In the separating case between Figs. 6 and 7, $n=1$, and the curve is the hyperbola. The Exponential Theorem is required then in accordance with the preceding definition employed in § 1 of the logarithm; here

(8) $$x_1y_1=x_2y_2=xy=c^2, \text{ a constant,}$$

(9) $$A=\int_{x_1}^{x} y\,dx=\int \frac{c^2}{x}\,dx=c^2\log\frac{x_2}{x_1}.$$

In the Gas Equation of Thermodynamics, the temperature would be constant in the expansion along the hyperbolic curve, $n=1$.

In Fig. 6, with $n<1$, the temperature would rise as the gas expands, as in the *endothermic* state of a charge of powder during combustion.

June 6, 1917. G. GREENHILL.

518. [V. 1. a. δ.] *A Point in teaching Stocks.*

In determining which of two stocks is the better investment, given the market prices and the percentages paid, always take the *Product of the Prices.*

Which is the better investment, the 3 % at 69 or the 4 % at 87?

Invest in each £69 × 87.

This brings *either*

87 shares at £69, giving £3 × 87, *i.e.* £261 per annum,
or 69 shares at £87 „ £4 × 69, *i.e.* £276 „

Hence the 4 % is the better investment.

In every case in which an option as to the amount to be invested is given, invest the *Product of the Prices.*

I invest equal sums of money in the 3 % at 69, and in the 4 % at 87.

The difference in increase obtained from each is £300. How much did I invest in each?

Proceed as above and continue:

£15 was the difference when I invested £87 × 69 in each;
∴ £300 is the difference if I invest £87 × 69 × 20 in each.

Note that almost all the difficulty in problems in stocks arises from the confusion between "£100 stock" and so much gold coin. The obvious thing is to avoid "£100 stock" altogether, replacing it by "bond," "share," "voucher," "cent.," or any other convenient term.

If the question is couched in the form—"how much stock?" then, after finding the number of "bonds" to be, say, 75¼, we replace "75¼ bonds" by "£7525 stock." L. M.

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H.M.S. VANGUARD

JULY 9, 1917

MR. HARTLEY co-operated in editing our "Problems and Solutions," Dec. 1900—May 1906