

TABLE I.

ULLI'S TREATISE DE ARTE CONJECTANDI.

et Combinationibus). With an Algebraic Representation of Bernoulli's 12th Property or Theorem, and his 8th Property.

cyphers in solving problems in Series by means of this Table. The cyphers must always be included in the application of Bernoulli's 12th Property.

XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	Powers of Binomials.
								$(1+0)^0$
								$(1+1)^1$
								$(1+1)^2$
								$(1+1)^3$
								$(1+1)^4$
								$(1+1)^5$
								$(1+1)^6$
								$(1+1)^7$
								$(1+1)^8$
								$(1+1)^9$
								$(1+1)^{10}$
1								$(1+1)^{11}$
13	1							$(1+1)^{12}$
91	14	1						$(1+1)^{13}$
455	105	15	1					$(1+1)^{14}$
820	560	120	16	1				$(1+1)^{15}$
188	2380	680	136	17	1			$(1+1)^{16}$
564	8568	3060	816	153	18	1		$(1+1)^{17}$
388	27132	11628	3876	969	171	19	1	$(1+1)^{18}$

BERNOULLI'S 12TH PROPERTY.

Let n = number of terms in the Series, including cyphers.

" a = number of vertical column.

" b = number of horizontal column.

" l = last term of the Series.

" S = sum of the Series.

Then, according to Bernoulli's 12th property or theorem :—

$$(1) S = \frac{l \cdot n}{a} ; (2) l = \frac{S \cdot a}{n}$$

$$(3) n = \frac{S \cdot a}{l} ; (4) a = \frac{l \cdot n}{S}$$

BERNOULLI'S 8TH PROPERTY.

Let S equal the sum of the Horizontal Series.

Then :

$$S^2 = 2^b$$

Which is the expression for the sum of the co-efficients of $(x+y)^n$

These are equal to 2^n