 1965-69 indicated that these rates were quite appropriate. They are shown in Appendix 7.

F. Proportions of deceased male contributors leaving widows and average age of widows corresponding to ages of contributor at death

To determine the value of future benefits payable on death of contributors who are members of the Force at death and those who retired prior to death, proportions of deceased male contributors leaving widows and average age of widows corresponding to ages of contributors at death are required. The assumptions used for the 1959 and 1964 valuations were deemed to remain appropriate and accordingly were retained for the 1969 valuation. These were as follows:

- (a) for active contributors, the proportions of members of the Force at December 31, 1959, who were married and the average ages of their wives corresponding to their ages,
- (b) for contributors retired prior to death, the proportions of male pensioners under the Public Service Superannuation Act who died during the period from January 1, 1948 to December 31, 1957, leaving widows, and the average age of the widows corresponding to the ages of the pensioners at death.

These factors are shown for quinquennial ages at death in Appendix 8.

G. Children's Benefits

To value the benefits payable to children upon the death of a contributor, factors are required based on the average number of children living and their average age at death of the contributor. These factors are expressed in terms of an annuity of \$1.00 payable to the contributor if retired or to an active contributor if he had retired with entitlement to an immediate annuity at date of death. Factors which were determined for the valuation of the Public Service Superannuation Account as at December 31, 1957, and which were used in the 1959 and 1964 valuations of this Account, were considered satisfactory for this valuation. They are shown in Appendix 8.

H. Integration with Canada Pension Plan

Reductions in benefits and contributions to provide for integration with the Canada Pension Plan apply only in respect of salary up to the Year's Maximum Pensionable Earnings as defined in the Canada Pension Plan. For purposes of this valuation it was assumed that the Year's Maximum Pensionable Earnings was equal to \$5,300 which was the amount applicable as of January 1, 1970.

The actual proportion of members whose pay was below the Year's Maximum Pensionable Earnings was found to be less than 0.8% at the date of valuation and was expected to become even smaller; the assumed proportion was therefore taken as zero.

As the conditions to be satisfied for a person to be considered as disabled and entitled to a disability annuity are more stringent under the Canada Pension Plan than under the R.C.M.P. Superannuation plan, we have assumed for purposes of valuing the reduction in annuities as a result of integration with the Canada Pension Plan that only 10% of the contributors being retired for disability will also be entitled to a disability pension under the Canada Pension Plan. However, the remaining 90% of the disability annuities were assumed to be subject to reduction on account of integration upon attainment of age sixty-five. The probability of contributors retired for reasons other than disability becoming disabled after retirement and before age 65, and entitled to a disability pension under the Canada Pension Plan was assumed to be zero.

IV. Contributions and Credits to the Account

As described earlier in this report, the rates at which contributions from members and credits on behalf of the government are being made, expressed as a percentage of members' salaries, are as follows:

- (a) For portion of salary outside Canada Pension Plan contributory limits*.

	<u>Members' Contribution Rates</u> %	<u>Government Credits 1.8 times Members' Contribution Rates</u> %	<u>Total</u> %
Males	6.50	11.70	18.20
Females	5.00	9.00	14.00

- (b) For portion of salary subject to Canada Pension Plan contributions of 1.8% by members.

	<u>Members' Contribution Rates</u> %	<u>Government Credits 1.8 times Members' Contribution Rates</u> %	<u>Total</u> %
Males	4.70	8.46	13.16
Females	3.20	5.76	8.96

Using the assumptions described in the preceding section of this report, and the distribution of new contributors who entered in the five years ending December 31, 1969 (shown in Appendix 9), it has been calculated that the rates of contributions and credits to the Account on behalf of the government, as set out in the above table, should be sufficient to provide all benefits payable under the Act. It follows that it should be satisfactory to continue the practice of making credits to the Account on behalf of the government at the rate of 1.8 times the amount of contributions received from contributors. In order to present the required government credits in a form that may be somewhat easier to visualize than the above table, it has been calculated that as at December 31, 1969, the required government credits of 1.8 times the amount of contributions received from contributors were equivalent to approximately 9.75% of payroll.

*Canada Pension Plan contributions are required at the rate of 1.8% of salary above the Year's Basic Exemption and below the Year's Maximum Pensionable earnings; for the year 1970 the two limits were \$600 and \$5,300 respectively.

As indicated earlier in this report, the above rates of required government credits are based on assumptions that make no provision for general salary increases. However, as noted earlier, the Act provides that there shall be credited to the Superannuation Account, following the authorization of any pay increase applicable to at least 1% of the members of the Force such amount as, in the opinion of the Minister of Finance, is necessary to provide for the increase in the cost of the benefits payable as a result of such pay increases. In the course of the current examination of the Account it has been estimated that the increase in cost (i.e., in the net liabilities of the Account) as a result of such pay increases is approximately equal to 1.6 times the amount of the increase in the effective annual payroll at the date of the increase.

V. Valuation Balance Sheet and Observations

The following balance sheet shows the results of the actuarial valuation and the financial standing of the Account as at December 31, 1969.

In establishing the present value of future Government credits, it is assumed that such credits will continue to be equal to 1.8 times the total current service and prior service contributions paid by the contributors. Consistent with the stated assumptions, no allowance is made for benefits contributions or credits contingent on future general increases in pay.

Valuation Balance Sheet as at December 31, 1969

<u>Assets</u>		
Balance of Account		\$142,247,000
Credits from Government outstanding at December 31, 1969 and made in 1970		3,633,000
Present value of future contributions from the Government of Newfoundland		150,000
Present value of future contributions from contributors:		
<u>Members of the Force</u>		
Current Service	\$61,036,000	
Prior Service	429,000	
<u>Retired Contributors</u>		
Prior Service	<u>100,000</u>	61,565,000
Present Value of future credits from the Government		<u>110,817,000</u>
	Total Assets	\$318,412,000
Deficit		<u>81,000</u>
		<u>\$318,493,000</u>
<u>Liabilities</u>		
Present value of prospective benefits to active contributors and their dependants		\$303,773,000
Present value of benefits to former contributors and their dependants entitled to an annuity or annual allowance:		
Retired Contributors	\$13,453,000	
Widows	1,169,000	
Children	<u>64,000</u>	14,686,000
Benefits to former contributors due in 1969 and paid in 1970		<u>34,000</u>
	Total Liabilities	<u>\$318,493,000</u>

The foregoing balance sheet shows an estimated deficit of \$81,000 as at December 31, 1969. This is the net result of a number of changes as well as gains and losses arising from the difference between actual experience and expected experience based on the various valuation assumptions. None of these differences appeared significant enough to warrant a change in assumptions.

VI. Summary

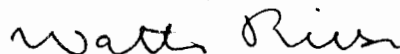
The current combined rates of contributions by contributors and credits on behalf of the Government were estimated to be sufficient to meet the cost of the current level of benefits for new contributors.

The balance sheet as at December 31, 1969 indicates a relatively slight deficit of \$81,000 in the Account at that date.

Credits required pursuant to subsection 24(2) of the Act in respect of the increase in liability resulting from general increases in pay were estimated to be equal to 1.6 times the amount of the increases in total annual payroll.

In conclusion, it is a pleasure to acknowledge the cooperation of the Departmental Services Office of the R.C.M.B. which provided the basic records and the Canadian Police Information Centre Directorate which provided valuable assistance in the programming and data processing related to contributors who were members of the Force on the valuation date.

Respectfully submitted,



Walter Riese,
Chief Actuary.

Department of Insurance,
April 26, 1972.

A P P E N D I C E S

1. Explanatory Notes to Summary of Benefits.
2. Description of Supplementary Retirement Benefits.
- 3A. Salary Scale.
 - B. Illustrations of Increases in Pay in accordance with the salary scale.
4. Rates of Mortality assumed for Active Contributors.
- 5A. Rates of Mortality assumed for former Contributors entitled to annuities or annual allowances.
 - B. Annuity Values for benefits to former Contributors.
- 6A. Rates of Remarriage for Widows.
 - B. Rates of Mortality for Widows.
 - C. Annuity Values for benefits to Widows.
7. Rates of Retirement with entitlement to:
 - A. an immediate annuity, reduced annuity or annual allowance for reasons other than disability,
 - B. a lump sum or deferred annuity for reasons other than disability,
 - C. a lump sum or immediate annuity because of disability.
- 8A. Proportion of deceased male contributors leaving widows.
 - B. Average age of widows corresponding to ages of deceased contributor.
 - C. Values of Children's benefits per \$1.00 of earned annuity of contributor at death.
9. Age Distribution of members of the Force who became contributors during the period from January 1, 1965 to December 31, 1969.

A P P E N D I X 1

Explanatory Notes to Summary of Benefits on pages 4 and 5 of this Report

Note 1

For the purpose of determining the type of benefits available to a contributor or his dependants

- (a) in the event of compulsory retirement because of disability or of termination due to the death of contributor leaving dependants, "service" means "pensionable service" (see page 4) of the contributor at the date of termination, and
- (b) for all other causes of termination, "service" means "service in the Force" (see page 4) of the contributor at the date of termination, except that a contributor must have to his credit at least 10 years of "pensionable service" to receive any benefit other than a return of contributions.

Note 2

"Retirement because of age" in this summary means ceasing to be a member of the Force on or after reaching the prescribed retirement age for his rank provided the contributor is not being retired because of disability or misconduct. The retirement ages prescribed in the regulations vary from age 56 for a Constable to age 62 for the Commissioner.

Note 3

"Return of contributions" means payment without interest of an amount equal to the total current and prior service contributions paid by a contributor.

Note 4

"Cash termination allowance" means an amount equal to one month's pay at the rate of pay authorized to be paid to the contributor at date of termination multiplied by the number of years of pensionable service to the credit of the contributor minus in all cases, except termination due to death, the total reduction in his contributions as a result of integration of the Plan with the Canada Pension Plan.

Note 5

"Immediate annuity" means an annuity that becomes payable immediately upon termination. The annual amount of the annuity is equal to 2% of the contributor's average annual pay in respect of any selected six-year period of pensionable service multiplied by his number of years of pensionable service not exceeding 35. If a contributor has reached age 65 and ceased to be a member of the Force, or if he is entitled to a disability pension under the Canada Pension Plan, the amount of the annuity to which he is entitled under the Act is reduced by 0.7% of his average annual pay used in determining the amount of the annuity, not exceeding the "Average Maximum Pensionable Earnings" multiplied by the number of years of pensionable service after 1965 or after he attained age 18, whichever is later, but not exceeding 35 years. "Average Maximum Pensionable Earnings" is the average of the Year's Maximum Pensionable Earnings, as defined in the Canada Pension Plan, during the contributor's last 3 years of service. All annuities are normally payable in equal monthly instalments in arrears until the end of the month in which the contributor dies.

Note 6

"Deferred annuity" means an annuity that becomes payable upon attainment of age 60. The annual payment is determined on the same basis as for an immediate annuity.

A P P E N D I X 1 (cont'd)

If a former member entitled to a deferred annuity becomes disabled before his deferred annuity commences, his entitlement changes from a deferred annuity to an immediate annuity for the same amount.

Note 7

"Reduced immediate annuity" means an immediate annuity, determined as in Note 5, reduced during the period prior to age 65 but not thereafter by 5% for each full year not exceeding six by which the period of the member's service in the Force is less than 20 years.

This type of annuity may be chosen by a contributor with 10 but less than 20 years of service in the Force:

- (a) if he is compulsorily retired prior to his normal retirement age due to a reduction in the Force or
- (b) at the discretion of the Treasury Board, if he is compulsorily retired to promote economy or efficiency.

Note 8

In the case of compulsory retirement because of misconduct, the contributor is entitled to a return of contributions or, in the discretion of the Treasury Board, the whole or any part specified by the Treasury Board of the benefits to which he would have been entitled by reason of his age and length of service if he had been retired because of age or compulsorily retired to promote economy or efficiency. In no case, however, shall the capitalized value of any reduced benefit (based by Regulation on the a(f) and a(m) ultimate mortality table and an interest rate of 4%) be less than the return of contributions.

Note 9

"Annual allowance" payable to a contributor, other than an officer, means an annuity, payable immediately, equal to 75% of the immediate annuity to which he would have been entitled if he had been compulsorily retired due to disability, increased by 5% of such immediate annuity for each full year of service in the Force over 20 years, and less than 25 years.

Note 10

"Annual allowance" in the case of an officer means an annuity payable immediately if he is age 50 or over at retirement and an annuity commencing at age 50 in other cases. The amount of the allowance is the actuarial equivalent of a deferred annuity commencing at age 60 based, as prescribed by Regulation, on the a(f) and a(m) ultimate tables of mortality and an interest rate of 4%.

If a former officer entitled to an annual allowance commencing at age 50, becomes disabled before reaching age 50, his entitlement changes from an annual allowance deferred to age 50 to an immediate annuity.

Note 11

"Eligible children under age 25" includes all children of the contributor under age 18, and any child of the contributor over age 18 and under age 25, unmarried and in full-time attendance at a school or university, having been in such attendance substantially without interruption since he or she reached age 18 or the contributor died, whichever occurred later.

A P P E N D I X 1 (cont'd)

Note 12

"Annual allowances" to widows and children are determined with reference to a basic allowance. The "basic allowance" is equal to 1% of the average annual pay of the deceased contributor in respect of any selected six-year period of his pensionable service multiplied by his number of years of pensionable service not exceeding 35.

A widow is entitled to an "annual allowance" equal to the basic allowance except under the following circumstances:

- (a) if the age of the contributor exceeded that of his widow by twenty or more years the allowance is reduced as prescribed by regulation,
- (b) if the contributor dies within one year after his marriage, no allowance is payable to his widow if the Minister of Justice is not satisfied that the contributor was at the time of his marriage in such a condition of health as to justify him in having an expectation of surviving for at least one year thereafter,
- (c) if a widow remarries, payment of the allowance is suspended but is resumed in the event of the dissolution or annulment of that marriage or the death of her husband by that marriage. In lieu of any further claim to the payment of the allowance, an amount equal to the return of contributions less the total amount of benefit payments made to the contributor and to his widow and children may be paid to the widow at any time before the dissolution or annulment of that marriage or the death of her husband by that marriage, if there is no child of the contributor entitled to an allowance.

The "annual allowance" to an eligible child is equal to 20% of the basic allowance, or if the contributor died leaving no widow or the widow is dead, 40% of the basic allowance provided that the total amount of allowances to children shall not exceed 80% of the basic allowance, or if the contributor died without leaving a widow or the widow is dead, 160% of the basic allowance. Allowances are not payable to children of a widow who is not entitled to an allowance as the result of the death of a contributor within one year of marriage under the circumstances stated in the preceding paragraph.

Note 13

If, upon the death of a contributor, there is no person to whom an allowance provided under the terms of the Act may be paid, or if the persons to whom such allowances may be paid, die or cease to be entitled thereto and no other amount may be paid to them, any amount by which the amount of return of contributions exceeds the aggregate of all amounts paid to those persons and to the contributor is paid to the estate of the contributor.

Note 14

The annual allowances payable to a widow and/or children on the death of a former contributor who has become entitled to an immediate annuity, an annual allowance or a deferred annuity are determined in the same manner and subject to the same conditions described in Note 12.

However, a widow of a person who was over 60 years of age at the time of his marriage and except as provided in the regulations, a child who was born to or adopted by a person or who became the stepchild of a person at a time when that person was over 60 years of age are not entitled to annual allowances unless, after that time, that person became a contributor.

A P P E N D I X 2

Supplementary Retirement Benefits

In 1970, the Supplementary Retirement Benefits Act was passed to provide supplementary benefits for persons in receipt of pensions payable out of the Consolidated Revenue Fund. This Act applies to former contributors to the R.C.M.P. Superannuation Account and their dependants who are entitled to annuities or annual allowances.

The supplementary benefit is calculated by multiplying the amount of the annuity or annual allowance to which the person is entitled from the R.C.M.P. Superannuation Account by the ratio of the Benefit Index for the year of payment to the Benefit Index for the year in which the person to whom or the person in respect of whose service the pension is payable ceased to hold office and subtracting the amount of the annuity or annual allowance. The Benefit Index for the years prior to 1971 are shown in a Schedule in the Act. The Benefit Index for any year after 1970 is equal to the Benefit Index for the preceding year increased in proportion to the increase in the Pension Index as defined in the Canada Pension Plan, as it read on January 1, 1970.

The R.C.M.P. Superannuation Act was amended in 1970, by the addition of Part III, to require that contributors pay 0.5% of their salaries to the Supplementary Retirement Benefits Account in addition to their contributions to the Superannuation Account. The liabilities of the Superannuation Account are not affected by these contributions to or the benefits payable from the Supplementary Retirement Benefits Account.

A P P E N D I X 3

A

<u>Age</u>	<u>Salary Scale</u>	<u>Age</u>	<u>Salary Scale</u>
		40	.768
		41	.777
17	.387	42	.785
18	.412	43	.794
19	.437	44	.802
20	.461	45	.810
21	.484	46	.819
22	.506	47	.827
23	.527	48	.835
24	.547	49	.843
25	.568	50	.852
26	.587	51	.862
27	.605	52	.873
28	.622	53	.885
29	.639	54	.898
30	.655	55	.912
31	.670	56	.928
32	.684	57	.945
33	.697	58	.963
34	.709	59	.981
35	.720	60	1.000
36	.731		
37	.741		
38	.750		
39	.759		

B

Illustration of Increases in Pay
in accordance with the above Salary Scale
for ages of entry 20, 25 and 30

<u>Attained Age</u>	<u>Pay</u>		
	<u>Age at Entry</u>		
	<u>20</u>	<u>25</u>	<u>30</u>
20	1000		
25	1232	1000	
30	1421	1153	1000
35	1562	1268	1099
40	1666	1352	1173
45	1757	1426	1237
50	1848	1500	1301
55	1978	1606	1392
60	2169	1761	1527

A P P E N D I X 4

Rates of Mortality from the Canadian Institute
of Actuaries 1949-52 Ultimate Table of Mortality
assumed for active contributors

<u>Age</u>	<u>Mortality Rate</u>
17	.0009
18	.0010
19	.0010
20	.0011
21	.0011
22	.0011
23	.0011
24	.0011
25	.0011
26	.0010
27	.0010
28	.0010
29	.0010
30	.0010
31	.0010
32	.0010
33	.0011
34	.0012
35	.0013
36	.0014
37	.0016
38	.0018
39	.0020
40	.0023
41	.0026
42	.0030
43	.0034
44	.0038
45	.0042
46	.0046
47	.0051
48	.0056
49	.0061
50	.0067
51	.0074
52	.0081
53	.0088
54	.0096
55	.0106
56	.0117
57	.0130
58	.0145
59	.0162

A P P E N D I X 5

Rates of Mortality from a-1949 Table of
Mortality assumed for former
contributors entitled to annuities or
annual allowances

and
Annuity Values based on this table

Age	<u>A</u> Mortality Rates	<u>B</u> Value of Annuity of \$1.00 per annum (interest at 4% per annum)
40	.0020	\$18.232
41	.0022	17.979
42	.0025	17.718
43	.0028	17.452
44	.0032	17.179
45	.0036	16.902
46	.0041	16.620
47	.0047	16.334
48	.0053	16.045
49	.0059	15.752
50	.0066	15.456
51	.0073	15.156
52	.0080	14.854
53	.0088	14.550
54	.0097	14.242
55	.0106	13.931
56	.0115	13.618
57	.0125	13.301
58	.0135	12.981
59	.0145	12.658
60	.0157	12.331
61	.0169	11.999
62	.0182	11.665
63	.0197	11.326
64	.0213	10.985
65	.0231	10.642
66	.0250	10.297
67	.0272	9.950
68	.0296	9.603
69	.0322	9.256
70	.0351	8.909
71	.0383	8.563
72	.0418	8.219
73	.0456	7.878
74	.0499	7.540
75	.0545	7.206
76	.0596	6.876
77	.0652	6.551
78	.0714	6.232
79	.0781	5.920
80	.0855	5.614
81	.0936	5.316
82	.1024	5.026
83	.1121	4.744
84	.1227	4.471
85	.1342	4.208
86	.1467	3.954
87	.1603	3.709
88	.1751	3.475
89	.1912	3.251
90	.2085	3.037

A P P E N D I X 6

A

Rates of Remarriage for Widows

<u>Age at Becoming a Widow</u>	<u>Years of Widowhood</u>				<u>Ultimate Rates</u>	
	<u>1st yr.</u>	<u>3rd yr.</u>	<u>5th yr.</u>	<u>10th yr.</u>	<u>Attained Age</u>	<u>Rate</u>
25	.050	.148	.132	.060	39	.028
30	.029	.086	.076	.035	44	.016
35	.018	.048	.042	.019	49	.009
40	.011	.027	.023	.010	54	.004
45	.006	.015	.012	.005	59	.002
50	.004	.008	.006	.002	64	.001
55	.002	.004	.003	.001	69	0

B

Rates of Mortality for Widows

<u>Attained Age</u>	<u>Rate</u>	<u>Attained Age</u>	<u>Rate</u>
39	.0022	69	.0232
44	.0026	74	.0367
49	.0033	79	.0559
54	.0050	84	.0822
59	.0083	89	.1180
64	.0141		

C

Value of Annuity of \$1.00 per annum
payable to death or remarriage of widow
(interest at 4% per annum)

<u>Age at Widowhood</u>	<u>Year of Widowhood</u>				<u>Ultimate</u>	
	<u>1st yr.</u>	<u>3rd yr.</u>	<u>5th yr.</u>	<u>10th yr.</u>	<u>Attained Age</u>	<u>Annuity Value</u>
25	\$ 8.393	\$ 8.687	\$10.453	\$14,731	39	\$16.465
30	11.992	12.306	13.644	16.232	44	16.854
35	14.821	14.954	15.692	16.759	49	16.423
40	16.326	16.249	16.494	16.407	54	15.429
45	16.717	16.421	16.279	15.414	59	14.013
50	16.209	15.757	15.349	14.013	64	12.386
55	15.142	14.553	13.977	12.386	69	10.681
					74	9.008
					79	7.447
					84	6.040
					89	4.789

APPENDIX 7

Rates of Retirement with entitlement to

<u>Age at Retirement</u>	<u>A</u> an immediate annuity, reduced annuity or annual allowance for reasons other than disability	<u>B</u> a lump sum or deferred annuity for reasons other than disability	<u>C</u> a lump sum or an immediate annuity because of disability
17		.0751	.0200
18		.0732	.0200
19		.0702	.0200
20		.0661	.0100
21		.0608	.0050
22		.0543	.0030
23		.0469	.0015
24		.0391	.0008
25		.0316	.0005
26		.0255	.0004
27		.0212	.0003
28		.0183	.0003
29		.0165	.0003
30		.0154	.0004
31		.0147	.0004
32		.0142	.0004
33		.0138	.0004
34		.0135	.0005
35		.0132	.0005
36		.0128	.0006
37		.0125	.0006
38		.0121	.0007
39		.0116	.0008
40	.001	.0110	.0009
41	.003	.0104	.0010
42	.005	.0097	.0011
43	.007	.0089	.0013
44	.010	.0080	.0015
45	.013	.0070	.0017
46	.016	.0058	.0020
47	.018	.0045	.0024
48	.020	.0032	.0029
49	.022	.0017	.0035
50	.024		.0042
51	.026		.0050
52	.028		.0059
53	.030		.0070
54	.060		.0082
55	.110		.0095
56	.250		.0109
57	.300		.0124
58	.400		.0140
59	.500		.0157
60	1.000		

A P P E N D I X 8

Age of Contributor at Death	<u>A</u>		<u>B</u>		<u>C</u>	
	Proportion of Deceased Contributors Leaving Widows		Average Age of Widows at Contributor's Death		Values of Children's Benefits per \$1.00 "earned" annuity of Contributor at death	
	Members of Force at Death	Retired Prior to Death	Members of Force at Death	Retired Prior to Death	Members of Force at Death	Retired Prior to Death
25	.50	.32	24	24	\$1.62	\$0.58
30	.87	.46	28	29	1.68	.83
35	.93	.58	32	34	1.63	.99
40	.94	.67	37	38	1.42	.98
45	.98	.75	42	43	1.03	.76
50	.98	.80	47	47	.62	.48
55	.98	.83	51	52	.32	.24
60	.98	.83	56	56	.14	.11
65		.80		61		.04
70		.74		65		.01
75		.65		69		
80		.53		73		
85		.39		77		
90		.26		79		

APPENDIX 9

Age Distribution of members of the Force who became contributors during the period from January 1, 1965 to December 31, 1969

<u>Age at becoming a Contributor</u>	<u>Number</u>	
	<u>Males</u>	<u>Females</u>
18	6	3
19	1029	3
20	1382	13
21	909	13
22	425	19
23	179	15
24	98	12
25	81	5
26	56	7
27	36	3
28	28	2
29	31	4
30	20	3
31	18	5
32	13	3
33	8	3
34	13	3
35	13	1
36	6	1
37	5	1
38	5	3
39	7	-
40	6	4
41	4	3
42	5	4
43	10	4
44	5	4
45	2	6
46	4	2
47	1	5
48	1	3
49	2	3
50	6	2
51	1	-
52	-	1
53	-	2
54	-	1
55	1	-
61	1	-
	<u>4417</u>	<u>166</u>