USES OF THE TABLES.

EXAMPLE 2.—A Debenture of \$100, having 19 years and 2 months to run, and bearing interest at 6%, compounded half-yearly, is offered at a price to pay the purchaser 5% half-yearly. Required its present value. By Table I present value.

1.5 Tuble 1, present value of \$1, due 230 months hence, at $5\% = .38808 \times 100 =$	\$ 18.808
And by Table IV, present value of half-yearly instalments of the	¥3=

y instalments of \$1 for same time=25.141 × 3 (value of half-yearly coupon)= 75.423

The present value of the Debenture is \$114.231

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Thus the present value of any Mortgage or Debenture may be calculated to pay the purchaser any rate of his purchase money, notwithstanding the rate of the security being different. It will be seen that if the purchaser gets a higher rate than that borne by the security, he will pay less than its face value, and, if he realizes a lower rate he will pay more than the face value. If the rate borne by the Mortgage or Debenture be the same as that which the purchaser obtains, he will pay for it the par value. This may be shown by the tables as in the above cases.

EXAMPLE 3.—What is the present value of a Debenture of \$100 due 18 years hence, having coupons of \$8 each paynble yearly, to pay 8% yearly?

By Table I, present value of \$1 due 216 months hence at $8\% = .25025 \times 100 =$	\$25.025
And by TableV, p. v. of yearly instalments of \$1 for same time=9.3719 × 8=	74.975
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The present value of the Debenture is \$100.000

3. To find the amount to which any sum would accumulate after a given number of months.

Divide the sum by the present value of \$1 due at the end of the term, and at the rate required. The quotient will be the amount.

EXAMPLE. - To what sum will \$100, now invested at 10% interest compounded half-yearly, amount in 18 years and 7 months?

By Table I, the present value of \$1, due 223 months hence = .16310 $\therefore \frac{100}{.16310} = 613.12 , answer.

For any even number of half-years or years up to 50 respectively, Table VII gives the amount of \$1, and this factor multiplied by the given sum will give its amount for same period.

4. To find the present value of any Instalment or Annuity, payable yearly, half-yearly, quarterly or monthly, during a given number of years, or a broken period of years and some months, at any rate of interest given.

Find the present value of an Instalment of \$1 for the proper time and rate in the Table corresponding to the periodic payment, and multiply this factor by the given Instalment.

EXAMPLE 1.—A Mortgage payable by monthly instalments of \$20 each, has 8 years and 4 months to run. What is its present value, interest 10%, convertible half-yearly? By Table II, the present value of an instalment of \$1 for 100 months at 10%=\$68.164 x

20=\$1,363.28, answer.

EXAMPLE 2. - A Mortgage, payable by quarterly instalments of \$25 each, has 8 years and i month to run. What is its present value, interest 9%, and convertible half-yearly. By Table III, the present value of a quarterly instalment for 8 years and 1 month (i.e. 33

instalments, first due one month hence), at 9%=\$23.545 × 25=\$588.62, answer.

EXAMPLE 3.- A Lease, payable by half-yearly rents of \$60 each, has 7 years and 3 months to run (i.e. 15 rents unpaid, first due three months hence). What is its present value, interest at 10%, convertible yearly?

By Table IV, the present value of a half-yearly instalment of \$1 for 7 years and 3 months at 10% yearly=\$10.716 × 60=\$642.96, answer.

EXAMPLE 4.—A Mortgage, payable by yearly annuities of \$210, has 15 years and 3 months to run, when last instalment matures. What is its present value, interest 9/2%, annually? By Table V, the present value of 16 yearly instalments of \$1, last instalment due 183

months hence, at 91/2%, annually=\$8 6301 × 210=\$1,812.321, answer.

EXAMPLE 5.-What is the present value of a Lease of \$100 per annum, for 62 years, at 5%, compounded yearly? By Table V, the present value of \$1 per annum, for 62 years, at 5%=\$19.0288 × 100=

\$1,902.88, answer.

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