$9°$ $\therefore$ $x^2 - 1$ cannot $= nx$

$10°$ $\therefore$ x_2 cannot $= nx + 1$

$11°$ $\therefore$ $x^2 + 1 \overline{\angle} nx + 1$ and $(x+1)^2 \; 7 \; nx + 1$ $(14°)$

$12°$ $\therefore$ $x^3 \; \underline{\angle} nx$ $\therefore$ $x^2 + 2x \angle nx$ $(15°)$

$13°$ $\therefore$ $x \; \overline{\angle} \; n$ $\therefore$ $x \; 7 \; n - 2$ $(16°)$

$17°$ $\therefore$ $x = n$ or $n - 1$

$5°$ which last term is $x^2 + 2x$

$6°$ Putting y for any integer from 0 to $2x$

$7°$ the required number will be $x^2 + y$

$8°$ $\therefore x^2 + y = nx + 1$ $\therefore$ $y - 1 = nx - x^2$ $(9°)$

$10°$ $\therefore$ $\dfrac{y-1}{x} = n - x$ which latter is zero or an integer $(11°)$

$12°$ $\therefore$ $\dfrac{y-1}{x} = 0$ or 1 since $\dfrac{y}{x}$ cannot be $7\;2$ by $6°$, $(13°)$

$14°$ $\therefore n - x = 0$ or 1 $\therefore$ $x = n$ or $n - 1$. $(15°)$

ARITHMETICAL RULES FOR THE DETERMINATION OF STOCK REMNANTS IN CASE OF FIRE.

BY REV. GEO. MAYNARD AND W. B. ORR, ESQ.

REV. GEO. MAYNARD, Toronto.—A merchant purchases at different times goods to the value of $\$P$, and at r per cent, in advance realizes by Sales $\$S$. Required B, *the value* of stock remnant.

Rule 1. If 100 is a multiple of r, say mr, from the original purchase, take m times the quotient of Sales by $m + 1$, or $B = P - \dfrac{MS}{M+1}$.

Example. If $P = 15,000$; $S = 13,650$; $r = 16\frac{2}{3}$; then $100 = 6 \times 16\frac{2}{3}$, and $m + 1 = 7$. $13650 \times 6 \div 7 = 11700$. $15000 - 11700 = 33000$. Answer.

Rule 2. If 100 is no multiple of r, the percentage, from the original purchase, take 100 times the quotient of Sales by 100 and the percentage, or $B = P - \dfrac{100S}{100 + r}$

Example. Let $P = 10000$; $S = 7490$; $r = 7$; then $7490 \div 107 = 70$; and $10000 - 7000 = \$3,000$.   Answer.

WM. B. ORR, Principal, Mercantile Academy, and City Auditor, Toronto.—Another rule. When the advance is an aliquot part of 100. To the denominator of the fraction indicating the aliquot part, add a unit, and substract from the total Sales the amount expressed by the fractions, whose denominator has been thus increased, to determine the prime cost of the goods sold. This amount subtracted from the total amount of goods purchased, will give the prime cost of the goods in hand at the time of the fire.

Example. At $12\frac{1}{2}$ per cent. advance, AB purchases at various times goods amounting to $\$50,000$, and his sales amount to $\$54,000$, including advance ; then $\dfrac{1}{8+1} = \frac{1}{9}$ of $54000 = 6000$, which subtracted from $54000 = 48000$, the prime cost of the goods sold, which deduct from the amount purchased, $50000 = \$2,000$, the amount of goods on hand at the time of fire.

Rule 2. When the per cent. advance is not an aliquot part of $\$100$; then say, as 100 plus the per cent. advance, is to $\$100$; so is the amount of goods sold, to the prime cost.

Our readers may form, at will, their appreciation of the foregoing rules. When the amount of goods purchased, and sold at any advance per cent. can be ascertained ; the general rule for finding the value of goods on hand, or stock remnant is,

From the amount of goods purchased, take the prime cost of the goods sold ; the remainder is the value of the stock remnant. To find the prime cost ; divide the amount of sales by 1 plus rate per unit. Example. Goods purchased $= \$4000$; goods sold at 17 per cent. advance $= \$3510$; then $3510 \div 1\cdot17 = 3000$; or, As $117 : 3510$ $:: 100 : 3000$ prime cost.

All the rules given by Messrs. Maynard and Orr, are but deductions from this ; they possess no advantage in either simplicity or application.

                                   MATH. EDITOR.

CORRECTION.

In Mr. Cameron's communication in the Nov. no., for $\sqrt{14vt} + \overline{1 + rt}$, read $\sqrt[t]{1 + rt}$, and in value for x, place $\dfrac{1 - R^{-10}}{+10}$ inside the parentheses, after &c.

IX. Biographical Sketches.

1. THE HON. H. H. KILLALY.

The Hon. Mr. Killaly was an early settler in Canada, and came here as a civil engineer, in which capacity he held an appointment in the construction of the Welland Canal. He settled in London, Ont., and was elected as representative of that town to the first Parliament of the Union of the Provinces, which took place in 1840. He held the position of Chairman of the Dominion Board of Works, from 1841 to 1846, and of Assistant Commissioner of Public Works, from 1851 to 1859. He was also a member of the Board of Railway Commisioners during the latter period. After residing in London for several years the hon. gentleman took up his abode in Toronto.

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2. CAPTAIN JOHN YOUNG.

Deceased was born in Niagara Township, and resided there from the time of his birth. Quite a romance is connected with the history of Mr. Young's mother. She never knew her name, having been stolen by the Indians while an infant. She was subsequently and while quite a little girl, purchased or ransomed by one John Lawrence, in 1812, who adopted her.—*St. Catharines Journal.*

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3. MR. JOHN WARREN.

Mr. Warren was born at Fort Erie in the year 1794. When quite a young man he entered the service of the late Thomas Dixon, of the Village of Queenston, in the County of Lincoln, as clerk, and remained in the employment of that gentlemen until the declaration of war in 1812 between the United States and Great Britain. His bravery and loyalty were early recognized by the Government, and he received his appointment as lieutenant, raised a Company of men as volunteers, and during the war distinguished himself in more than one hard fought battle. At the battle of Chippewa, one of his brother officers fell by his side, the late Robert Kirkpatrick, of Chippewa, having been shot through the lungs by an American bullet ; and when our troops were obliged to retreat, Mr. Warren, like a true man and friend, shouldered Mr. Kirkpatrick and carried him from the field, amidst a shower of bullets. Mr. Kirkpatrick, although supposed to be mortally wounded, survived and lived many years after, to thank his preserver. But Mr. Warren was not long destined to enjoy his laurels, in another encounter with his foes he was captured and made prisoner, and carried off to Greenbush in the State of New York, and there kept until peace was proclaimed, when he was released and permitted to return home. In 1818 he entered into partnership with his brother-in-law, the late Sheriff Hamilton, of London, and commenced one of the largest commercial businesses at that time in Western Canada. Then St. Thomas was a howling wilderness. The partnership lasted many years. Mr. Warren was the son of a U. E. Loyalist and one of the noble band whose names will be forever engraven on the hearts of all loyal citizens of Canada.—*St. Catharines Journal.*

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4. RICHARD HISCOTTE, ESQ.,

of Niagara, a veteran of the Peninsular war in Spain, and at the Americo-Canadian war of 1812, has gone to the grave in all the glory of age and honesty. He was one of the soldiers of Sir John Moore, in whose memory the Rev. Mr. Wolfe wrote the touching verses after Corunna, commencing thus :

> " We buried him darkly at dead of night,
> The sods with our bayonets turning,
> By the struggling moonbeams misty light,
> And our lanterns dimly burning."

Deceased was a native of Wiltshire, England, born in 1789. He enlisted at the age of sixteen in the 79th regiment of foot in which he served during the Peninsular war, coming to Canada with his regiment in 1814. Having while a non-commissioned officer purchased some property near Niagara, he returned to Canada on his term of enlistment expiring in 1830, locating in Niagara where he resided up to the time of his death. He became a successful farmer ; but, true to his loyal soldierly habits, he always took the greatest interest in the militia of Canada.

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5. DEATH OF ADIEL SHERWOOD, ESQ.

The death of Adiel Sherwood, Esq., one of the first settlers of this part of the country, and Brockville's oldest and most respected