# COMPARATIVE TABLE GIVING DIFFERENTIALS AND EQUIVALENTS OF VARIOUS SIMPLE AND COMPOUND INTEREST RATES COMPUTED ON $\$ 100.00$ FOR VARYING PERIODS OF TIME. 

(Abbreviations "C" Compound-"S" Simple-"Diff." Differentials)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Prin. Sum } \\ & \$ 100.00 \end{aligned}$ | 4 yrs. <br> Int. | 6 yrs . <br> Int. | 8 yrs. Int. | 10 yrs . Int. | $\begin{gathered} 12 \mathrm{yrs} . \\ \text { Int. } \end{gathered}$ | 16 yrs. Int. | 20 yrs . Int. | Equivalent in S. Int. for 20 yrs. |
| 6\% Simple Interest | 24.00 | 36.00 | 48.00 | 60.00 | 72.00 | 96.00 | 120.00 | 6\% |
| $5 \%$ c. | 21.84 | 34.49 | 48.45 | 63.86 | 80.87 | 120.38 | 168.50 | $8.42 \% \mathrm{~s}$. |
| $5 \%$ s. | 20.00 | 30.00 | 40.00 | 50.00 | 60.00 | 80.00 | 100.00 | 5\% |
| Diff. | 1.84 | 4.49 | 8.45 | 13.86 | 20.87 | 40.38 | 68.50 | 3.42\% diff. |
| $5 \frac{1}{2} \% \mathrm{c}$. | 24.24 | 38.48 | 54.35 | 72.04 | 91.76 | 138.24 | 195.99 | $9.79 \% \mathrm{~s}$. |
| $5 \frac{1}{2} \% \mathrm{~s}$. | 22.00 | 33.00 | 44.00 | 55.00 | 66.00 | 88.00 | 110.00 | $5 \frac{1}{2} \%$ |
| Diff. | 2.24 | 5.48 | 10.35 | 17.04 | 25.76 | 50.25 | 85.99 | 4.29\% diff. |
| $6 \%$ c. | 26.68 | 42.58 | 60.47 | 80.61 | 103.28 | 157.51 | 226.20 | $11.31 \%$ s. |
| 6\% s. | 24.00 | 36.00 | 48.00 | 60.00 | 72.00 | 96.00 | 120.00 | 6\% |
| Diff. | 2.68 | 6.58 | 12.47 | 20.61 | 31.28 | 61.51 | 106.20 | $5.31 \%$ diff. |
| $6 \frac{1}{2} \%$ c. | 29.16 | 46.79 | 66.82 | 89.58 | 115.46 | 178.28 | 259.42 | $12.97 \%$ s. |
| $6 \frac{1}{2} \%$ s. | 26.00 | 39.00 | 52.00 | 65.00 | 78.00 | 104.00 | 130.00 | $6 \frac{1}{2} \%$ |
| Diff. | 3.16 | 7.79 | 14.82 | 24.58 | 37.46 | 74.28 | 129.42 | $6.47 \%$ diff. |
| $7 \%$ c. | 31.68 | 51.11 | 73.40 | 98.98 | 128.33 | 200.67 | 295.93 | $14.79 \% \mathrm{~s}$. |
| 7\% s. | 28.00 | 42.00 | 56.00 | 70.00 | 84.00 | 112.00 | 140.00 | $7 \%$ |
| Diff. | 3.68 | 9.11 | 17.40 | 28.98 | 44.33 | 88.67 | 155.93 | $7.79 \%$ diff. |
| 7\% c. | 31.68 | 51.11 | 73.40 | 98.98 | 128.33 | 200.67 | 295.93 | 14.79\% s. |
| $6 \% \mathrm{~s}$. | 24.00 | 36.00 | 48.00 | 60.00 | 72.00 | 96.00 | 120.00 | 6\% |
| Diff. | 7.68 | 15.11 | 25.40 | 38.98 | 56.33 | 104.67 | 175.93 | 8.79\% diff. |

The above table shows the accumulated interest charges or earnings on $\$ 100.00$ when compounded semi-annually at various rates of $5 \%, 5 \frac{1}{2} \%, 6 \%, 6 \frac{1}{2} \%$ and $7 \%$ for periods of $4,6,8,10,12,16$ and 20 years, respectively, and the corresponding charges or earnings of simple interest at the same rates and for the same periods of years, respectively. Column No. 9 of the table shows what the rates or percentages of simple interest would be (if and when paid at the end of the 20 year periods, as would be necessary, for instance, when paying interest on refund claims for the same period of time) in order to equal in ultimate cost the total amounts of compound interest as shown in Column No. 8.

This computation is based on the assumption that where interest is payable and is paid semi-annually, as it is on all Dominion Loans, Bonds and Guaranteed Securities, it is equivalent to the ultimate cost and payment of compound interest, as shown in the table, and, therefore, equals in ultimate cost to the Crown, or whoever has to pay it, the seemingly higher rates or percentages of simple interest. This is illustrated in the table (for 20 year periods only) by translating or converting the total cost or amounts of compound interest at the several rates as shown in Column No. 8 into terms or percentages of simple interest, as shown in Column No. 9.

The purpose of this table is to show at a glance an accurate comparison as between the payment and ultimate cost to the Crown of $6 \%$ per annum simple interest, if and when paid on refund claims of long standing, and the payment and ultimate cost to the Crown of the various rates of interest ranging from $5 \%$ to $7 \%$ now payable and paid semi-annually on Government Loans, Bonds and Guaranteed Securities, which is, as shown in the table, the equivalent in ultimate cost to the Crown, or whoever has to pay it, of compound interest in all cases, as shown in Column No. 8.

It will be observed that $6 \%$ interest compounded semi-annually on $\$ 100.00$ for 20 years amounts to $\$ 226.20$ and is, therefore, equivalent to $11.31 \%$ simple interest on $\$ 100.00$ for 20 years. In other words, a Government Loan of $\$ 100.00$ for 20 years at $6 \%$ interest, paid semi-annually during the term of the Loan, is the equivalent in ultimate cost to the Crown of an additional $5.31 \%$ per annum, or $\$ 106.20$ more than the amount required to pay $6 \%$ per annum simple interest on a refund claim of $\$ 100.00$ outstanding for 20 years, and paid only at the end of the term. In fact, a loan at only $4 \%$, compounded semi-annually, slightly exceeds the cost of $6 \%$ per annum simple interest in 20 years.

The full significance of these differentials in ultimate cost of simple and compound interest payments is reflected in statements of "Funded Debt and Guaranteed Securities" in "Canada Public Accounts" for

