



DEPARTMENT OF INSURANCE
OTTAWA, CANADA

ROYAL CANADIAN MOUNTED POLICE ACT - Part V

Report on an Actuarial Valuation of the Royal Canadian Mounted Police Pension Account (Part V) in the Consolidated Revenue Fund for the period from March 1, 1949 to December 31, 1954

In accordance with instructions, we have completed an actuarial valuation of the Royal Canadian Mounted Police Pension Account in the Consolidated Revenue Fund and have the honour to report thereon. This account relates to the pension scheme established by Part V of the R.C.M.P. Act. Parts II, III and IV of the Act deal with other pension schemes but these are now closed to new entrants and are not dealt with in this Report.

TERMS OF THE PENSION SCHEME UNDER PART V OF THE ACT

Benefits:

The statutory benefits provided under Part V of the Act may be described briefly as follows:

- (1) An annual pension on compulsory retirement for any reason other than misconduct or inefficiency after 20 years of service in the Force.
- (2) An annual retiring allowance equal to $\frac{2}{3}$ of annual pension until age 65 and thereafter to full annual pension, on compulsory retirement to promote economy or efficiency, otherwise than by reason of the contributor's misconduct or inefficiency in the performance of his duties, if the contributor has completed between ten and twenty years of service in the Force.
- (3) A gratuity not exceeding one month's pay for each year of service on compulsory retirement to promote economy and efficiency if the contributor has served in the Force less than ten years.
- (4) An annual pension to a contributor other than an officer on voluntary retirement after 25 years of service in the Force if retirement occurs at the end of a period of engagement.
- (5) Three-quarters of annual pension to a contributor other than an officer on voluntary retirement after 20 years of service in the Force if retirement occurs at the end of a period of engagement. An additional $\frac{1}{20}$ of annual pension will be granted for each year of service in excess of 20 but not in excess of 25.
- (6) An annual retiring allowance equal to $\frac{1}{2}$ of annual pension until age 65 and thereafter to $\frac{2}{3}$ of annual pension on compulsory retirement for inefficiency after ten years of service in the Force.

(7) Annual pension on the occurrence of disability after 10 years of service in the Force.

(8) A gratuity not exceeding one month's pay for each year of service on the occurrence of disability if the contributor has less than ten years of service in the Force.

(9) A withdrawal allowance equal to a refund of the contributor's contributions without interest on voluntary retirement or on dismissal or removal, at any time, if such event occurs for any reason other than one of those enumerated in (1) to (8).

(10) An annual allowance payable to a widow until death or remarriage equal to $\frac{1}{2}$ of the contributor's annual pension plus an annual allowance payable to each child until the attainment of age 18 equal to $\frac{1}{5}$ of the widow's allowance, on death of a contributor after 10 years of service in the Force, if the contributor dies while a member of the Force or while in receipt of a pension. A child's allowance may not exceed \$300 per annum, unless the child is an orphan in which case the child's allowance may be doubled, but may not exceed \$600 per annum. Aggregate children's allowances may not exceed 50% of the contributor's pension and combined widow's and children's allowances may not exceed 75% of the contributor's pension.

(11) A gratuity not exceeding one month's pay for each year of service payable either to the widow, or to the children under age 18 (if no widow), on death of a contributor with less than 10 years of service in the Force.

(12) A gratuity not exceeding the contributor's contributions without interest payable on death in the Force to the dependents or legal representatives of the contributor if the contributor leaves no widow or children to whom an allowance may be granted under (10) or (11) above.

(13) A gratuity equal to the excess of the contributor's contributions without interest over the sum of the benefit payments received by the contributor, by his widow, and by his children, payable to the dependent children of the contributor, if the contributor dies while in receipt of a pension.

Annual pension in the above description means 2% of average pay during the last six years of service multiplied by the number of years of service, not exceeding however 35 years in all. Pensions are payable monthly for life unless otherwise stipulated.

No allowance is payable to the widow or children if the contributor was over age 60 at the time of his marriage.

If a contributor marries and his age exceeds that of his wife by more than 20 years, the widow's allowance, if payable, will be reduced to such amount that its capitalized value will equal the capitalized value that the widow's allowance before reduction would have if the wife were exactly 20 years younger than the contributor.

In addition to the statutory benefits described above, certain discretionary benefits may be granted under section 101. However, although 826 contributors were granted benefits under Part V during the first six years of its operation, only two of these 826 contributors were awarded discretionary benefits under section 101. Therefore, in the actuarial valuation as of December 31, 1954, the provisions of section 101 were ignored and all contributors were treated as if they would be entitled only to statutory benefits.

Contributions

(a) Current Service

Contributions are required from members of the Force covered by Part V at the rate of 6% of pay. The Act contains provision for slightly lower contributions for very low rates of pay but at the present time there are no contributors in these lower categories.

No contributions are required in respect of a period of service in excess of 35 years.

(b) Prior Service

(i) Under Section 96

Section 96 provides that any contributor may, within one year after he becomes a contributor, elect to contribute under Part V in respect of the whole or any part of his service prior to becoming a contributor for which he has not contributed under Part V or Parts II or III or the Civil Service Superannuation Act or the Defence Services Pension Act. Prior service contributions under section 96 may be made in a lump sum or in instalments commencing on the date of election and payable for life, or for a period of years or life whichever is the shorter.

(ii) Under Section 99(2)

This section provides that, where a person who has elected to become a contributor under Part V has service in the Force that could be counted as service for the purpose of a pension under any other Part of the R.C.M.P. Act for which he was not required to make any contribution, the whole of the said service may be counted for the purpose of computing any pension, allowance, or gratuity under Part V but an amount equal to 5% of the aggregate pay received by him during such service shall be deducted from the gratuity, if any, or shall be commuted on such basis as may be prescribed by regulation, into an annuity in respect of his life commencing at the age when the pension or retiring allowance becomes payable and the amount of the annual payment of such annuity shall be deducted from the payments of pension or retiring allowance.

GOVERNMENT CONTRIBUTIONS

The obligation of the government is to pay the benefits provided by Part V of the R.C.M.P. Act. Although there is no legal requirement that the government make contributions to the R.C.M.P. Pension Account during each contributor's period of active service, the government has been doing so, in accordance with good administrative procedure in the funding of a pension programme. Since the inception of Part V of the R.C.M.P. Act, the government has been contributing 1 2/3 times the aggregate current service contributions and prior service contributions paid by the contributors. The government contribution has thus been at the rate of 10% of pay.

DATA

The Pay and Pensions Division of the Treasury Office of the R.C.M.P. Headquarters supplied a ledger sheet for each contributor who had been covered under Part V at any time between March 1, 1949, and February 28, 1955. These ledger sheets

ned sufficient information for an analysis of the experience under Part V during the first six years of its operation. After this analysis had been completed, only those ledger sheets for contributors covered under Part V on December 31, 1954, were used in the actuarial valuation.

The movement of the membership in Part V between its inception on March 1, 1949, and December 31, 1954, is shown in the following table:

New entrants

(a) Regular	2914	
(b) From British Columbia	434	
(c) From Newfoundland	<u>84</u>	3432

Terminations

(a) Death in force	18	
(b) Misconduct	70	
(c) Inefficiency	12	
(d) Compulsory retirement	138	
(e) Disability	21	
(f) Voluntary retirement, time expired	31	
(g) Voluntary retirement, purchase	<u>536</u>	<u>826</u>

Active contributors on December 31, 1954 2606

For the valuation of pensions in the course of payment on December 31, 1954, the Pay and Pensions Division of the Treasury Office of the R. C. M. P. Headquarters provided the individual pension cards.

The movement in the pension records between the inception of Part V on March 1, 1949, and December 31, 1954, is shown in the following table:

A. Contributors

Pensions or retiring allowances

(i) granted for disability	3	
(ii) granted for other reasons	<u>29</u>	32
(iii) ceased by death		1
(iv) in course of payment at Dec.31,1954		31

B. Widows

(i) allowances granted		
(a) on death in the Force	8	
(b) on death of retired contributor	<u>1</u>	9
(ii) in course of payment at Dec.31,1954		9

C. Children

(i) allowances granted		
(a) on death in the Force		9
(ii) in course of payment at Dec.31,1954		9

VALUATION BASES

(1) Interest

The regulations made under the Act provide that interest shall be credited to the Royal Canadian Mounted Police Pension Account at the rate of 4% per annum. The actuarial valuation was therefore based on this interest rate.

(2) Rates of Increase in Pay

The amount of pension to be granted on retirement, on the occurrence of disability, or on death will be based on the contributor's average pay during the last six years of his service. Also, the contributions to be paid both by the contributors and by the government will depend upon the pay to be received by the contributors from year to year in the future. Hence it is essential to determine the rates at which the pay of the contributors will, on the average, increase from age to age in the future. This was done from information with respect to pay being received on the valuation date by members of the R.C.M.P. and from information relating to the general pay scale and promotion policy in effect. The resulting salary scale is shown in Appendix A.

It should be noted that the salary scale is intended to show how pay will increase from age to age for present and future contributors under Part V, providing there are no changes in the general pay scale applicable to the various ranks. Any upward revision in the general pay scale will have the effect of increasing the total liability for benefits under Part V. It is suggested that it would be better to study the financial effects on Part V of such an upward revision in the general pay scale at the time it may go into effect, instead of trying to allow in the salary scale for future increases in pay that may arise both from increased age and seniority and from changes in the general pay scale.

(3) Mortality

For valuation purposes, the mortality to be experienced in the future is required for each of the following groups:

- (a) active contributors
- (b) contributors retired because of age
- (c) contributors retired because of disability
- (d) widows of contributors and of pensioners
- (e) children of contributors and of pensioners

The mortality bases used in the valuation are described in the following paragraphs.

(a) Active Contributors

After several mortality tables had been tested, the mortality rates from the 1949-1952 Canadian Inter-company Table - Ultimate Experience were used to represent the mortality of active contributors. These mortality rates are shown in the table in Appendix B.

(b) Contributors retired because of age

The Mortality of Annuitants, 1900-1920, $\alpha(m)$, with the age rated down 3 years was used to represent the mortality after retirement of contributors who may retire because of age in the future. The same table with the age rated down 2 years was used to value pensions in the course of payment on the valuation date. A more stringent mortality assumption was used for pensions that will fall in for payment in the future than for pensions now in the course of payment because many studies of pensioners' mortality indicate a secular trend towards lower mortality rates for pensioners. In the light of other mortality experience on pensioners, it was considered that these assumptions would be appropriate for the group covered under Part V.

These mortality rates are shown in the table in Appendix C.

(c) Contributors retired because of disability

Mortality rates derived from the experience of disability pensioners under the Civil Service Superannuation Act were chosen as the mortality basis for contributors retired under Part V for disability. In general, a higher standard of physical fitness is probably required to carry out the duties of the R.C.M.P. than is needed in the Civil Service. Hence, one might expect contributors retired under Part V because of disability to experience lower mortality than that experienced by disability pensioners under the Civil Service Superannuation Act. However, there was no experience available under Part V on which to base a choice of mortality rates for contributors retired because of disability. It therefore seemed reasonable to use the mortality basis described above at least until experience under Part V indicates that some other basis should be used.

A table of these mortality rates is shown in Appendix D.

(d) Widows of contributors and of pensioners

Widows' pensions terminate either on death or on remarriage. The Mortality of Annuitants, 1900-1920, $\alpha(f)$, with the age rated down 3 years was chosen as the mortality basis for widows' pensions that may become payable in the future. The same mortality table with the age rated down 2 years was used to value widows' pensions in the course of payment on the valuation date. A table of these mortality rates is shown in Appendix E.

For remarriage, the ultimate rates of remarriage of widows derived in the course of the most recent actuarial valuation of the Civil Service Superannuation Account were used for ages up to and including age 54. Above age 54, the rate of remarriage was assumed to be zero. A table of these remarriage rates is shown in Appendix F.

(e) Children of contributors and of pensioners

The mortality of children under age 18 has been so low in recent years that it was deemed sufficiently accurate to ignore mortality altogether.

(4) Probability of retiring because of disability

It was impossible to derive a table of probabilities of disability from the experience under Part V because so few members had retired for disability during the first six years. Instead, 125% of the probabilities derived in the course of the most recent actuarial valuation of the Civil Service Superannuation Account were adopted for the Part V valuation. It seems reasonable to expect that the chance of retirement for disability will be higher in the R.C.M.P. than in the Civil Service. The resulting schedule of probabilities was tested by comparing the number of disability retirements that would have been produced by such probabilities during the first six years of operation of Part V with the number of disability retirements that actually occurred. This test yielded 18 disability retirements on the basis of the schedule of probabilities as compared with 19 actual disability retirements.

The table of probabilities of disability used in the valuation is shown in Appendix G.

(5) Probability of withdrawing from the Force

Withdrawals from the Force were deemed to consist of all terminations for misconduct, all terminations for inefficiency, all compulsory retirements with less than 10 years of service, all voluntary retirements time expired with less than 20 years of service, and all voluntary retirements where retirement was purchased. All of the terminations described in the preceding sentence involved a withdrawal allowance equal to the contributor's total contributions without interest, except a negligible number that involved a gratuity of one month's pay for each year of service.

Probabilities of withdrawal were derived from the experience during the first six years of operation of Part V.

A table of withdrawal probabilities is shown in Appendix H.

(6) Probability of retiring because of age

A table of the probabilities of retirement because of age is shown in Appendix I.

Retirements because of age were deemed to include all compulsory retirements after ten years of service and all voluntary retirements, time expired, after 20 years of service.

The R.C.M.P. has a firm policy of retiring a man on the earlier date of (a) completion of 35 years of service, or (b) attainment of age 56 for constables and corporals, or ages 57-58 for sergeants of all kinds. For a constable or a non-commissioned officer who has attained one of the above ages, service may be extended for a few years if such extension is needed to enable the contributor to qualify for a pension. As far as officers are concerned, R.C.M.P. regulations provide that the Commissioner will retire at 62, the Deputy Commissioner age 61, and all other officers at 60. Officers may be granted a year to year extension to age 65.

Reference to Appendix I will reveal that it was assumed that all contributors under Part V would be retired by the time they reach age 60. It should be realized that this assumption is applied to all the contributors under Part V and is intended to represent what will happen to them on the average. Therefore, this assumption is not inconsistent with the fact that a few contributors may not be retired by the time they reach age 60.

er probabilities required for the valuation

The proportion of contributors married, and for married contributors the average age of wife, average number of children, and average age of children were developed by attained age of contributor from an analysis of the Part V data.

A table of these factors is shown in Appendix J.

STATUS OF R.C.M.P. PENSION ACCOUNT AS AT DECEMBER 31, 1954

The following valuation balance sheet shows the financial status of the R.C.M.P. Pension Account as at December 31, 1954, assuming that the government will continue its regular contributions at the level that has been in effect since the inception of Part V:

R.C.M.P. Pension Account

Valuation Balance Sheet as at December 31, 1954

<u>ASSETS</u>	<u>LIABILITIES</u>
Amount in fund.....\$6,530,000.	Present value of prospective benefits to active members.....\$22,758,000.
Accrued government contribution for period 1-4-54 to 31-12-54... 645,000.	Present value of pensions in course of payment:
Accrued interest on fund for period 1-4-54 to 31-12-54..... 170,000.	(i) to members..... 948,000.
Present value of future contributions from contributors:	(ii) to widows & children 103,000.
A. Current service..... 5,432,000.	
B. Prior service	
(i) under 96(3)..... 126,000.	
(ii) under 99(2)..... 57,000.	
(iii) from pensioners..... 7,000.	
Present value of future contributions from government (at 10% of pay)..... 9,370,000.	
Present value of future payments to be received from Newfoundland..... 283,000.	
Actuarial deficit..... <u>1,189,000.</u>	
\$23,809,000.	<u>\$23,809,000.</u>

The above valuation balance sheet reveals an actuarial deficit of \$1,189,000. Although minor gains and losses from other sources play a small part in the explanation of this deficit, the important items to be considered are the level of the government's contributions and the effects of the three increases in the general pay scale in 1950, 1951, and 1953. We have established that the three increases in the general pay scale gave rise to deficits whose total accumulated value at December 31, 1954, would be some \$2,000,000. On the other hand, were it not for the effects of increases in the general pay scale, a government contribution of 10% of pay (together with a contribution of 6% of pay from those covered by the scheme) is, on the average, more than sufficient to provide the benefits, if paid from date of entry. For the present contributors, a government contribution of 9% of pay would be enough for that purpose and for contributors who may enter Part V in the future 7½% of pay would be enough, on the average. The rate of contribution required from the government is higher for present contributors than it will be for future contributors, on the average, because analysis indicates that the average age at entry of future contributors will be about 3 years less than the average age at entry of present contributors. This is due in large part to the recent absorption of the provincial police forces of British Columbia and Newfoundland. The fact that the actuarial deficit of \$1,189,000 is less than the cost to the fund arising from the three increases in general pay scale can be accounted for mainly by the combined effect of the gains realized since the inception of Part V from the excess of the government's rate of contribution over the amount normally required, and the present value of this excess in the future. If the government contribution for the future were changed to 9% of pay, the corresponding asset in the above balance sheet would be changed from \$9,370,000 to \$8,433,000. and the deficit would be increased from \$1,189,000 to \$2,126,000. The latter represents very nearly the cost of the three general increases in pay.

There appear to be three possible courses of action to be taken with respect to the financing of Part V, as follows:

1. Continue the present rate of contribution and make no special payment to liquidate the deficit.

This course would mean that as respects the present contributors and pensioners the amount credited to the account together with future contributions by and on their behalf would fall short of providing the benefits. However, as respects new recruits, contributions at the present rates are more than sufficient to provide for the benefits. Thus as existing contributors are replaced by new recruits, excess contributions would become available to apply against the deficit. Given normal recruiting intake and no increases in the general pay scale, the deficit might be reduced in this fashion by some \$300,000 during the next 5 years, and would ultimately be eliminated and a subsequent reduction in the rate of contribution would be possible.

2. Continue the present rate of contribution and make a special contribution of \$1,189,000. to liquidate the deficit.

This course would mean that the amount credited to the Account together with future contributions would be just sufficient, under normal conditions, to provide the benefits as respects the present contributors and pensioners. However, the present rate of contribution would be excessive as respects new recruits and, as the existing contributors are replaced by new recruits, a surplus would develop in the Account. Contributions could subsequently be reduced.

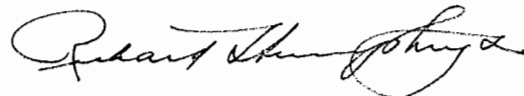
Reduce the government's rate of contribution to 9% of pay and make a special contribution of \$2,126,000 to liquidate the deficit.

This course would have the same results as the preceding one but the surplus arising from new recruits would build up less rapidly. The regular contribution rate would be the rate appropriate for the existing contributors, and to that extent, the picture presented would be more closely in accord with the facts than under either of the other courses.

Purely from the view-point of financing the pension scheme, the third course is probably to be preferred; however, for practical reasons, the first course might well be considered the best. Any one of the three courses would be satisfactory.

In conclusion, we should like to acknowledge the able co-operation that we have received from the Pay and Pensions Division of the Treasury office of R.C.M.P. Headquarters.

Respectfully submitted,



Chief Actuary.

Department of Insurance,
November 18, 1955.

APPENDIX A

Salary Scale

<u>Age</u>	<u>Annual Rate of Pay</u>	<u>Age</u>	<u>Annual Rate of Pay</u>
18	\$2436.	40	\$3987.
19	2500.	41	4040.
		42	4090.
20	2577.	43	4142.
21	2670.	44	4194.
22	2780.		
23	2889.	45	4246.
24	2994.	46	4299.
		47	4352.
25	3089.	48	4406.
26	3177.	49	4461.
27	3260.		
28	3333.	50	4516.
29	3401.	51	4572.
		52	4628.
30	3459.	53	4684.
31	3517.	54	4739.
32	3572.		
33	3626.	55	4795.
34	3680.	56	4851.
		57	4905.
35	3732.	58	4958.
36	3784.	59	5014.
37	3835.		
38	3885.	60	5068.
39	3936.		

APPENDIX B

Probabilities of active contributors dying while covered under
Part V

<u>Age</u>	<u>Probability of death</u>	<u>Age</u>	<u>Probability of death</u>
18	.0010	40	.0023
19	.0010	41	.0026
		42	.0030
20	.0011	43	.0034
21	.0011	44	.0038
22	.0011		
23	.0011	45	.0042
24	.0011	46	.0046
		47	.0051
25	.0011	48	.0056
26	.0010	49	.0061
27	.0010		
28	.0010	50	.0067
29	.0010	51	.0074
		52	.0081
30	.0010	53	.0088
31	.0010	54	.0096
32	.0010		
33	.0011	55	.0106
34	.0012	56	.0117
		57	.0130
35	.0013	58	.0145
36	.0014	59	.0162
37	.0016		
38	.0018	60	.0180
39	.0020		

APPENDIX C

Mortality rates for contributors retired because of age

<u>Age</u>	<u>(a) for contributors already retired on the valuation date</u>	<u>(b) for contributors who may retire in the future</u>
41	.00641	.00618
42	.00665	.00641
43	.00689	.00665
44	.00714	.00689
45	.00740	.00714
46	.00767	.00740
47	.00795	.00767
48	.00825	.00795
49	.00857	.00825
50	.00891	.00857
51	.00928	.00891
52	.00970	.00928
53	.01040	.00970
54	.01122	.01040
55	.01213	.01122
56	.01311	.01213
57	.01415	.01311
58	.01529	.01415
59	.01651	.01529
60	.01781	.01651
61	.01925	.01781
62	.02078	.01925
63	.02245	.02078
64	.02422	.02245
65	.02615	.02422
66	.02824	.02615
67	.03047	.02824
68	.03290	.03047
69	.03550	.03290
70	.03832	.03550
75	.05685	.05217
80	.09197	.08378
85	.13690	.12697
90	.19795	.18409
95	.28144	.26276
100	.39055	.36664
105	.52382	.49556

APPENDIX D

Mortality rates of contributors retired because of disability

<u>Age</u>	<u>Mortality rate</u>	<u>Age</u>	<u>Mortality rate</u>
28	.02900	45	.02450
29	.02764	46	.02517
		47	.02592
30	.02660	48	.02676
31	.02576	49	.02771
32	.02498		
33	.02422	50	.02875
34	.02357	51	.02979
		52	.03080
35	.02320	53	.03178
36	.02302	54	.03273
37	.02294		
38	.02292	55	.03366
39	.02292	56	.03455
		57	.03547
40	.02295	58	.03641
41	.02303	59	.03739
42	.02320		
43	.02350	60	.03842
44	.02394		

APPENDIX E

Mortality rates for widows

<u>Age</u>	<u>(a) for widows drawing allowances on the valuation date</u>	<u>(b) for widows who may draw allowances in the future</u>
30	.00370	.00353
35	.00461	.00442
40	.00562	.00541
45	.00673	.00650
50	.00794	.00769
55	.00928	.00899
60	.01154	.01097
65	.01565	.01461
70	.02317	.02130
75	.03688	.03346
80	.06160	.05544
85	.10686	.09546
90	.17311	.15851
95	.25785	.23929
100	.36296	.34032
105	.48650	.46056

APPENDIX F

Rates of remarriage of widows

<u>Age</u>	<u>Rate of Remarriage</u>	<u>Age</u>	<u>Rate of Remarriage</u>
28	.0257	40	.0114
29	.0242	41	.0106
		42	.0097
30	.0228	43	.0088
31	.0214	44	.0080
32	.0201		
33	.0188	45	.0072
34	.0176	46	.0064
		47	.0056
35	.0164	48	.0049
36	.0153	49	.0042
37	.0142		
38	.0132	50	.0036
39	.0123	51	.0031
		52	.0027
		53	.0023
		54	.0020
		55	.000

APPENDIX G

Probability of a contributor retiring on account of disability

<u>Age</u>	<u>Probability of disability</u>	<u>Age</u>	<u>Probability of disability</u>
18	.0009	40	.0034
19	.0009	41	.0036
		42	.0040
20	.0010	43	.0044
21	.0010	44	.0049
22	.0010		
23	.0010	45	.0054
24	.0011	46	.0059
		47	.0064
25	.0011	48	.0071
26	.0011	49	.0079
27	.0013		
28	.0013	50	.0086
29	.0014	51	.0096
		52	.0108
30	.0015	53	.0120
31	.0016	54	.0136
32	.0018		
33	.0019	55	.0155
34	.0020	56	.0179
		57	.0210
35	.0021	58	.0249
36	.0024	59	.0300
37	.0025		
38	.0028	60	.0365
39	.0030		

APPENDIX H

Probability of a contributor withdrawing from the Force

<u>Age</u>	<u>Probability of withdrawal</u>
18	.0928
19	.0924
20	.0918
21	.0909
22	.0897
23	.0882
24	.0864
25	.0841
26	.0812
27	.0778
28	.0738
29	.0691
30	.0638
31	.0580
32	.0519
33	.0453
34	.0387
35	.0324
36	.0263
37	.0206
38	.0151
39	.0104
40	.0069
41	.0046
42	.0030
43	.0017
44	.0008
45	.0000

APPENDIX I

Probability of a contributor retiring because of age

<u>Age</u>	<u>Probability of Retiring</u>
40	.000
41	.001
42	.002
43	.003
44	.004
45	.006
46	.008
47	.012
48	.016
49	.020
50	.026
51	.032
52	.039
53	.047
54	.057
55	.068
56	.081
57	.094
58	.110
59	.128
60	1.000

APPENDIX J

<u>Age</u>	<u>Proportion of contributors married</u>	<u>Average age of wife</u>	<u>Average number of children *</u>	<u>Average age of children **</u>
20	.000	--	--	--
25	.197	24	1	2
30	.625	28	1	4
35	.927	32	2	6
40	.930	37	2	9
45	.930	41	2	10
50	.930	46	1	11
55	.930	50	1	12
60	.930	54	0	--

* This column represents the average number of children under age 18; hence the decrease in the figures for members over age 45.

** This column represents the average age of children under age 18.