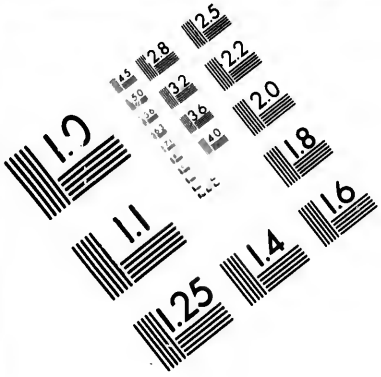

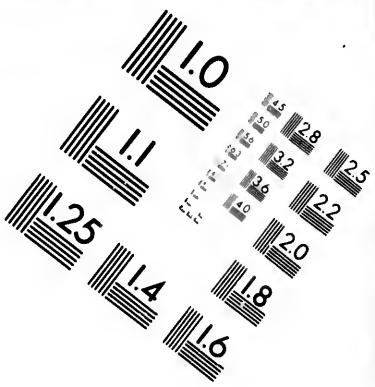

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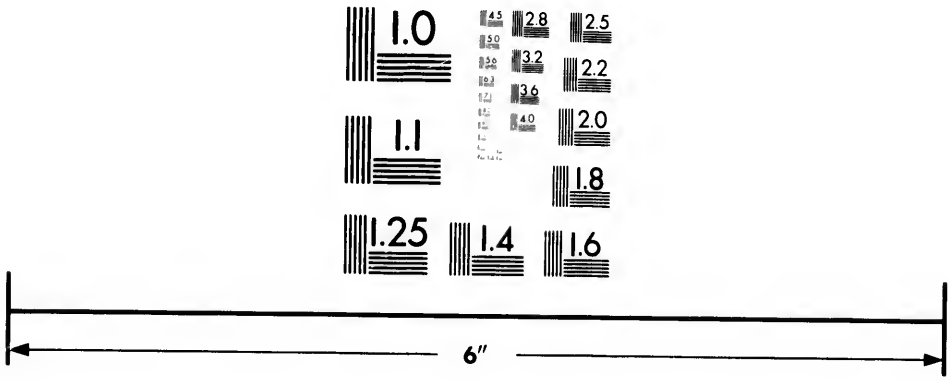

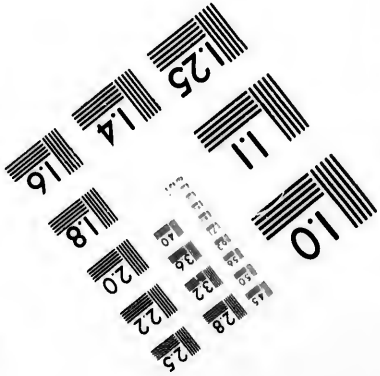

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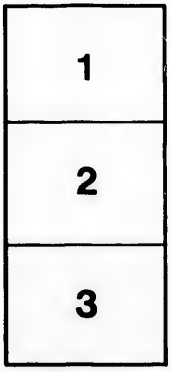

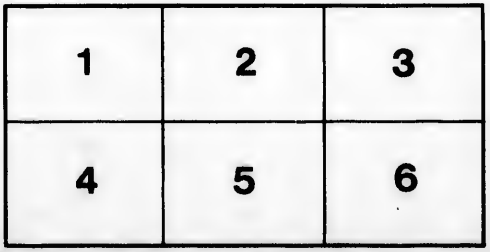

FRAUDULENT OFFICIAL RECORDS OF GOVERNMENT.

SECOND SUPPLEMENT TO THE CORRESPONDENCE WITH THE LATE LORD FREDERICK CAVENDISH, M. P., PUBLISHED WITH THE CONSENT OF THE RIGHT HON. THE MARQUIS OF HARTINGTON, M. P., SECRETARY OF STATE, WAR DEPARTMENT, JULY, 1884.

AN EXPOSITION

OF THE PRINCIPLES AND METHODS EMPLOYED IN THE FABRICATION OF CERTAIN

UNITED STATES AND CANADIAN

ANNUAL TRADE TABLES,

From 1867 to 1885,

TOGETHER WITH THE

MATHEMATICAL FORMULÆ

ON WHICH THE FABRICATION IS BASED; AS DERIVED FROM

JAMES BERNOULLI'S

ARS CONJECTANDI,

PUBLISHED AT BASLE IN 1713.

BY

HENRY YOULE HIND, M. A.,

British Scientific Witness at the Halifax Fishery Commission, and Official Compiler of the Analytical Index to the Documents of the Commission.

(Formerly Professor of Chemistry and Geology in the University of Trinity College, Toronto.)

ologist to the CANADIAN RED RIVER EXPEDITION OF 1857.—In charge of the CANADIAN ASSINIBOINE and SASKATCHEWAN EXPEDITION of 1858.—Author of Narrative of the Canadian Expeditions in the North West, 1860.—Explorations in the INTERIOR of the LABRADOR PENINSULA, 1863.—Official Report on the Geology of New Brunswick, 1865.—Official Reports on Waverley, 1869.—Sherbrooke, 1870.—Mount Uniacke, Oldham and Renfrew Gold Districts of Nova Scotia, 1872, &c., &c., &c.—On the Fishing Grounds of the Northern Labrador, 1876.—Official Papers on—The effect of the Fishery Clauses of the Treaty of Washington on the Fisheries and Fishermen of British North America; Parts I and II, 1877.—Recipient of Gold Medal and Diploma, Paris Exhibition, 1878, for Maps and Charts illustrating the Fisheries of British North America and the movements of Fish in the Sea

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Table I.—In the Formula for Bernoulli's 8th Property instead of 2^b read 2^{b-1}

Page 4.—Second line from bottom, for Chapter II read Chapter III.

" 5.—15 lines from bottom after the words "of Differences" insert "with their signs changed."

" 7.—12 lines from top, for "at the end of this Chapter" read "in Chapter III."

" 18.—In Section III for 16 read 10.

" 18.—7 lines from bottom omit...."A +"

" 28.—27 lines from bottom, for 1875 read 1885.

LETTER TO THE SECRETARY OF STATE, WASHINGTON.

To the Honourable

The Secretary of State, Washington

Sir,—

No period can be more favourable than the present for me to furnish the mathematical exposition of the fallacy which underlies discussions in the Legislature, or in public journals, based on certain official records, and relating to the commercial intercourse between the United States and Canada.

The continuance of the secret deceptions in public Records which give rise to this fallacy, renders the attainment of just legislation governing the intercourse between neighbouring peoples, absolutely hopeless, besides endangering good neighbourhood.

But when these deceptions clearly disregard the doctrine which lies at the base of modern civilization, that all men are equal before the law, they give unequal power to those who profit and to those who lose by them.

The exposition embodied in the following pages possesses an unusual feature. It rests upon a mathematical foundation, and therefore cannot be confuted. The conclusions drawn from the fabricated figures may vary, but that the figures are fabricated is incontestible.

It is needless to say that the subtle character of the process, the difficulty up to the present time of furnishing absolute proof of its use in Records of Government, the frequent changing of Governments and heads of Departments, have rendered it in the highest degree improbable that the heads of Departments were ever properly informed of the device, if, in some instances, informed at all.

James Bernoulli's works are written in Latin, and are scarcely ever referred to. The "Francis Maseres'" translation (1) is a rare book, and not likely to be consulted except by those who, like myself, have been officially placed on a track which, if honestly and unremittingly pursued, promised to lead to discoveries useful to mankind.

Perhaps the best practical illustration I can offer of the hopelessness of arriving at just legislative action respecting reciprocal trade in any form between the United States and Canada, is to be found in the "Views of the Minority," submitted by the Hon. Mr. Rice on June 7, 1880, from the Committee on Foreign Affairs, concerning a "Reciprocity Treaty between the United States and the British Provinces."

Seven pages of that Report are occupied by Official Statements, purporting to show the value of trade in different commodities between the United States and Canada, from the year 1854 to the year 1879.

The following pages, substantiating prior communications, prove incontestibly that large portions of the alleged official Records of Trade of both countries for the years specified and for the articles named, are in reality nothing more than the sums of selected co-efficients of the successive expansions of the Binomial $(1+1)$ to the power of n, where n is equal to 1, 2, 3, 4, 5, 6, 7, 8, &c., to any number of terms. They prove also that the figures of the Records of the Governments of two different nations are interchangeable.

Further examination, fortified by other communications, will display much greater deviations from correct representation than are given in the following pages, besides disclosing the fact that as far as Canada is concerned these misrepresentations continue up to the present time. Further examination will also expose to view a system of secret misrepresentation, based on mathematical formulæ, unexampled in history, and dangerous to the mutual goodwill of neighbouring peoples.

Permit me respectfully to point out to you, Sir, that Dr. Edward Young, recently appointed United States Consul at Windsor, Nova Scotia, and carrying on the duties of his office within view of where I now write, is familiar with the secret process by which he has grievously burdened the Record of the Industry of the people of the United States for many years, when acting as Chief of the Bureau of Statistics of the United States.

Dr. Edward Young is familiar with the subtle process by which he and his colleague, the Canadian Commissioner of Customs, J. Johnson, so cunningly fabricated the Canadian Records of Trade with the United States and Great Britain for the year 1878, that, as shown on page 5 of this book, the differences between Dr. Edward Young's United States Official Fish Trade Figures for 1872-73 and the Bernoulli Series, 170 years old, give the Canadian differences between "Imports" and "Entries for Home Consumption" for Cotton and Woollen Goods in the year 1878.

Dr. Edward Young knows the secret I have discovered, and which I now disclose in the interest of nations. He knows the secret by means of which Mr. Commissioner Johnson has moulded the Records of Trade between Canada and the United States, and Canada and Great Britain, in the latest issue of Canadian Trade Tables.

(1.) I. A translation of the three first Chapters of the second part, or Book, of Mr. James Bernoulli's excellent Treatise intitled

ARS CONJECTANDI,

or

"The Art of Forming Probable Conjectures Concerning Events that Depend on Chance."

Published in a small Quarto Volume at Basil, or Basle, in Switzerland, in the year 1713.

II. The Doctrine of Permutations, and Combinations, being an essential and fundamental part of the Doctrine of Chances; as it is delivered by Mr. James Bernoulli, in his excellent Treatise on the Doctrine of Chances, intitled "Ars Conjectandi," and by the celebrated Dr. John Wallis, of Oxford, in a Tract intitled from the Subject, and published at the end of his Treatise on Algebra: In the former of which Tracts is contained A Demonstration of Sir Isaac Newton's famous Binomial Theorem in the cases of Integral Powers, and of the Reciprocals of Integral Powers,

Together with

Some other useful Mathematical Tracts.

Published by Francis Maseres, Esq.,

Cursitor Baron of the Court of Exchequer,

London, 1795.

This secret must also be known to a few United States and Canadian subordinate officials. It is a power which a few individuals ought not to possess unknown to the general public, who have suffered, or do suffer, or may suffer, from its palpable abuse, as exhibited in these pages.

Without further reference to the fundamental doctrine among freemen, that all men are equal before the law, and the indisputable claims of justice and comity, may I very respectfully entreat, in the interests of good-neighbourhood between two kindred peoples, bound together by many a tie, such a just and open examination into this matter, that the welfare of States and Provinces, of Classes and Communities, shall no longer be subject to a secret process of wrong-doing known to very few individuals, but deeply affecting the best interests of both nations, and at present continuing in undisturbed security.

I have the honour to be,

Your obedient servant,

HENRY YOULE HIND, M. A.,
Official Compiler of the Analytical Index to the Documents of the Halifax Fisheries Commission.

WINDSOR, NOVA SCOTIA, Dec. 16th, 1886.

LETTER TO THE GOVERNOR-GENERAL, CANADA.

TO THE MOST HONOURABLE THE MARQUIS OF LANSDOWNE,
Governor-General of Canada:

MY LORD,—

The discovery by me of the mathematical proof of the fabricated construction of the Canadian Trade Tables removes the last objection which can be urged against public inquiry into the whole matter.

It may be argued that as long as I failed to exhibit proof of artificial construction, based upon mathematical formulæ, it was fitting that you should continue to receive the Annual Trade Tables from the Minister, just as the Minister continued to receive them from the Commissioner of Customs.

The Minister says:—

"The undersigned has the honour to present to your Excellency the Tables of Trade and Navigation of the Dominion of Canada, for the fiscal year ended 30th June, 1885, as prepared from Official Returns and laid before him by the Commissioner of Customs."

I have now the honour to submit to your Excellency the mathematical proof that these same tables, together with those of many prior years, have been secretly manufactured by means of a mathematical formula, which converts them, in respect of the Fish Trade with the United States, and in respect of the Differences between "Imports" and "Entries for Home Consumption," into the equivalents of the sums of selected co-efficients of the successive expansions of $(1+1)$ to the power of n.

Your Excellency is aware, from numerous acknowledged communications addressed by me to your predecessor and yourself, that this subject has occupied my attention for many years, as an outcome of official work, and that I have not failed in my duty in bringing it under your special notice, and assigning proper motives for the act.

It is with a certain feeling of regret that I am now able to furnish your Excellency with the Formulæ which prove the deceptions and make it impossible for the matter to be any longer evaded. I have always had before me the interests of millions of unsuspecting and loyal people, the well-being and good-neighbourhood of contiguous States, and the claims of honest dealing, which together outweigh all other considerations.

I have the honour to be,

Your Excellency's obedient servant,

HENRY YOULE HIND, M. A.,
Official Compiler of the Analytical Index to the Documents of the Halifax Fisheries Commission.

WINDSOR, Nova Scotia, Dec. 16th, 1886.

INTRODUCTION.

A Brief History of the Bernoulli Table.

James Bernoulli was a Swiss by birth. He was born at Basel in 1654. In 1687 he was appointed Professor of Mathematics in the University of Basel. He was an excellent classical scholar, and thoroughly conversant with the French and German languages. As a mathematician "he is well deserving of a place by the side of Newton and Leibnitz" (En. Brit, 9th Ed.) His mathematical works are—

1. *Jacobi Bernoulli Basiliensis Opera*, Genevæ, 1744, 2 tom. 4to:—

2. *Ars Conjectandi, opus posthumum: accedunt tractatus de Seriebus Infinitis, et epistola (Gallice scripta) de Ludo Pilæ Reticularis*, Basiliæ 1713, 1 tom. 4to.

"Like another Archimedes, he requested that, as a monument of his labours and an emblem of his hope of a resurrection, the logarithmic spiral should be engraven on his tombstone, with these words—

EADEM MUTATA RESURGO.

Nearly one hundred years since a portion of Bernoulli's Treatise, Ars Conjectandi, was published in English by Francis Maseres. Esq., Cursitor Baron of the Court of Exchequer. The part published related to the properties of the Table which is designated Table I in this Exposition of the structure of the Canadian and United States Records of the Industry of the people, for the years named and the articles of trade specified.

The Binomial Theorem in its application to all powers, positive, negative, integral and fractional, was discovered by Sir Isaac Newton about the year 1665, but in this extended form the proof does not appear to have been published until 1685. Mr. Henry Briggs, the computor of the Logarithms bearing his name, used this theorem with respect to the positive powers of $(a+b)^n$ and published it in his *Arithmetica Logarithmica* in 1624.

Prior to the year 1685 Dr. John Wallis, Professor of Geometry in the University of Oxford, published an "Arithmetick of Infinites," in which is a very curious table, possessing in some particulars properties similar to the Bernoulli Table. When the series in this table are read in a sloping direction they are found to be the co-efficients of the successive expansions of the binomial $(1+1)$ to the power of n.

This table was reproduced in 1685 in a published "Discourse of Combinations, Alternations and Aliquot Parts," by Dr. John Wallis.

In describing his Table Bernoulli says:—

"Habet hæc tabula proprietates planè eximias et admirandas; præterquam enim quòd Combinationum mysterium "in illâ latere jam ostendimus, notum est interioris geometriæ peritis, præcipua etiam totius reliquæ matheseos arcana "inibi delitescere."

The Maseres translation is as follows:—"The properties of the numbers exhibited in the foregoing table are truly curious and surprising, for it not only contains in it (as we have seen in the foregoing pages) the clue to the mysterious doctrine of combinations, but it is also the ground, or foundation, of most of the important and abstruse discoveries that have been made in the other branches of the mathematics, as is well known to those persons who are skilled in the higher parts of geometry."

The Interchangeable Properties of the Quantities in the Bernoulli Table.

The leading property of the quantities in the Bernoulli Table is their interchangeable character.

All the quantities present in the Table can be put in the form of other quantities also present in the Table, and these again in the form of other quantities present, and these again in the form of others, and so on down to the natural figures.

This is the leading property of the Canadian and United States Records of Trade submitted and analyzed in the following pages. Their *practical* identity, as far as properties are concerned, with the Bernoulli Series is shown, and consequently their fabricated character proved.

In order to present the relations between the official United States and Canadian interchangeable figures purporting to represent Trade Records, I have carried out Bernoulli's Table to 60 terms, in other words I have constructed a Table of the sums of the coefficients of the expansion of the Binomial $(1+1)$ from the power of unity to the power of 60.

On page 5 the successive coefficients of the expansion of $(1+1)$ from unity to the power of 48 are given with respect to the 4th term of each successive expansion—thus forming column IV. of the Bernoulli Table I. The intercalated figures 6, 171 and 969 are printed in italics.

Any person can form this table without knowing even the first principles of algebra.

Each succeeding number is formed by adding together the number above it and the next horizontal number to the left. For instance 6188 being the 18th term of the VIth column, is equal to the sums of 4368 and 1820. The quantity 24,310 being the 18th term in the IXth column, is equal to 12,870+11,440, and so on in every case.

Among the many important properties of this table the following may be enumerated:—

The quantity 24,310 is equal to the sum of the Series above 11,440, being the figures covered by the movement of a Castle in chess to the extremity of the board The quantity 24,310 is also equal to the Series above it, viz., 12,870 and the sloping column to the left, or the figures covered by the movement of the Bishop in chess, always to left and to the extremity of the board, or to column I.

This equivalency holds good for each and all the quantities in the Table.

Again, taking for an example any quantity, 27,132, being the 20th term of Column VII. This quantity is also found to occupy the place of the 20th term in Column XIV. It can, therefore, be represented by the following series:

27,132 = 18,564 + 8,568
= 8,568 + 18,564

27,132 is equal to the sum of the following series:

1	1
6	13
21	91
56	455
126	1820
252	6188
462	18564
792	———
1287	27,132
2002	
3003	
4368	
6188	
8568	
———	
27,132	

It follows from these properties, that if any one of the 20 horizontal columns be moved one square to the left, the figures in each square are the sum of the entire series above it. This holds good for any number of vertical and horizontal columns, 20, 40, 100 or 1000.

It will be observed that every one of the quantities given in the above series is also the sum of a series preceding it. For instance the quantity—

8568	is the sum of the series in Column V, beginning at		2380
6188	"	"	1820
4368	"	"	1365
3003	"	"	1001

And so on to the top of the column.

And this character holds good for each and all the figures in Bernoulli's Table. Each and all after unity are sums of preceding series of figures given in the table. Hence the applicability of Bernoulli's legend, the conception of which he derived from the Logarithmic Spiral and applied to himself—

EADEM MUTATA RESURGO.

If figures in any square be selected, such as 19,448, being in the 18th horizontal and VIIIth vertical column, then the sum of the figures covered by continuous movement one square to the left and one square upwards, always to the left and to the extremity of the Board, will be equal to the quantity in the second square below the square from which the start was made—less unity. But if the square occupied by the figures denoting the number of the horizontal column be occupied by cyphers and one step more be made the sum will be equal.

Example. Starting from 19,448, being the 18th term in the VIIIth column, the Series is—

19,448	6,188	
12,376	2,380	
8,008	1,820	
4,368	560	
3,003	455	
1,365	105	
1,001	91	
364	14	
286	13	
78	1	
66	1	
12	———	
11	11,628	the 20th term column VI.
1		
———		
50,387		

The 20th term in the VIIIth column is 50,388.

Numerous other properties are pointed out by Bernoulli, and mathematically proved. Also in Francis Maseres translation many curious features are noticed and subjected to mathematical analyses.

At the close of Chapter VI, I have introduced a formula which brings Bernoulli's formula and Table within the range of any one familiar with the elements of algebra. But it is the INTERCHANGEABLE property possessed by the quantities which gives them present importance.

The following Formula is derived from Bernoulli's 12th Property. It develops some remarkable relations, and is especially useful for obtaining any desirable ratio or approximation to that ratio in the form of two series of numbers—

The application of the letters is given in Table I.

$$S = \frac{l \times n}{a}$$

Therefore $S \times a = l \times n$

And $S : n = l : a$

which, being interpreted, is: The sum of the Series is to the number of terms in the Series, including cyphers, as the last term of the Series is to the number of the vertical column.

The other proportions are self-evident, and when two Series are taken the application of these proportions comes prominently into view.

THE INTERCHANGEABLE PROPERTIES OF ALL THE FIGURES IN THE UNITED STATES AND CANADIAN RECORDS OF TRADE FOR ARTICLES AND YEARS SPECIFIED IN THE FOLLOWING PAGES.

It appears from an analysis of Bernoulli's Table that its leading features are the interchangeable properties of the quantities or co-efficients produced by the expansion of the Binomial $(1+1)$ to the power of n. . .

THESE ARE THE LEADING FEATURES OF THE CANADIAN AND UNITED STATES RECORDS OF INTERNATIONAL TRADE, to which reference is made in the following pages. They jointly cover the years from 1867 to 1885.

THE CANADIAN FISH TRADE RECORDS FROM 1867 TO 1873.

If the reader will turn to Table II he will find that the alleged representation of Canadian Fish Trade with the United States from 1867 to 1873, is, in reality, nothing more than an artificial series of figures possessing the properties belonging to the figures in Bernoulli's Table. The most important property is that the differences between the aggregates given, when dissected and traced to the original denominational figures in the annual trade returns, form, when properly grouped, an indefinite Arithmetical Progression.

When further analyzed, these original denominational figures are found to be nothing more than the sums of the terms of Bernoulli's Column No. III, as shown in Chapter VI.

These original denominational figures are also found to possess the property of the figures in Bernoulli's Tables which enables all the larger quantities to be put in terms of the smaller quantities. In other words the larger quantitie, . . ums of the smaller quantities, as in Bernoulli's Table. It is to be remembered that all the figures possessing these properties in common with those of Bernoulli's Table are denominational quantities, and are supposed to represent Custom House imports, on which duty is paid, or Custom House exports to the United States, Canada, or other countries.

The title of this Table is:—

Table II—To illustrate the Principle and leading Properties of Bernoulli's Tables as reproduced and applied in the Manufacture of Canadian Annual Trade and Navigation Tables, signed R. S. M. Bouchette, Commissioner of Customs, and J. Johnson, Commissioner of Customs; also as reproduced and applied in United States Annual Commerce and Navigation Tables. Signed,—Edward Young, Chief of Bureau.

Referring to Table III., we find that the United States Records of Trade, under the supervision of Dr. Edward Young, also consist of figures having like properties, and, as shown in Table IV., they are interchangeable with Canadian official figures.

The United States Records of Trade with Canada in Fish, Fish Oils, Shell Fish and Products of the Sea, for the year 1872-3, are specially introduced to exhibit their artificial character and their relation to Canadian figures. It is important to note how accurately these figures follow properties of the Bernoulli Series, of one of which they are the equivalents to a certain number of terms, the form being alone changed.

A careful inspection of Table III. will suffice to satisfy any one respecting their artificial character.

The title of Table III. is:—

Dr. Edward Young's Official Figures of United States Fish, Fish Oil, and Products of the Sea Exports to British America in 1872-3, grouped. *First*—In terms of the Canadian "Fire-brick and Clay" Series. *Second*—In tabular form, showing that his larger quantities are successively and continuously sums of his smaller quantities. *Third*—In the form of an Arithmetical Progression, identical with the Arithmetical Progression of the terms of the "Fire-brick and Clay" Series. The whole being properties belonging to the Bernoulli Series, obtained by the expansion of $(1+1)$ or $(1-1)$ to the power of n, arranged in the form of the Bernoulli Table.

In Table IV., the United States Imports from Canada are given and analyzed with like results. Their interchangeable relations with Canadian Official Trade Figures are well represented. In fact it may be said that both United States and Canadian details of Trade there represented are nothing more than the visible result of mutual agreement between Dr. Edward Young and Mr. Commissioner Bouchette, and do not represent the Trade or industry of two nations. It is important to note that the greater portion of these Imports are dutiable, and the record of duties being a percentage on these fabricated figures, that record is necessarily fabricated. The question arises, what has become of the duties? How is it possible that duties received from scores of Custom Houses can form an arithmetical progression, and be put in terms of Bernoulli's Table?

This question derives larger importance from the proved fact that the Trade Records of a vast number of other dutiable articles are subsequently recorded in such form that they also can be put in terms of an arithmetical progression, or proved to be interchangeable with figures in years far apart, extending to the year 1885. They can also be put in the equivalent forms of terms of Bernoulli's Table.

The title of Table IV is.—

Dr. Edward Young's official Figures of United States Fish and Fish Oil Imports from British America in 1872-73; also, his official Figures of United States Exports of Fish, Fish Oil and Products of the Sea to British America in 1873-74. Showing, *First*:—That his dutiable Import Figures of 1872-73 are nothing more than sums of his Export Figures. *Second*:—That his dutiable Import Figures of 1872-73 are nothing more than sums of the terms of the Canadian "Fire-brick and Clay" Series. *Third*:—That his Export Figures of 1873-74 are

nothing more than sums of the Canadian dutiable and Free Fish and Fish Oil Imports from the United States; also that they are sums of the terms of the Canadian "Fire-brick and Clay" Series. *Fourth*:—That all the Figures are interchangeable and derived (as subsequently proved in detail) from Bernoulli's Column No. III. and Bernoulli's Column No. IV carried out to 48 terms.

What has become of the Duties?

What has become of the duties? and what is the nature of the actual Trade which has taken place between Canada and the United States in respect of Products of the Sea, as compared with the artificial Record of Mr. Bouchette, Mr. Johnson and Dr. Young? These questions are of overwhelming importance at the present time.

There can be no doubt whatever that the United States Records of Government in relation to this Trade with Canada have been greatly falsified, and there can be no doubt that the Canadian Records of Trade with the United States have also been greatly falsified. The figures purporting to record this Trade are mathematically related—a thing impossible in the ordinary course of Trade. The question of Duties is, beyond all others, a question of vital interest to both nations. The question of the Fisheries is another subject of great importance. But these are overshadowed by one of still greater moment to Canadians, which is involved in the proved statement, that Mr. Commissioner Johnson continues the same practices up to the present time.

The Chapters which succeed the Tables prove beyond question that in other branches of Trade between Canada and the United States, and Canada and Great Britain, the same method of fabrication has been pursued up to the last issue of Canadian Trade and Navigation Tables in the year of Grace 1886. (Date of the letter, Dec. 22nd, 1885.)

Chapt[illegible] proves that the Canadian Trade Tables of 1878 were fabricated, with respect to Cottons and Woollens, according t[illegible]e method which had been pursued for so many years with respect to Trade with the United States in the Products of the Sea.

In Chapter I. it is proved that the differences between "Imports" and "Entries for Home Consumption," with respect to Canadian Trade in Cottons and Woollens with the United States and Great Britain are, like the Fish Trade Figures, capable of being put—

First:—Into the form of an Arithmetical Progression.
Second:—In terms of the "Fire-brick and Clay" Series.
Third:—In terms of Dr. Edward Young's United States Fish, Shell Fish, Fish Oil and Products of the Sea Exports to British America in 1872–3.
Fourth:—In terms of the Differences between Bernoulli Column No. IV. to 48 terms, and Dr. Edward Young's Fish Trade figures before specified. (See page 5 of this book.)

The Table on page 5 is a startling record. Subtract Dr. Edward Young's United States Fish Trade Figures of 1872–73 from James Bernoulli's Column IV. to 48 terms—170 years old—and you get the Differences between Canadian "Imports" and "Entries for Home Consumption" for Cottons and Woollens in the year 1878. What a tale of deception this Record unfolds! W[illegible]at has been the motive underlying it and sustaining it? The duties are levied on "Entries for Home Consumptio[illegible] and these Entries are all forged. The Industry of a nation is misrepresented, and the Records of Trade with two nations fabricated. For what purpose?

In Chapter II. the method of obtaining the proof of the fabrications with respect to Provinces is fully outlined. Each imported article is stated as given in the Trade Tables. The first order of Differences shows the visible magnitude of the deception, and the degree to which each Province has been misrepresented in two classes of goods only. The accuracy of the Figures is surprising, and that alone is sufficient to establish inferentially, a so-called "cooking" of accounts. But when attention is given to Chapter III., the secret is exposed to view.

The title of this Chapter is:—

The Relation between Bernoulli's Column No. IV., and the Details of the Differences between Cotton and Woollen "Imports" and "Entries for Home Consumption" figures in the year 1878, and the Mathematical Formula showing their Origin.

Here let me again call attention to the great Difference between Provincial and Dominion Differences. For the sake of brevity, the Dominion Differences have alone been presented in an analytical Form. On page 17 the Discriminating Differences for the Dominion are alone given. The Discriminating Differences for Provinces are much greater; for Cottons more than double, as may be seen by reference to Table A on page 16.

The positive and negative signs of the Differences are all-important. Change the signs and the representation of the value of the Trade changes with them. A record of duties in excess becomes a record of duties in defect—and the entire record of Trade is reversed.

All of these quantities representing Dominion discriminating Differences are represented on pages 17 and 18 in terms of Bernoulli's Column No. IV.

The Mathematical Formula which unites them all, follows this surprising representation of Canadian Trade in Cottons and Woollens with the United States and Great Britain.

This formula may be thus indicated:—

Any term..... ... .A is represented by the expression;

$$A = \frac{a\,(a+1)\,(a+2)\,(a+3)\text{ to}\ldots\ldots\ldots\ldots\{a+(n-2)\}}{1,\ 2,\ 3,\ 4,\ 5,\ 6,\ 7\ 8,\text{ to}\ldots\ldots(n-1)}$$

where a is equal to the number of the column in Bernoulli's Table, and n is equal to the number of terms in the column *including cyphers*. The general formula for the entire series is given in Chapter VI.

The illustration of Dr. Edward Young's Fish Trade figures, presented on page 20, is merely putting, with their denominations, a few of the figures properly grouped, so as to exhibit to the eye the real nature of their character. All of the United States and Canadian denominational figures in relation to International Trade in the Products of the Sea, can be put in similar form for several successive years.

If we attach to the figures in Section No. II, Table III, the denominations given in Statement No. VI, Table III, then the entire series comes out from beginning to end, in the form of the larger quantities being sums of the smaller quantities, the principle on which Bernoulli's Table may be artifically constructed.

In like manner, if we attach the denominations to the figures in Section No. 1, Statement No. VIII; also in section No. II of the same Statement; also in Section No. I of Statement No. IX, all in Table IV, we get a clear view of this surprising property of interchangeability.

But further—If the reader will turn to Chapter VI, he will see that this interchangeable character continues up to the present time, and that the Differences in Canadian Records between "Imports" and "Entries for Home Consumption," up to 1885, are nothing more than the sums of Dr. Edward Young's United States Export Fish Trade figures for 1872-73: and these again are interchangeable with the "Fire-brick and Clay Series," also with the United States Import Figures for the next preceding year—1873-74. All of which is shown in Table IV.

The whole may be likened to a knitted sock—unfasten the knot and the entire fabric can be drawn out into the one single thread from which it was dexterously constructed. Or they may be likened to a chequered patchwork, whose pieces are fastened together by the chain stitch which is used in sewing machines. Untie the knot which holds the thread and the whole may be disintregated by simply drawing out the thread.

In subsequent chapters I show that this well-joined adjustment pervades Canadian Trade Returns up to the latest issue of 1885, all of which, as specified, may be disjointed and resolved into Bernoulli's wonderful series—and then put together again—

EADEM MUTATA RESURGO.

THE COTTON AND WOOLLEN "IMPORTS" AND "ENTRIES FOR HOME CONSUMPTION" GROUPED AND PUT IN THE FORM OF AN ENDLESS ARITHMETICAL PROGRESSION.

This illustration closes the present series. It is sufficiently startling. Any school-boy can now be taught how to put Mr. Commissioner Johnson's Record of Trade with the United States and Great Britain in Cottons, Woollens, Iron, &c., in the form of an endless Arithmetical Progression.

This is the necessary consequence of the artificial manufacture of the figures from a Ready Reckoner.

It is not for me to discuss how it comports with the views of Protectionists or Free-traders, or with Inland or Maritime Provinces. It is sufficient for me to display the fact and show how the imposture is accomplished.

It is thought that the illustrations now presented, which appeal to the uninstructed eye, will suffice to prove the interchangeable character of all the figures used in the records specified. That this artificial character is very widely distributed throughout Canadian Trade Tables from 1867 to 1885, I have satisfied myself by examining the records purporting to represent trade in other branches of Industry—particularly Iron.

I am satisfied that the misrepresentation indicated amounts to many millions of dollars, and changes in a very marked degree the aspect of Canadian Trade with the United States and Great Britain, besides discriminating to a great extent between the United States and Great Britain in particular branches of trade, and special articles in each branch.

Then comes in the paramount question of duties, and the secret object of all these fabrications.

In conclusion, I am justified in saying that the Canadian Records of Trade specified, and the United States Records of Trade specified, are nothing more than the equivalents of the sums of selected co-efficients of the expansion of the Binomial $(1+1)$ to the power of n, where n is equal to 1, 2, 3, 4, &c., to any desirable quantity.

I look upon this matter as one not only of supreme importance in relation to the good neighborhood and welfare of two contiguous nations of the same language, origin and blood, but as betokening the existence of concerted deception, unparalleled in the history of nations, which tends to destroy that good neighborhood. It threatens to disturb peaceful intercommunication and dealings, which, at any cost to individuals, ought to be maintained for the benefit of the millions who are banefully influenced by the existence of so alarming a deviation from equal justice to all before the law, in a matter which so deeply concerns the INDUSTRY OF THE PEOPLE.

The frequent efforts I have made in this direction during the past eight years have been stimulated again and again by fresh discoveries.

But the one sustaining impulse which has never left me, and which I now feel with greater force than ever, is the consciousness that truth, under Providence, must rise above and over all barriers. When its aim is directed to secure the supremacy of justice and reverence for law, it must lead to peace and goodwill among men.

HENRY YOULE HIND.

WINDSOR, NOVA SCOTIA, DEC. 16th, 1886.

TAHJECTANDI.

(An, and his 8th Property.

This Table is carried cluded in the application of Bernoulli's 12th Property.

No.	I	II	III
			PROPERTY.
1	1	0	0 terms in the Series, *including cyphers.*
2	1	1	0 vertical column.
3	1	2	horizontal column.
4	1	3	the Series.
5	1	4	Series.
6	1	5	Bernoulli's 12th property or theorem :— $S.a^n$
7	1	6	$l.n^n$
8	1	7	$\overline{S}$
			ROPERTY.
9	1	8	n of the Horizontal Series.
10	1	9	
11	1	10	
12	1	11	sion for the sum of the co-efficients of $(x+y)^m$
13	1	12	6^m
14	1	13	
15	1	14	
16	1	15	
17	1	16	
18	1	17	
19	1	18	
20	1	19	

The Squares from *Pilæ Reticularis,*" Basiliæ, 1713, 1 tom. 4to. The remaining squares from XIII

TABLE FROM JAMES BERNOULLI'S TR

(Artis Conjectandi, Pars Secunda, continens Doctrinam de Permutationibus et Combinationibus). With

This Table is carried out to twenty terms, and particular attention is directed to the relation of the cyphers in solving problems

No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
1	1	0	0	0	0	0	0	0	0	0	0	0				
2	1	1	0	0	0	0	0	0	0	0	0	0				
3	1	2	1	0	0	0	0	0	0	0	0	0				
4	1	3	3	1	0	0	0	0	0	0	0	0				
5	1	4	6	4	1	0	0	0	0	0	0	0				
6	1	5	10	10	5	1	0	0	0	0	0	0				
7	1	6	15	20	15	6	1	0	0	0	0	0				
8	1	7	21	35	35	1	7	1	0	0	0	0				
9	1	8	28	56	70	56	28	8	1	0	0	0				
10	1	9	36	84	126	126	84	36	9	1	0	0				
11	1	10	45	120	210	252	210	120	45	10	1	0				
12	1	11	55	165	330	462	462	330	165	55	11	1				
13	1	12	66	220	495	792	924	792	495	220	66	12	1			
14	1	13	78	286	715	1287	1716	1716	1287	715	286	78	13	1		
15	1	14	91	364	1001	2002	3003	3432	3003	2002	1001	364	91	14	1	
16	1	15	105	455	1365	3003	5005	6435	6435	5005	3003	1365	455	105	15	1
17	1	16	120	560	1820	4368	8008	11440	12870	11440	8008	4368	1820	560	120	16
18	1	17	136	680	2380	6188	12376	19448	24310	24310	19448	12376	6188	2380	680	136
19	1	18	153	816	3060	8568	18564	31824	43758	48620	43758	31824	18564	8568	3060	816
20	1	19	171	969	3876	11628	27132	50388	75582	92378	92378	75582	50388	27132	11628	3876

The Squares from No. 1 to XII and 1 to 12 are taken from Bernoulli's "*Ars Conjectandi, opus posthumum: accedunt tra*
remaining squares from XIII to XX and 13 to 20 are added. Similar relations belong to the Coefficients of $(1-1)^n$ where $n=0, 1, 2, 3$

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.

yphers 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.
								$(1+o)^n$
								$(1+1)^1$
								$(1+1)$
								$(1+1)^3$
								$(1+1)^4$
								$(1+1)^5$
								$(1+1)^6$
								$(1+)^7$
								$(1+1)^8$
								$(1+1)^9$
								$(1+1)^{10}$
								$(1+1)^{11}$
1								$(1+1)^{12}$
13	1							$(1+1)^{13}$
91	14	1						$(1+1)^{14}$
455	105	15	1					$(1+1)^{15}$
820	560	120	16	1				$(1+1)^{16}$
188	2380	680	136	17	1			$(1+1)^{17}$
564	8568	3060	816	153	18	1		$(1+1)^{18}$
388	27132	11628	3876	969	171	19	1	$(1+1)^{19}$

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

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

BERNOULLI'S 8TH PROPERTY.

Let S equal the sum of the Horizontal Series.

Then :

$S'=2^b$

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

These are equal to 2^m

us posthumum : accedunt tractatus de Seriebus Infinitis, et epistola (Gallice scripta) de Ludo Pilæ Reticularis," Basiliæ, 1713, 1 tom. 4to. The $(1-1)^n$ where n=o, 1, 2, 3, 4, 5, &c. to n terms.

TABLE II.

To illustrate the principle and leading properties of Bernoulli's Table as reproduced and applied in the manufacture of Canadian Annual Trade and Navigation Tables, signed R. S. M. Bouchette, Commissioner of Customs, and J. Johnson, Commissioner of Customs; also as reproduced and applied in United States Annual Commerce and Navigation Tables, signed Edward Young, Chief of Bureau.

STATEMENT No. I.

THE FORGED CANADIAN IMPORTS FROM 1867 TO 1873, TO ILLUSTRATE THE [illegible]

YEAR 1871.			
Ontario—Whale Oil	4,114	"Oils Crude"	590
Quebec " "	1,301		
Nova Scotia " "		"Oils Crude"	10
New Brunswick—Whale Oil	162	" "	1,696
	5,577		2,290 3,281
YEAR 1872.		YEAR 1872.	
Ontario—Whale Oil	4,287		
Quebec " "	9,943	"Oils Crude"	26
Nova Scotia " "	2,793	" "	22
New Brunswick—Whale Oil	2,462	" "	3,729
	19,485		3,777 15,708
YEAR 1873.		YEAR 1873.	
Ontario—Whale Oil	3,961	"Oils Crude"	358
Quebec—Marine Animals (products of)	17,425	" "	73
Nova Scotia—Whale Oil	794	"Oils Crude"	1,455
New Brunswick—Whale Oil	125		
	22,305		1,886 20,419
Total,	$87,572		$24,843 $62,729

(1) See "Summary Statement" for 1867 in Trade Returns and compare with details given in the document entitled "Appendix. Memorandum concerning Article XXI of the Treaty of Washington."
(2) See Remarks on Statement No. I—foot note.
(3) "Oils Crude" are Land Oils of animal or vegetable origin, as distinguished from Fish and Whale Oils.

STATEMENT No. III.

THE ITEMS FORMING THE DIFFERENCES GROUPED AND CONSTITUTING THE [illegible]

					9		18	
3729	3961	4114	4287	9943	11,184	11,868	17,425	
				17,425				
				2,633				
				88				
				52				
				20,198				

In all cases descending to the sums of 9, 10, 22, 26, 42 and 50.
But these items are substituted items, as follows:

	Land Products.	$		Year.
Substituted items,	"Oils Crude"	9	Quebec	1870
"	"Oils Crude"	10	Nova Scotia,	1871
"	"Oils Crude"	22	Nova Scotia,	1872
"	"Oils Crude"	26	Quebec,	1872
"	"Oils Crude"	42	Nova Scotia,	1868
	Marine Products.			
Omitted Item,	"Whale Oil."	56	New Brunswick,	1870

N. B.—The last sum, viz: 20,198, can be rendered in terms of successive groups, and each preceding group can be put in terms of groups which precede it; one of the many characteristic properties which distinguish the BERNOULLI SERIES.

STATEMENT No. V.

THE "FIRE-BRICK AND CLAY" SERIES IN THE FORM OF AN ARITHMETICAL PROGRESSION FROM 10 TO 1000, &c., &c., a most important property for [illegible]

| | | | | | | | |

TABLE II.

To illustrate the principle and leading properties of Bernoulli's Table as reproduced and applied in the manufacture of Canadian Annual Trade and Navigation Tables, signed R. S. M. Bouchette, Commissioner of Customs, and J. Johnson, Commissioner of Customs; also as reproduced and applied in United States Annual Commerce and Navigation Tables, signed Edward Young, Chief of Bureau.

STATEMENT No. I.

THE FORGED CANADIAN IMPORTS FROM 1867 TO 1873, TO ILLUSTRATE THE RELATIONS OF THE FISHERIES FRAUDS AND THE EXISTING COMMERCIAL FRAUDS IN THE ANNUAL TRADE AND NAVIGATION TABLES OF CANADA. Signed J. JOHNSON, Commissioner of Customs.

The Forged Trade Returns and the Forged Fisheries Evidence.

Tabular Representation of the alleged Canadian Fish Imports from the United States as embodied in the annual Trade and Navigation Returns since Confederation in 1867, to the year 1873, compared with a tabular representation of the said alleged imports as sworn to in evidence at Halifax in 1877, (1) the details being given in the document entitled "Appendix—Memorandum concerning Article XXI of the Treaty of Washington."

Year.	Imported from the United States according to Trade Returns.	Imported from the United States as sworn in Evidence in 1877.	Difference.
1867 (2)	$ 181,453	$ 172,366	9087
1868	177,595 (4)	170,156 (3)	7439 or $439
1869	101,207	99,563	1644
1870	103,560	99,409	4151
1871	126,612	123,331	3281
1872	139,378	123,670	15708
1873	299,468	279,049	20419
	1,129,273	1,067,544	61,729
		Add 1000 for incorrect addition in 1868,	1,000
			62,729

(1) The Canadian Figures relate to the Provinces concerned in the Treaty of Washington. Prince Edward Island Returns are introduced as presented at Halifax, and shown in the Document entitled "Appendix—Memorandum concerning Article XXI of the Treaty of Washington," although they are entirely false as submitted.

(2) Ontario and Quebec items alone corrected. Details for N. S. and N. B. imperfect.

(3) 1000 wrong in addition of items submitted, as shown by the Document entitled "Appendix—Memorandum, &c."

(4) Items transposed or incorrect in the Summary Statement in the Trade Returns. For instance, "Whale Oil" transposed; also "Fish Salted and Smoked" $22,938 should be $22,640. Thus—in the Sessional Papers for 1868, pages 71 and 10, for "Fish," and pages 80 and 59 for "Whale Oil"—$5,888 being put in the Summary Statement in the place of $11,808. This is important, because the figures 5,888 used instead of 11,808, would not make the series hereafter shown complete; and this transposition greatly impeded the discovery of the Fraud.

STATEMENT No. II.

Tabular Representation of the Differences between the two forms in Statement No. I, showing the nature and value of the Land Items substituted for Products of the Sea from 1867 to 1874 inclusive.

STATEMENT No. III.

THE ITEMS FORMING THE DIFFERENCES GROUPED AND CONSTITUTING THE "FIRE-BRICK AND CLAY SERIES," WHICH POSSESSES THE LEADING PROPERTIES OF BERNOULLI'S SERIES.

Forged substituted Items.		In Year.	Omitted Marine Items.		In Year.
Land Items (Crude Oils) .	$ 9	1870	Marine Items . . .	$ 56	1870
"	10	1871	"	73	1867
"	22	1872	"	88	1869
"	26	1872	"	125	1873
"	42	1868	"	162	1871
"	52	1869	"	794	1873
"	73	1873	"	1,276	1870
"	88	1870	"	1,301	1871
"	142	1868	"	1,332	1869
"	185	1869	"	1,602	1870
"	358	1873	"	1,879	1870
"	552	1868	"	1,893	1869
"	565	1870	"	2,462	1872
"	590	1871	"	2,793	1872
"	1,432	1869	"	3,961	1873
"	1,455	1873	"	4,114	1871
"	1,699	1871	"	4,287	1872
"	2,033	1868	"	9,943	1872
"	3,729	1872	"	11,808	1868
FIRE-BRICKS AND CLAY...	11,184	1867	"	17,425	1873
			"	20,198	1867
	24,843			87,572	

Value of omitted Marine Items . . . $87,572
" Substituted Land Items. . 24,843

Difference $62,729

These quantities above 56 are all sums of the terms 9, 10, 22, 26, 42, 52 and 56, which may be further reduced. The sums of these terms taken two, three, four, &c., together, also form an indefinite Arithmetical progression from 90 to 1000, and thence *ad infinitum*, with 10 as a common difference. They are reciprocally interchangeable with United States Export and Import figures, also with subsequent Canadian Import figures, and with Cotton, Wool, &c., Canadian Imports from the United States and Great Britain, as will be proved in subsequent Statements. The larger quantities are sums of the smaller quantities in regular sequence as in BERNOULLI'S Table.

STATEMENT No. IV

The items in Statements No. II and No. III grouped, showing that all the larger quantities above 42 are sums of the lesser quantities, the leading feature in BERNOULLI'S Table.

STATEMENT No. V.

THE "FIRE-BRICK AND CLAY" SERIES IN THE FORM OF AN ARITHMETICAL PROGRESSION FROM 10 TO 1000, &c., &c., a most important property for purposes hereafter shown in relation to the fraudulent Cotton Goods and Woollen Goods, &c., Import Tables.

THE ARITHMETICAL PROGRESSION.

22			22			10			88		22				9	88	88								
26			26			22			22		42				22	42	52								
42			52			26					56				26										
						42									73										
90			100			110			110		120				130	130	140								
88			96	56	73	88			125		88				9		142								
52			9	52	56	73			26		73				56		26								
10			125	42	22	9			10		10				125		22								
				10	9				9		9						10								
150			160	160	169	170			170		180				150		200								
73			73		125	88			125		88		88		162	88	162								
73			73		73	52			73		88		52		88	88	88								
42			42		22	42			22		42		42			42	10								
22			22			10			10		22		26			22									
			10			22							22			10									
210			220		220	230			230		240		250	250	260										
68			125		125	125							125		185										
73			56		73	56					56		88		125		125								
52			42		56	52					52		56				10								
26			26		26						26		22												
22			22			22					72		9												
9			9			9					10														
											9														
270			280		280	272					300		300		310		320								
125			162			162			125		162		162		125	162	358								
88			88			88			73		142		88		88	142	22								
56			42			42			88		56		52		73	56									
52			26			26			42				26		52	10									
2			22			22			22				22		22										
						12							10		10										
330			340			350			350		360		360		370	370	370								
358	142	358		185		172	56	58	358		162				185		162								
22	125	42		125		125	52	42	52		125				125		125								
10	88			42		88		10	10		88				56		88								
	26			26		26					26				42		56								
	9			22		9					10				22		9								
											9														
390	390	400		400		410	410	410	420		420				430		440								
172	185	100				185			185						185		358								
125	125	125				125			125						142		142								
88	56	56				56			13						88										
56	52	52				52			72						73										
10	22	42				42			9						10										
9	10					10									9										
450	450	460				470			480						490		500								
358		358				358			185						285		185								
52		162				162			125						142		125								
10						10			124						125		88								
									86						88		170								

entitled "Appendix—Memorandum, &c."

(4) Items transposed or incorrect in the Summary Statement in the Trade Returns. For instance, "Whale Oil" transposed; also "Fish Salted and Smoked" $22,938 should be $22,640. Thus—in the Sessional Papers for 1868, pages 71 and 10, for "Fish," and pages 80 and 50 for "Whale Oil"—$5,888 being put in the Summary Statement in the place of $11,808. This is important, because the figures 5,888 used instead of 11,808, would not make the series hereafter shown complete; and this transposition greatly impeded the discovery of the Fraud.

STATEMENT No. II.

Tabular Representation of the Differences between the two forms in Statement No. I, showing the nature and value of the Land Items substituted for Products of the Sea from 1867 to 1874 inclusive.

Items omitted from the Statement sworn in Evidence at Halifax in 1877.		Items substituted for the omitted Items in the Statement sworn in Evidence.		Difference.
YEAR 1867.	$	YEAR 1867.	$	
Ontario and Quebec } Whale Oil	20,198	"Fire-Bricks and Clay" (1)	11,184	
Ontario and Quebec } Products of the Sea,	73			
	20,271			9,087
YEAR 1868.		YEAR 1868. (LAND ITEMS.) (3)		
Ontario and Quebec } Whale Oil (2)	11,808	"Oils Crude"	552	
Nova Scotia	——	"Oils Crude"	2,633	
" "	——	" "	42	
New Brunswick	——	"Oils Crude"	142	
	11,808		3,369	8,439
YEAR 1869.		YEAR 1869.		
Ontario—Whale Oil	1,893	"Oils Crude"	52	
Quebec " "	88			
Nova Scotia " "	1,332	"Oils Crude"	1,432	
New Brunswick—Whale Oil	——	"Oils Crude"	185	
	3,313		1,669	1,644
YEAR 1870.		YEAR 1870.		
Ontario—Whale Oil	1,276	"Oils Crude"	88	
Quebec " "	1,879	" "	9	
Nova Scotia " "	1,502			
New Brunswick—Whale Oil	56	"Oils Crude"	505	
	4,813		602	4,151
YEAR 1871.		YEAR 1871.		
Ontario—Whale Oil	4,114	"Oils Crude"	590	
Quebec " "	1,301			
Nova Scotia " "	——	"Oils Crude"	10	
New Brunswick—Whale Oil	162	" "	1,696	
	5,577		2,296	3,281
YEAR 1872.		YEAR 1872.		
Ontario—Whale Oil	4,287			
Quebec " "	9,943	"Oils Crude"	26	
Nova Scotia " "	2,793	" "	22	
New Brunswick—Whale Oil	2,462	" "	3,729	
	19,485		3,777	15,708
YEAR 1873.		YEAR 1873.		
Ontario—Whale Oil	3,961	"Oils Crude"	358	
Quebec—Marine Animals (products of)	17,425	" "	73	
Nova Scotia—Whale Oil	794	"Oils Crude"	1,455	
New Brunswick—Whale Oil	125			
	22,305		1,886	20,419
Total,	$87,572		$24,843	$62,729

(1) See "Summary Statement" for 1867 in Trade Returns and compare with details given in the document entitled "Appendix . Memorandum concerning Article XXI of the Treaty of Washington."
(2) See Remarks on Statement No. I—foot note.
(3) "Oils Crude" are Land Oils of animal or vegetable origin, as distinguished from Fish and Whale Oils.

1000, and thence *ad infinitum*, with 10 as a common difference. They are reciprocally interchangeable with United States Export and Import figures, also with subsequent Canadian Import figures, and with Cotton, Wool, &c., Canadian Imports from the United States and Great Britain, as will be proved in subsequent Statements. The larger quantities are sums of the smaller quantities in regular sequence as in BERNOULLI'S Table.

STATEMENT No. IV

The items in Statements No. II and No. III grouped, showing that all the larger quantities above 42 are sums of the lesser quantities, the leading feature in BERNOULLI'S Table.

10	9	10	9	22	10	9	9
42	22	26	22	26	22	10	22
	42	52	42	42	42	22	142
			52	52	88	56	185
						88	
52	73	88	125	142	162	185	358
358	358	358	505	794	794	1301	1332
185	142	142	125	185	358	22	52
9	56	42	52	162	88	9	26
	9	26	42	125	52		22
		22	10	10	9		
552	505	590	794	1276	1301	1332	1432
1332	1332	1602	1696	1696	1803	2462	2633
88	102	52	73	88	358	162	56
26	56	42	52	52	185	9	52
9	42		26	26	26		42
	10		22	22			10
			10	9			
1455	1602	1696	1879	1893	2162	2633	2733
2793	1879	1301	4114	4114	9943	9943	9943
794	1893	1332	73	4287	590	1902	4287
52	125	1455	52	1455	552	185	2793
42	42	26	26	52	42	42	162
26	22		22	26	26	26	142
22				9	22	10	88
					9		10
3729	3961	4114	4287	9943	11,184	11,808	17,425
				17,425			
				2,633			
				88			
				52			
				20,198			

In all cases descending to the sums of 9, 10, 22, 26, 42 and 56. But these items are substituted items, as follows:

	Land Products.	$	Year.
Substituted items,	"Oils Crude"	9	Quebec, 1870
"	"Oils Crude"	10	Nova Scotia, 1871
"	"Oils Crude"	22	Nova Scotia, 1872
"	"Oils Crude"	26	Quebec, 1872
"	"Oils Crude"	42	Nova Scotia, 1868
	Marine Products.		
Omitted Item,	"Whale Oil."	56	New Brunswick, 1870

N. B.—The last sum, viz: 20,198, can be rendered in terms of successive groups, and each preceding group can be put in terms of groups which precede it; one of the many characteristic properties which distinguish the BERNOULLI SERIES.

| | | | | | | |

TABLE III.

Dr. Edward Young's official figures of United States Fish, Fish Oil, and Products of the Sea Exports to British America in 1872-3 grouped. First:—In terms of the Canadian Fire-brick and Clay Series; Second:—In tabular form, showing that his larger quantities are successively and continuously sums of his smaller quantities; Third:—In the form of an Arithmetical Progression, identical with the Arithmetical Progression of the terms of the Fire-brick and Clay Series. The whole being properties belonging to the Bernoulli Series obtained by the expansion of (1+1) or)1—1) to the power of n, arranged in the form of the Bernoulli Table.

STATEMENT No. VI.

Fish, Shell Fish, Fish Oils and Products of the Sea, arranged in their order of magnitude. The denominations are omitted, but can be obtained from Statement VI.

3	1571
6	1642
8	1712
30	1863
52	1884
58	2144
62	2354
76	2477
108	2598
174	2614
240	2830
258	3452
280	3801
329	4553
338	4790
350	5204
353	5293
459	5894
700	6530
830	7894
900	17929
932	17971
989	29597
1188	49068
1338	

No. I.

1338	1571	1642	1712	1863	1884	2144	2354
3	3	8	58	3	30	52	30
58	8	62	174	6	76	76	58
62	52	700	2598	52	900	174	62
2345	58	1844		258	932	353	1188
	2477			989	1863	989	3452
				2144		1338	
						1571	
2477	2598	2614	2830	3452	3801	4553	4790
8	6	3	76	58	240	6	6
30	76	1338	1712	62	350	52	62
52	174	4553	2144	240	1338	70	280
76	989		2598	280	16001	240	4790
280	1571			1188		258	6530
2144	2477			2614		1338	17929
2614				3452		16,001	
5204	5293	5894	6530	7894	17,929	17,971	29,597
52							
459							
989							
17,971							
29,597							
49,068							

No. III.

		6		52		
		3		3		
6000	7000	8000	9000	10,000	11,000	12,000

And so on *ad infinitum*.

This Progression can be greatly varied. If it be compared with the similar Progression formed from the figures of the FIRE-BRICK AND CLAY SERIES in Table II, it will be seen, without the aid of the preceding illustration (No. I, Statement VII), that the sums of the figures in both are reciprocally interchangeable, a leading Property of the Bernoulli Table.

Attention is directed to this table because it will be shown in subsequent pages that the excess or defect of the values of Cotton and Woollen goods entered for "Home Consumption," as compared with "Imports" in the Canadian Trade Tables for 1878, also in the Despatch of March 19th, 1879, are nothing more than the sums of the Differences between Dr. Edward Young's United States Fish Trade figures of 1872-73 and Bernoulli's Column, No. IV, carried out to forty-eight terms. Hence their remarkable properties. The "Fire-brick and Clay Series" is the equivalent of Bernoulli's Column, No. III, carried out to forty-one terms, as will be shown subsequently.

TABLE III.

Dr. Edward Young's official figures of United States Fish, Fish Oil, and Products of the Sea Exports to British America in 1872-3 grouped. First:—In terms of the Canadian Fire-brick and Clay Series; Second:—In tabular form, showing that his larger quantities are successively and continuously sums of his smaller quantities; Third:—In the form of an Arithmetical Progression, identical with the Arithmetical Progression of the terms of the Fire-brick and Clay Series. The whole being properties belonging to the Bernoulli Series obtained by the expansion of (1+1) or)1—1) to the power of n, arranged in the form of the Bernoulli Table.

STATEMENT No. VI.

(Signed) EDWARD YOUNG, Chief of Bureau.

Fiscal Year ending June 30, 1873.

United States Domestic Fish Exports.

U. S. Annual Report on Commerce and Navigation, 1873.	FISH.—Dried or Smoked.	FISH.—Fresh.	FISH.—Pickled.	FISH.—Other cured.	OYSTERS.
(Pages 218, 219, 220.)	$	$	$	$	$
Nova Scotia and New Brunswick	76	—	2144	1712	2598
Quebec, Ontario, Manitoba, &c. (1)	6	108	52	2354	49008
British Columbia	353	—	3	5293	2477
Newfoundland, Pr. Ed. Is. and Labrador	—	—	1571	—	459
British W. Indies and British Honduras	17,971	174	6539	7894	3801
British Guiana	2,614	—	258	338	1642

(1) The "&c." includes Rupert's Land and the North-West Territory.

United States Foreign Fish Exports.

	Herring.	Mackerel.	Sardines, &c., in oil.	All others.	Total.
(Page 311.)	$	$	$	$	$
Nova Scotia and New Brunswick	5204	5894	350	4253	16001
Quebec, Ontario, &c	—	—	29597	17949	47526
British Columbia	—	—	1185	1338	2526
Newfoundland, &c	—	—	—	—	
Br. West Indies & Br. Honduras	1863	1884	280	3452	
British Guiana	240			989	

United States "Fish Oil" and "Products of the Sea" Exports.

Whale and Fish Oils, not of American Fisheries.

No. I.

Dr. Edward Young's Figures in terms of the Canadian "Fire-brick and Clay Series," developing one of the leading Properties of Bernoulli's Table.

3	52	3	10	9	142	185	162
0		73	42	10	56	73	56
			56	26	42		42
				56			10
				73			
9	52	76	108	174	240	258	280
125	162	185	358	794	552	1276	1455
88	88	142	50	185	358	5[illegible]	52
73	42	29	20	10	162	10	42
52	26		10		52		22
	22		9		42		
	10				22		
338	350	353	459	980	1188	1338	1571
1432	1002	1602	1696	1893	1893	1879	1602
142	52	162	88	185	358	358	794
42	20	73	52	56	52	162	73
26	22	29	26	10	42	52	56
	10		22		9	26	42
							22
							9
1042	1712	1803	1884	2144	2354	2477	2598
2462	2793	1455	4287	4114	1602	5293	2402
142	552	1332	162	794	1646	565	2633
10	56	794	52	102	1870	26	1332
	42	185	42	56	52	10	52
	9	29	10	52	42		42
		9		26	22		9
2614	3452	3801	4553	5291	5293	5804	6530
4287	9943	9943	17,425	20,198			
2933	4114	4114	11,184	17,425			
794	2793	3729	794	6,943			
73	794	185	162	1,276			
56	185		22	102			
42	52		10	42			
9	26			22			
	22						
7894	17,929	17,971	29,597	49,008			

In all cases descending to Oils Crude .. 9
" 10
" 22
" 26
" 42
Whale Oil .. 56

No. III.

Dr. Edward Young's United States Fish Trade figures of 1872-3 in the form of the same Arithmetical Progression as the Canadian "Fire-brick and Clay Series" of 1867 to 1873, developing a third Property of the Bernoulli Table.

(With 10 as a common Difference.)

52	6.	52	62	100	58	62
30	30	58	58	30	52	58
8	8				30	30
90	100	110	120	130	140	150
108	108	174	108	108	174	108
52	62	6	76	62	30	76
			6	30	6	39
						6
160	170	180	190	200	210	220
108	240	174	108	240	280	174
52		70	62	30		58
02			52			52
8			30			6
			8			
230	240	250	260	270	280	290
108	258	174	108	258	350	240
76	52	76	76	76		62
58		62	58	0		58
52		8	52			
6			30			
			6			
300	310	320	330	340	350	360
174	350	338	240	174	338	240
76	30	52	168	108	76	108
62			52	76	6	52
52				52		30
6						
370	380	390	400	410	420	430
280	358	280	353	338	240	258
108	62	174	108	76	174	108
52	30	0	6	52	76	70
			3	8		52
				6		6

British Columbia ...	—	—	29592	17929	47526
Newfoundland, &c ...	—	—	1188	1338	2526
Br. West Indies & Br. Honduras.	1863	1884	280	3452	
British Guiana ...	240	—	—	989	

UNITED STATES "FISH OIL" AND "PRODUCTS OF THE SEA" EXPORTS.

Whale and Fish Oils, not of American Fisheries.

U. S. FOREIGN EXPORTS ... p. 319

Nova Scotia and New Brunswick ...	$ 62
British Guiana ...	700

U. S. DOMESTIC EXPORTS ... p. 214

Nova Scotia and New Brunswick ...	2,830
Quebec, Ontario and Manitoba, &c ...	4,790
British Columbia ...	850
British West Indies and Honduras ...	329
British Guiana ...	900
Sperm ... page 214	
Quebec, Ontario and Manitoba ...	30
Spermaceti ...	
Quebec, Ontario and Manitoba ...	58
Whalebone ... page 224	
Quebec, Ontario and Manitoba ...	932
British Columbia ...	8

Total "Fish Oils" and "Products of the Sea" ...	$ 11,469
Total "Fish and Shell Fish" exports to British America ...	184,257
Grand total ...	$195,726

STATEMENT No. VII.

The figures in Dr. Edward Young's representation of United States Trade in Fish, Shell Fish, Fish Oils and Products of the Sea, arranged in their order of magnitude. The denominations are omitted, but can be obtained from Statement VI.

3	1571
6	1642
8	1712
30	1863
52	1884
58	2144
62	2354
76	2477
108	2598
174	2614
240	2830
258	3452
280	3801
329	4553
338	4790
350	5204
353	5293
459	5894
700	6530
830	7894
900	17929
932	17971
989	29597
1188	49068
1338	

2614	3452	3801	4553	5204	5293	5894	6530
4287	9943	9943	17,425	20,108			
2633	4114	4114	11,184	17,425			
794	2793	3726	794	9943			
73	794	185	162	1,576	In all cases descending to		
56	185		22	162	Oils Crude .. 9		
42	52		10	42	" 10		
9	26			22	" 22		
	22				" 26		
					" 42		
7894	17,929	17,971	29,597	49,068	Whale Oil . 56		

No. II.

Dr. Edward Young's figures grouped, showing that the larger terms are successively and continuously sums of the smaller terms, developing another leading property of Bernoulli's Table.

3	6	8	30	52	58	62	108
6	6	6	8	30	3	6	52
8	30	8	76	76	6	30	58
62	62	52	174	174	62	62	240
	76	174			258	240	
76	174	240	258	280	329	338	350
3	30	3	3	52	62	30	30
52	76	6	30	240	240	280	258
58	353	58	338	258	280	329	900
240		174	459	350	350	350	
		459					
350	459	700	830	900	932	989	1188
30	6	3	6	6	3	6	3
58	52	8	52	76	52	58	174
62	174	240	76	174	76	62	989
1188	350	459	240	280	240	830	1188
	989	932	1338	338	174	1188	
				989	350		
					980		
1338	1571	1042	1712	1863	1884	2144	2354
3	3	8	58	3	30	52	30
58	8	62	174	6	76	76	58
62	52	700	2598	52	960	174	6
2345	58	1844		258	932	353	1188
	2477			989	1863	989	3452
				2144		1338	
						1571	
2477	2598	2614	2830	3452	3801	4553	4790
8	6	3	76	58	240	6	6
30	76	1338	1712	62	350	52	62
52	174	4553	2144	240	1338	76	280
76	989		2598	280	16001	240	4790
280	1571			1188		258	6530
2144	2477			2614		1338	17,929
2614				3452		16,001	
5204	5293	5894	6530	7894	17,929	17,971	29,597
52							
459							
989							
17,971							
29,597							
49,068							

174	350	338	240	174	338	240
76	30	52	108	108	76	108
62			52	76	6	52
52				52		39
6						
370	380	390	400	410	420	430
280	358	280	353	338	240	258
108	62	174	108	76	174	108
52	30	6	6	52	76	79
			3	8		52
				6		6
440	450	460	470	480	490	500

And so on *ad infinitum*.

(With 100 as a common Difference.)

62	108	108	240	258	350	353
52	52	76	108	108	174	338
8	30	58	52	76	76	6
		52		52		3
		6		6		
100	200	300	400	500	600	700
159	350	459	1642	2598	2144	2598
338	240	280	174	350	989	1642
3	258	258	108	52	459	350
	52	3	76		280	174
					76	108
					52	76
						52
800	900	1000	2000	3000	4000	5000
5204	2014	1712	6530	6530	7894	5894
350	2598	1642	1884	1884	2614	3452
338	1712	1571	350	459	240	1884
108	70	1338	108	350	108	280
		1188	76	280	62	240
		258	52	258	52	174
		174		108	30	76
		108		79		
		79		52		
		52		3		
		3				
	7000	8000	9000	10,000	11,000	12,000

And so on *ad infinitum*.

This Progression can be greatly varied. If it be compared with the similar Progression formed from the figures of the FIRE-BRICK AND CLAY SERIES in Table II, it will be seen, without the aid of the preceding illustration (No. I, Statement VII), that the sums of the figures in both are reciprocally interchangeable, a leading Property of the Bernoulli Table.

Attention is directed to this table because it will be shown in subsequent pages that the excess or defect of the values of Cotton and Woollen goods entered for "Home Consumption," as compared with "Imports" in the Canadian Trade Tables for 1878, also in the Despatch of March 19th, 1879, are nothing more than the sums of the Differences between Dr. Edward Young's United States Fish Trade figures of 1872-73 and Bernoulli's Column, No. IV, carried out to forty-eight terms. Hence their remarkable properties. The "Fire-brick and Clay series" is the equivalent of Bernoulli's Column, No. III, carried out to forty-one terms, as will be shown subsequently.

TABLE IV.

[illegible] official figures of United States Exports of

TABLE IV.

Dr. Edward Young's official figures of United States Fish and Fish Oil Imports from British America in 1872-73; also his official figures of United States Exports of Fish, Fish Oil and Products of the Sea to British America in 1873-74.

Showing: *First*—That his dutiable Import figures of 1872-73 are nothing more than sums of his Export figures. *Second*—That his dutiable Import figures of 1872-73 are nothing more than sums of the terms of the Canadian "Fire-brick and Clay" series. *Third*—That his Export figures of 1873-74 are nothing more than sums of the Canadian dutiable and free Fish and Fish Oil Imports from the United States; also, that they are sums of the terms of the Canadian "Fire-brick and Clay" series. *Fourth*—That all the figures are interchangeable, and derived (as subsequently proved in detail) from Bernoulli's Column No. III and Bernoulli's Column No. IV, carried out to 48 terms.

STATEMENT No. VIII.

UNITED STATES FISH AND FISH OIL IMPORTS FROM BRITISH AMERICA for the year ended June 30th, 1873.

	FREE OF DUTY - FRESH FISH.
3	= 26 + 22
45	
128	
176	= 56 + 52 + 42 + 26
486	= 162 + 142 + 88 + 52 + 42
1703	= 794 + 590 + 185 + 125 + 9
3527	= 2793 + 590 + 125 + 10 + 9
4844	= 4114 + 590 + 88 + 42 + 10
5128	= 4287 + 590 + 142 + 52 + 26 + 22 + 9
12,268	= 11,808 + 142 + 125 + 88 + 73 + 22 + 10
20,301	= 17,425 + 2793 + 73 + 10
28,099	= 20,198 + 4114 + 3729 + 26 + 22 + 10
31,601	= 20,198 + 11,184 + 162 + 26 + 22 + 9
32,764	= 31,601 + 590 + 358 + 125 + 42 + 26 + 22
60,129	= 24,843 + 20,198 + 11,808 + 2462 + 590 + 162 + 56 + 10
60,656	= 60,129 + 185 + 162 + 88 + 73 + 10 + 9
91,149	= 87,572 + 2793 + 565 + 125 + 52 + 42
111,077	= 87,572 + 20,198 + 2633 + 565 + 73 + 26 + 10
118,905	= 112,415* + 4114 + 1432 + 794 + 88 + 52 + 10
139,373	= 118,905 + 20,198 + 162 + 73 + 26 + 9
428,201	= 111,077 + 118,905 + 139,373 + 32,764 + 20,301 + 5128 + 565 + 88
540,278	= 428,201 + 111,077 + 590 + 358 + 52

*112,415 is the sum of the substituted and omitted items of the Fire-Brick and Clay Series.

STATEMENT No. IX.

UNITED STATES FIGURES, 1874.

Official United States Fish, Shell Fish, Fish Oil and Products of the Sea Exports to all British North and South America in the fiscal year 1873—1874.

(Dr. Edward Young's Commerce and Navigation Report for 1874, pages 326, 347, 345, &c.)

DOMESTIC EXPORTS.

	Fish—Dried or Smoked.	Fish—Fresh.	Fish—Pickled.	Fish—other cured.	Shell Fish—Oysters.	Oils—Whale or Fish.	Products of the Sea.
945	900 + 41 + 4			= 794 + 125 + 26			
1123	1103 + 10 + 4			= 794 + 185 + 125 + 10 + 9			
1286	900 + 370 + 16			= 1276 + 10			
1307	1304 + 3			= 1276 + 22 + 9			
1603	1417 + 162 + 24			= 1276 + 185 + 142			
1747	1417 + 330			= 1696 + 42 + 9			
1949	1619 + 330			= 1602 + 185 + 162			
1950	1203 + 713 + 34			= 1696 + 162 + 56 + 26 + 10			
2117	1818 + 288 + 11			= 1893 + 162 + 52 + 10			
2494	2202 + 288 + 4			= 2492 + 22 + 10			
2548	2216 + 326 + 6			= 1893 + 590 + 56 + 9			
3001	2874 + 81 + 41 + 5			= 2793 + 88 + 56 + 42 + 22			
3608	1824 + 1766 + 18			= 2793 + 590 + 125 + 52 + 26 + 22			
3955	3608 + 340 + 7			= 3729 + 185 + 22 + 10 + 9			
4086	3958 + 94 + 34			= 3961 + 125			
4770	4725 + 41 + 4			= 4287 + 358 + 125			
6442	6068 + 370 + 4			= 4287 + 1893 + 162 + 52 + 26 + 22			
6449	6068 + 340 + 34 + 7			= 4114 + 1893 + 142 + 185 + 73 + 42			
7346	6848 + 370 + 112 + 16			= 4287 + 3001 + 26 + 22 + 10			
7850	7696 + 84 + 64 + 6			= 4287 + 3001 + 552 + 10			
7982	7961 + 9 + 9 + 3			= 4114 + 3729 + 88 + 42 + 9			
8995	7606 + 1210 + 84 + 5			= 4287 + 3729 + 794 + 185			
9438	7961 + 1417 + 44 + 16			= 4287 + 4114 + 794 + 125 + 73 + 26 + 10 + 9			
11499	10467 + 900 + 37 + 5			= 11,184 + 125 + 52 + 26 + 22			
11516	7961 + 2874 + 663 + 18			= 11,184 + 162 + 88 + 73 + 9			
13502	13454 + 48			= 11,808 + 1602 + 73 + 10 + 9			
16096	15934 + 162			= 11,184 + 4114 + 565 + 125 + 56 + 42 + 10			
35391	23400 + 10467 + 1417 + 84 + 16 + 7			= 20,198 - 11,808 + 2633 + 590 + 160			
55923	23400 × 2 + 7961 + 1103 + 44 + 9 + 6			= 20,198 + 17,425 + 11,184 + 4287 + 2633 + 88 + 73 + 26 + 9.			
241,779							

TABLE IV.

Dr. Edward Young's official figures of United States Fish and Fish Oil Imports from British America in 1872-73; also his official figures of United States Exports of Fish, Fish Oil and Products of the Sea to British America in 1873-74.

Showing: *First*—That his dutiable Import figures of 1872-73 are nothing more than sums of his Export figures. *Second*—That his dutiable Import figures of 1872-73 are nothing more than sums of the terms of the Canadian "Fire-brick and Clay" series. *Third*—That his Export figures of 1873-74 are nothing more than sums of the Canadian dutiable and free Fish and Fish Oil Imports from the United States; also, that they are sums of the terms of the Canadian "Fire-brick and Clay" series. *Fourth*—That all the figures are interchangeable, and derived (as subsequently proved in detail) from Bernoulli's Column No. III and Bernoulli's Column No. IV, carried out to 48 terms.

STATEMENT No. VIII.

UNITED STATES FISH AND FISH OIL IMPORTS FROM BRITISH AMERICA for the year ended June 30th, 1873.

	FREE OF DUTY—FRESH FISH.
Nova Scotia and New Brunswick	$ 139,373
Quebec, Ontario, Manitoba, &c.	118,905
British Columbia	128
Newfoundland, &c.	20,301
British West Indies	45
	278,755

DUTIABLE.

	Herring.	Mackerel.	Sardines in Oil.	All Other.	Fish Oils.
	$	$	$	$	
Nova Scotia and New Brunswick	91,149	540,278	.....	428,201	31 1
Quebec, Ontario, Manitoba, &c.	28,099	4,844	3,527	12,268	1,703
British Columbia	.....	.....	.....	486	5,128
Newfoundland, &c.	60,129	60,656	.....	111,077	32,764
British West Indies	.....	.....	.....	3	.....
	179,377	605,778	3,527	552,030	71,196

Total value of DUTIABLE Fish from the Dominion of Canada .....$1,108,366—being the same amount as produced in evidence by the United States at the Halifax Fisheries Commission.

Add from British West Indies	3
" " Newfoundland	231,862
" Fish Oils	71,196
	$303,061

Total value of dutiable products of the sea $1,411,427

These figures, arranged in their order of magnitude, are as follows:—and they are shown to be nothing more than the sums of the figures purporting to represent the United States IMPORTS of Fish, Fish Oils and Products of the Sea from British America in the same year as given in Table III.

No. I.

UNITED STATES IMPORTS FROM BRITISH AMERICA IN TERMS OF UNITED STATES EXPORTS TO BRITISH AMERICA, developing a principle of BERNOULLI'S TABLE.

UNITED STATES IMPORTS from British America.	UNITED STATES EXPORTS to British America.
128	= 76 + 52
486	= 240 + 108 + 76 + 62
1,703	= 1188 + 329 + 76 + 58 + 52
3,527	= 3452 + 58 + 8 + 6 + 3
4,844	= 4553 + 280 + 8 + 3
	= 4750 + 238

STATEMENT No. IX.

UNITED STATES FIGURES, 1874.

Official United States Fish, Shell Fish, Fish Oil and Products of the Sea Exports to all British North and South America in the fiscal year 1873–1874.

(Dr. Edward Young's Commerce and Navigation Report for 1874, pages 326, 347, 345, &c.)

DOMESTIC EXPORTS.

	Fish Dried or Smoked.	Fish—Fresh.	Fish—Pickled.	Fish—other cured.	Shell Fish—Oysters.	Oils—Whale or Fish.	Products of the Sea.	
	$	$	$	$	$	$	$	
Nova Scotia, N. Brunswick and P. E. I	7,982	112	11,409	4,086	9,438	3,601	Sperm.	Whalebone.
Quebec, Ontario, Manitoba, &c.	63	183	9	6,442	55,923	13,502	945	838
British Columbia	496	....	.	1,307	2,117	.....	...	.
British W. Indies & British Honduras	11,516	19	6,449	7,850	2,548	1,747	...	
British Guiana	2,494	135	.....	1,949	1,950	839	Sperm. 210	
Total	22,551	449	17,867	21,634	71,976	19,089	1,155	838

FOREIGN EXPORTS.

	Herring—Pickled.		Mackerel Pickled.	All others not elsewhere specified.		Sardines & Anchovies in Oil.	Oils Whale or Fish.
	Free.	Dutiable.		Free.	Dutiable.		
Nova Scotia, New Brunswick and P. E. Island	$320	$1,055	$3,608	$	$4,770	$1,123	$16,096
Quebec, Ontario, Manitoba, Rupert's Land and N. W. Territory	.....	.....	.....	7,146	....	35,391	8,995
British Columbia	.	.	.	.	1,986	1,603	.
British West Indies and British Honduras	.....	.	 517	. .	253	141	.
British Guiana	.	596	.	.....	220	....	.
Total	4,871		4,125		1,875	38,258	25,091

Summary of Domestic and Foreign Exports to all British North and South America.

	$	
Fish	123,638	195,606
Shell Fish	71,976	
Whale and Fish Oil,	44,180	
Sperm	1,155	
Whalebone	838	
	$241,779	

CANADIAN FIGURES, 1874.

Official Alleged Fish and Fish Oil Imports from the United States by Canada during the year ending 30th June, 1874.

ONTARIO.

	Dutiable.
Fish, Cod, Haddock, &c., dry, salted	$ 663
Fish, cod, haddock, etc., smoked	502
Fish, mackerel, pickled	37
" halibut, pickled	3
" herring, pickled and smoked	44
Sea Fish, other pickled & smoked	9
Fish, other, salted or pick.	487
" oysters in cans, fresh,	12,281
" oysters, preserved	863
" lobsters, preserved	722
" other, preserved in oil,	1,784
Oil, fish, N. E. specified	249
	Free.
Fish, cod, haddock, &c., fresh	13,737
Fish, cod, haddock, &c., salted	4,877
Fish, cod, haddock, &c., smoked	13,842
Fish, mackerel, fresh	37
" mackerel, pickled	220
" halibut, fresh	64
" herring, fresh	1,611

QUEBEC.

	Dutiable.
Fish, cod, haddock, &c., dry, salted	$ 5
Fish, cod, haddock, &c., smoked	84
Mackerel, pickled	94
Halibut	4
Herring, smoked	7
Sea Fish, other salted or pickled	62
Fish, oysters in cans	2,902
" oysters, canned	16
" other	2,134
Oil, fish, other	30
	Free.
Fish, cod, haddock, &c., fresh	10,450
Fish, cod, haddock, &c., dry, salted	1,748
Fish, cod, haddock, &c., wet salted	12,193
Fish, cod, haddock, &c., smoked	1,766
Fish, makerel, fresh	968
" halibut, fresh	168
" herring, fresh	1,417
" herring, smoked	48
" oysters, fresh	11,230

NOVA SCOTIA.

	Dutiable.
Fish, cod, haddock, &c., dry salted	$10,467
Fish, preserved	1,619
	Free.
Fish, cod, haddock, &c., fresh	2,147
Fish, cod, haddock, &c., dry salted	23,400
Fish, mackerel, FRESH	79,791
" herring, FRESH	7,961
" herring, pickled	326
" sea-fish, other	17,355
" oysters	6,864
" lobsters	22
" bait	13,454
" salmon	1,210
Whale Oil	41
Cod Oil	1,304

BRITISH COLUMBIA.

	Dutiable.
Fish, salted or smoked	$ 1,203
" preserved	5,717
	Free.
Fish, fresh	11

NEW BRUNSWICK.

	Dutiable
Fish, cod, haddock, &c., dry salted	$ 64
Fish, preserved	6
Oil, cod liver	13
	Free.
Fish, cod, haddock, &c., fresh	671
Fish, cod, haddock, &c., dry salted	340
Fish, mackerel, fresh	24
" herring, fresh	999
" herring, pickled	900
" herring, smoked	302
" oysters, fresh, in bbls.	13,274
" oysters, fresh, in cans	567
Fish Oil, cod	486
Whale Oil	1,307

PRINCE EDWARD ISLAND.

	Dutiable,
Fish, oysters, canned	$ 10
	Free.
Herring, pickled	18
Sea-fish, other	13
Fish, bait	1,824

No. I.

UNITED STATES IMPORTS FROM BRITISH AMERICA IN TERMS OF UNITED STATES EXPORTS TO BRITISH AMERICA, developing a principle of BERNOULLI'S TABLE.

UNITED STATES IMPORTS from British America.	UNITED STATES EXPORTS to British America.
128	= 76 + 52
486	= 240 + 108 + 76 + 62
1,703	= 1188 + 329 + 76 + 58 + 52
3,527	= 3452 + 58 + 8 + 6 + 3
4,844	= 4553 + 280 + 8 + 3
5,128	= 4790 + 338
12,268	= 7894 + 3452 + 830 + 62 + 30
20,301	= 17,971 + 2144 + 62 + 58 + 52 + 8 + 6
28,099	= 17,929 + 6530 + 3452 + 174 + 8 + 6
31,601	= 29,597 + 1884 + 62 + 58
32,764	= 31,601 + 108 + 52 + 3
60,129	= 49,068 + 7894 + 2830 + 329 + 8
60,656	= 60,129 + 459 + 62 + 6
91,149	= 49,068 + 29,597 + 7894 + 3801 + 459 + 108 + 76 + 58 + 52 + 30 + 6
111,077	= 49,068 + 29,597 + 17,971 + 7894 + 3452 + 2830 + 174 + 52 + 30 + 6 + 3
118,905	= 111,077 + 4790 + 2598 + 280 + 108 + 52
139,373	= 49,068 + 29,597 + 17,971 + 17929 + 6530 + 5894 + 5293 + 5204 + 1884 + 3
428,201	= *195,726 × 2 + 29,597 + 6530 + 459 + 108 + 52 + 3
540,278	= 195,726 × 2 + 139,373 + 7894 + 1338 + 174 + 30 + 8 + 6 + 3
*195,726	= The total United States Exports of Fish, Fish Oils and Products of the Sea to British North America in 1872-3 as shown in detail in Statement No. VI, Table III.

No. II.

UNITED STATES FISH, &c., IMPORTS FROM BRITISH AMERICA IN 1873 IN TERMS OF THE "FIRE-BRICK AND CLAY" SERIES, developing a principle of Bernoulli's Table.

UNITED STATES Imports from British America.	THE TERMS OF THE "FIRE-BRICK AND CLAY SERIES."
3 45	
48	= 26 + 22
3 45 128	
176	= 56 + 52 + 42 + 26
486	= 162 + 142 + 88 + 52 + 42
1703	= 794 + 590 + 185 + 125 + 9
3527	= 2793 + 590 + 125 + 10 + 9
4844	= 4114 + 590 + 88 + 42 + 10
5128	= 4287 + 590 + 142 + 52 + 26 + 22 + 9
12,268	= 11,808 + 142 + 125 + 88 + 73 + 22 + 10
20,301	= 17,425 + 2793 + 73 + 10
28,099	= 20,198 + 4114 + 3729 + 26 + 22 + 10
31,601	= 20,198 + 11,184 + 162 + 26 + 22 + 9
32,764	= 31,601 + 590 + 358 + 125 + 42 + 26 + 22
60,129	= 24,843 + 20,198 + 11,808 + 2462 + 590 + 162 + 56 + 10
60,656	= 60,129 + 185 + 162 + 88 + 73 + 10 + 9
91,149	= 87,572 + 2793 + 565 + 125 + 52 + 42
111,077	= 87,572 + 20,198 + 2633 + 565 + 73 + 26 + 10
118,905	= 112,415* + 4114 + 1432 + 794 + 88 + 52 + 10
139,373	= 118,905 + 20,198 + 162 + 73 + 26 + 9
428,201	= 111,077 + 118,905 + 139,373 + 32,764 + 20,301 + 5128 + 565 + 88
540,278	= 428,201 + 111,077 + 590 + 358 + 52

*112,415 is the sum of the substituted and omitted items of the Fire-Brick and Clay Series.

Sea Fish, other pickled & smoked ... 42
Fish, other, salted or pick. ... 487
" oysters in cans, fresh, 12,281
" oysters, preserved ... 863
" lobsters, preserved ... 722
" other, preserved in oil, 2,874
Oil, fish, N. E. specified ... 249
Fish, cod, haddock, &c., fresh ... Free.
Fish, cod, haddock, &c., dry, salted ... 13,737
Fish, cod, haddock, &c., wet salted ... 4,877
Fish, cod, haddock, &c., smoked ... 13,842
Fish, mackerel, fresh ... 17
" mackerel, pickled ... 220
" halibut, fresh ... 64
" herring, fresh ... 1,103
" herring, pickled ... 162
" herring, smoked ... 715
Sea Fish, other ... 4,725
Fish, oysters in hlls., fresh, 16,721
" oysters, in cans ... 104,491
" lobsters, fresh ... 259
" lobsters, preserved ... 288
" salmon, smoked ... 71
" salmon, canned ... 165
" ALL OTHER ... 79,750
" Oil, whale ... 15,934
Sea Fish, other salted or pickled ... 62
Fish, oysters in cans ... 2,202
" oysters, canned ... 16
" other ... 2,134
Oil, fish, other ... 30
Fish, cod, haddock, &c., fresh ... Free.
Fish, cod, haddock, &c., dry, salted ... 10,450
Fish, cod, haddock, &c., wet salted ... 1,748
Fish, cod, haddock, &c., smoked ... 12,193
Fish, cod, haddock, &c., smoked ... 1,766
Fish, makerel, fresh ... 968
" halibut, fresh ... 168
" herring, fresh ... 1,417
" herring, smoked ... 48
" oysters, fresh ... 14,780
" oysters, fresh, in cans, 5,449
" lobsters, fresh ... 7,696
" lobsters, preserved ... 1,818
" bait ... 9
" clams, or other ... 7
" salmon, fresh ... 34
" salmon, canned ... 379
" all other, fresh ... 6,968
" all other pickled ... 14,352
Fish Oil, whale ... 2,752
Fish Oil, other ... 19,789

dry salted ... 23,400
Fish, mackerel, FRESH ... 79,791
" herring, FRESH ... 7,961
" herring, pickled ... 326
" sea-fish, other ... 17,355
" oysters ... 6,864
" lobsters ... 22
" bait ... 134,454
" salmon ... 1,210
Whale Oil ... 41
Cod Oil ... 1,304

BRITISH COLUMBIA.

Dutiable.
Fish, salted or smoked ... $ 1,203
" preserved ... 5,717
Free.
Fish, fresh ... 11

MANITOBA.

Dutiable.
Fish, salted or smoked ... $ 355
" preserved in oil ... 1,129
Free.
Fish ... 2,216

Fish, cod, haddock, &c., dry salted ... 340
Fish, mackerel, fresh ... 24
" herring, fresh ... 990
" herring, pickled ... 900
" herring, smoked ... 302
" oysters, fresh, in hlds., 13,274
" oysters, fresh, in cans, 267
Fish Oil, cod ... 480
Whale Oil ... 1,307

PRINCE EDWARD ISLAND.

Dutiable.
Fish, oysters, canned ... $ 10
Free.
Herring, pickled ... 18
Sea-fish, other ... 13
Fish, bait ... 1,824

"FURS, SKINS AND TAILS" transformed into "The Produce of Marine Animals." †

Quebec ... $109,213
Nova Scotia ... 330
New Brunswick ... 713

*See Trade and Navigation Returns for 1874.

†For analysis and application of this Fraud, see Letter entitled "Falsified Departmental Reports," page 8.

No. I

The United States figures are sums of the Canadian figures, and both are sums of the "Fire-brick and Clay" Series. In a subsequent Table it is shown that the "Fire-brick and Clay" Series is the EQUIVALENT OF COLUMN No. III TO BERNOULLI'S TABLE.

The United States Figures.	The Canadian Reciprocal Figures.	The "Fire-brick and Clay" series, being interchangeable with both.
9	6 + 3	
19	10 + 9	203 = 88 + 73 + 42
63	44 + 19	
112	71 + 41	
135	71 + 64	= 73 + 52 + 10
141	94 + 37 + 10	= 73 + 42 + 26
183	162 + 16 + 5	= 88 + 73 + 22
210	112 + 94 + 4	= 142 + 42 + 26
220	220	= 125 + 73 + 22
253	249 + 4	= 185 + 42 + 26
320	302 + 18	= 185 + 125 + 10
496	487 + 9	= 358 + 73 + 56 + 9
517	487 + 30	= 162 + 142 + 125 + 88
596	302 + 288 + 6	= 505 + 22 + 9
838	722 + 94 + 22	= 505 + 185 + 88
839	487 + 302 + 37 + 7 + 6	= 704 + 26 + 10 + 9
945	900 + 41 + 4	= 794 + 125 + 26
1123	1103 + 16 + 4	= 744 + 185 + 125 + 10 + 9
1286	900 + 370 + 16	= 1276 + 10
1307	1304 + 3	= 1276 + 22 + 9
1603	1417 + 162 + 24	= 1276 + 185 + 142
1747	1417 + 330	= 1666 + 42 + 9
1949	1619 + 330	= 1602 + 185 + 162
1950	1203 + 713 + 34	= 1666 + 162 + 56 + 26 + 10
2117	1818 + 288 + 11	= 1893 + 162 + 52 + 10
2494	2202 + 288 + 4	= 2462 + 22 + 10
2548	2216 + 326 + 6	= 1893 + 590 + 56 + 9
3001	2874 + 81 + 41 + 5	= 2793 + 88 + 56 + 42 + 22
3668	1823 + 1766 + 18	= 2793 + 590 + 125 + 52 + 26 + 22
3955	3608 + 340 + 7	= 3729 + 185 + 22 + 10 + 9
4086	3958 + 94 + 34	= 3961 + 125
4770	4725 + 41 + 4	= 4287 + 358 + 125
6442	6068 + 370 + 4	= 4287 + 1893 + 162 + 52 + 26 + 22
6449	6068 + 340 + 34 + 7	= 4114 + 1893 + 142 + 185 + 73 + 42
7346	6858 + 370 + 112 + 16	= 4287 + 3001 + 26 + 22 + 10
7550	7066 + 84 + 64 + 6	= 4287 + 3001 + 552 + 10
7682	7061 + 9 + 9 + 3	= 4114 + 3729 + 88 + 42 + 9
8095	7696 + 1210 + 84 + 5	= 4287 + 3729 + 794 + 185
9438	7991 + 1417 + 44 + 16	= 4287 + 4114 + 794 + 125 + 73 + 26 + 10 + 9
11499	10467 + 960 + 37 + 5	= 11,184 + 125 + 52 + 26 + 22
11516	7961 + 2874 + 663 + 18	= 11,184 + 162 + 88 + 73 + 9
13502	13454 + 48	= 11,808 + 1602 + 73 + 10 + 9
16096	15934 + 162	= 11,184 + 4114 + 565 + 125 + 56 + 42 + 10
35391	23400 + 10467 + 1417 + 84 + 16 + 7	= 20,198 + 11,808 + 2633 + 590 + 160
55923	23400 × 2 + 7961 + 1103 + 44 + 9 + 6	= 20,198 + 17,425 + 11,184 + 4287 + 2633 + 88 + 73 + 26 + 9.
241,779		

CHAPTER I.

The Canadian Trade Tables of 1878 are Fabricated Records.

It is proposed to prove that the Canadian Trade Tables of 1878, in respect of the Trade between Canada and the United States and Canada and Great Britain, in Cotton Goods of all descriptions, and Woollen Goods of all descriptions, are nothing more than a fabricated record, utterly misleading.

It will be shown that they discriminate by means of Fabricated Figures between Great Britain and the United States in certain classes of goods, also that the record of duties received on goods alleged to be imported is necessarily a false record.

It will also be shown that the Figures in the Despatch of March 19th, 1879, addressed by the Marquis of Lorne to Sir Michael Hicks Beech, are fabricated figures and wholly misleading with regard to the object for which they are stated in the Despatch to have been transmitted, viz:—"A Memorandum of the Finance Minister, shewing how far, comparatively, England is favoured in the new Tariff." This Despatch will be found in Sessional Paper No 155, anno 1879. It is dated "Ottawa, March 19, 1879." The fabricated figures recording Trade with Great Britain and the United States in the goods selected for illustration, viz, Cottons and Woollens, are types of prevailing misrepresentations which impugn and render worthless Canadian Trade Tables signed R. S. M. Bouchette, Commissioner of Customs, and J. Johnson, Commissioner of Customs for many successive years.

No attempt is now made to arrive at any conclusion respecting the magnitude of the Fabrications. The item "All other" encloses an aggregate so disproportionate to the entries in detail as to afford room for enormous fabrications impossible to detect from the properties of the figures used. But it must not be for one moment supposed that the "FINAL DIFFERENCES" represent the actual Differences between "Entries for Home Consumption" and "Imports."

The Final Differences are the result of the successive reduction of the Provincial Differences to form the Dominion Record. The Provincial Differences are given further on, and greatly exceed the Dominion Record. Attention is particularly called to the amazing accuracy of the figures in detail. This accuracy will be adverted to presently when the bearing of the Provincial Differences is pointed out.

An analysis of the figures proves,—

1st.—That when properly grouped they form an arithmetical progression. (No. I.) On page 2.

2nd.—That when properly grouped they are sums of the terms of the "Fire-brick and Clay" Series, and consequently of Bernoulli's Column, No. III, of which the "Fire-brick and Clay" Series is the equivalent. (No. II.) On page 3.

3rd.—When properly grouped they are also sums of Dr. Edward Young's United States Fish, Fish Oil, Shell Fish and Products of the Sea Exports to British America in 1872-73. (No. III.) On page 3.

4th.—When these Differences are grouped according to countries, the aggregates turn out to be equal to the Differences between Dr. Edward Young's Fish Figures and the Bernoulli Column, No IV, carried out to 48 terms. (Nos. IV, V and VI.) On page 5.

5th.—When these last named Differences are grouped and added they again produce the Canadian Final Differences between Entries for Home Consumption as compared with Imports for Cotton and Woollen Goods. (No. VII.) On page 5.

STATEMENT No. X.

THE DOMINION RECORD AS DISTINGUISHED FROM THE RECORD BY PROVINCES HEREAFTER GIVEN.

TABLE showing the difference between the alleged values of items "Imported" and "Entered for Home Consumption," in the Trade and Navigation Tables of Canada for the Year 1878. The column showing "Imports" being alone found in the "Despatch"; the column showing values "Entered for Home Consumption," being the basis of Tariff Exactions. The argument relates solely to the construction of the columns of differences and the misrepresenting artifice this construction developes.

CHARACTER OF GOODS—COTTONS(1)—YEAR 1878.

COUNTRY.	GOODS.	Imported	Entered for Home Consumption.	Differences.
	(Page 352, T. and N. Tables.)	$	$	$
Great Britain	Cottons, Bleached and Unbleached	431,807	430,337	− 1470
United States	" " "	539,763	536,357	− 3406
Great Britain	" Printed, Painted, &c.	1,982,444	1,984,044	+ 1600
United States	" " "	893,681	892,633	− 1048
Great Britain	" Ginghams and Plaids	20,205	20,385	+ 180
United States	" " "	4,463	4,363	− 100
Great Britain	" Jeans, Denims, &c.	26,929	28,528	+ 1599
United States	" " " "	137,492	138,165	+ 673
Great Britain	" Clothing, &c.	174,288	177,407	+ 3119
United States	" " "	191,441	191,351	− 90
Great Britain	" **All Other** (2)	1,752,805	1,761,293	+ 8488
United States	" "	729,071	725,366	− 3705
Great Britain	Cotton Thread, on Spools (3)	175,797	183,221	+ 7424
United States	" "	2,133	2,133	0
Great Britain	Cotton Warp, not coarser than No. 40	692	692	0
United States	" "	14,674	14,674	0
Great Britain	*Carpets of any material, except Woollen* (4)	96,000	96,562	+ 562
United States	" " " " "	8,058	7,900	− 158

(1) N. B.—These items are differently grouped in the Despatch. They will be found on pages 353, 352 and 350, &c., of the Trade and Navigation Tables for 1878.

(2) In the Despatch this item is made to assume the form of:—
"Manufactures of Cotton, all other".....Great Britain.....$3,735,249
" " " .....United States..... 1,622,752
various details being grouped in this item.

(3) Transposed in Trade Tables, page 353, see Errata. This item is omitted in the Despatch.

(4) See page 350. This item is introduced into the Despatch as "Carpets of Wool and Cotton," under Woollen Goods.

CHARACTER OF GOODS,—WOOLLENS,—YEAR 1878.

Country.	Goods.	Imported.	Entered for Home Consumption.	Difference.
		$	$	$
Great Britain	Woollens, viz., Blankets	172,294	198,124	+25,830
United States	" "	28,998	28,822	- 176
Great Britain	" Carpets	651,497	648,974	- 2,523
United States	" "	14,253	13,953	- 300
Great Britain	" Flannels	261,646	259,359	- 2,287
United States	" "	68,695	67,652	- 1,043
Great Britain	" Tweeds	933,367	926,684	- 6,683
United States	" "	10,026	9,507	- 519
Great Britain	" Clothing, &c.	759,439	771,245	+11,806
United States	" "	128,446	128,448	+ 2
Great Britain	" Worsted and Yarn	66,051	65,209	- 842
United States	" "	5,655	5,655	0
Great Britain	" **Other**	5,130,623	5,137,773	+ 7,150
United States	" "	147,614	148,364	+ 750

It will be observed that the values of the item "Woollens, Other"—Great Britain—$5,130,623; United States, $147,614, vastly exceeds in magnitude the aggregate sum of all the other items entered for Great Britain whose details are given, and thus forms a Depository or Dump in which very many other "Differences" may be comprehended and concealed.

It is important to note this entry "Other" or "All other," or "All other, N. E. S.," (Not Elsewhere Specified.)

PROOF THAT ALL THESE FIGURES ARE FABRICATED.

TABLE presenting the Final or Dominion Differences in Statement No. X, arranged in Columns of Positive and Negative terms, showing the excess or defect of the values of Goods entered as "Imports" when compared with the values entered for "Home Consumption," on which Duty is paid.

COTTONS AND WOOLLENS.

Positive Terms or Excess of Values entered for "Home Consumption" over Values of "Imports."		Negative Terms or Defect of Values entered for "Home Consumption" as compared with Imports.	
Positive Terms.			*Negative Terms.*
2	1	1	90
180	2	2	100
562	3	3	158
673	4	4	176
750	5	5	300
1,509	6	6	519
1,600	7	7	842
3,119	8	8	1,043
7,150	9	9	1,048
7,424	10	10	1,470
8,488	11	11	2,287
11,806	12	12	2,523
25,830	13	13	3,406
		14	3,705
Total.....	69,183	15	6,683
		Total.....	24,350

It is the character, construction and relations of these Positive and Negative Terms which develop and prove their artificial manufacture, and the fabrication of the quantities from which they are derived.

PROPERTIES OF THE FIGURES EMPLOYED.

No. I.

TABLE showing that the "Differences" in Statement No. X. when properly grouped, form an Arithmetical Progression from 1000 to 25,000 and upwards, no single term being repeated in any group of terms.

SUMS OF THE "DIFFERENCES" GROUPED.

842	1600	1048	1599	2287	2287	2287	7424	7424	7150	7424	6683	6683	7424	7424	7424	7424	7424	11,806	7150	8488	8488	6683	6683
158	300	842	1600	6583	6523	1599	300	1048	1048	2287	1470	1470	3119	7150	6683	6683	6683	6,683	7424	7150	7150	7424	7424
	100	562	519	100	842	1048	176	180	750	673	1048	1048	1600	176	1043	1043	1048	1048	562	3705	3705	7150	7150
		158	180	90	158	1043	100	158	562	176	2523	2523	750	158	750	842	1043	1043	519	2287	2287	2287	2287
		300	100		100	673		100	300	180	176	842	673	90	100	750	750	750	180	176	180	842	180
		90	2		90	158		90	100	158	100	176	176	2		158	560	842	158	158	100	180	176
						100			90	100		158	158			100	300	562	90	100	90	158	100
						90				2		100	100				100	300	2			100	
						2											90	158				90	
																		100					
																		90					
1000	2000	3000	4000	5000	6000	7000	8000	9000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	20,000	21,000	22,000	23,000	24,000	25,000

It will be shown in another Chapter that all the "Imports" and "Entries" for "Home Consumption" can be put in the form of an Arithmetical Progression.

No. II.

TABLE showing that the "Differences" are successively made up from the terms of the "Fire-brick and Clay Series" of 1867 to 1873.

THE "DIFFERENCES" IN TERMS OF THE "FIRE-BRICK AND CLAY SERIES."

22	10	10	9	9	9	138	138	300	562	562	519	842	842	842	750	1600	2287	842	2523	3406	3406	3705	7150	7424	7424	11806
26	22	22	42	42	22	300	176	100	100	180	176	180	562	562	562	562	100	158	842	158	3119	3119	158	842	3705	7424
42	26	26	52	56	56	42	180	158	88	100	180	26	56	185	180	125	26	519	22	73	158	300	52	88	569	3119
	42	100	73	73	88	10	26	73			158		10	10	56		22	1600	10	42		26	42	56	73	2287
					125	9	22	42			10				52		88		9	26			22	52	42	1043
																								26		125
																										26
90	100	158	176	180	300	519	562	673	750	842	1043	1048	1470	1599	1600	2287	2523	3119	3406	3705	6683	7150	7424	8488	11,806	25,830

It will be observed that by successive substitution any of the Differences from 90 to 25,830, can be rendered in terms of the quantities 9, 10, 22, 26, 42, 52 and 56, which form the basis of the "Fire-brick and Clay Series," as shown in Table II., Statement IV., or in terms of Bernoulli's Column III., of which the "Fire-brick and Clay Series" is the equivalent.

No. III.

THE FINAL OR DOMINION DIFFERENCES FOR COTTONS IN 1878 IN TERMS OF DR. EDWARD YOUNG'S FISH, FISH OIL, SHELL FISH AND PRODUCTS OF THE SEA, UNITED STATES EXPORTS TO BRITISH AMERICA IN 1872-3.

YOUNG'S FISH FIGURES	52	62	62	174	258	338
	30	30	58	6	108	280
	8	8	30		76	52
			8		62	3
					52	
					6	
COTTON DIFFERENCES	90	100	158	180	562	673
YOUNG'S FISH FIGURES	900	1188	989	459	2477	2830
	58	108	350	350	258	350
	52	76	108	280	240	108
	30	62	62	258	76	58
	8	30	52	174	62	52
		6	30	76	6	8
			8	3		
COTTON DIFFERENCES	1048	1470	1599	1600	3119	3406
YOUNG'S FISH FIGURES	3452	6530	7894			
	174	830	338			
	76	58	174			
	3	6	76			
			6			
COTTON DIFFERENCES	3705	7424	8488			

THE FINAL DIFFERENCES FOR WOOLLENS IN 1878 IN TERMS OF DR. EDWARD YOUNG'S FISH, FISH OIL, SHELL FISH AND PRODUCTS OF THE SEA, UNITED STATES EXPORTS TO BRITISH AMERICA IN 1872-73.

YOUNG'S FISH FIGURES	76	108	459	350	700	830
	62	76	52	280	76	62
	30	58	8	62	58	58
	8	52		58	8	52
		6				30
						8
						3
WOOLLEN DIFFERENCES	176	300	519	750	842	1043
YOUNG'S FISH FIGURES	2144	2354	6530	6530	7894	17971
	52	108	68	280	3801	6530
	58	58	52	240	108	459
	30	3	30	62	3	329
	3		3	30		280
				8		258
						3
WOOLLEN DIFFERENCES	2287	2523	6683	7150	11,806	25,830

THE DIFFERENCES ARRANGED ACCORDING TO COUNTRIES, YEAR 1878.

COTTON GOODS.				WOOLLEN GOODS.			
GREAT BRITAIN.		UNITED STATES.		GREAT BRITAIN.		UNITED STATES.	
Positive Terms.	Negative Terms.	Positive Terms.	Negative Terms.	Positive Terms.	Negative Terms.	Positive Terms.	Negative Terms.
180	1470	673	3406	25,830	2523	2	176
562			1048	11,806	2287	750	300
1599			100	7,150	6683		1043
1600			90		842		519
3119			3705				
7424			158				
8488							
22,972	1470	673	8507	44,786	12,335	752	2038
+ 22972			− 8507		+ 44,786		− 2038
− 1470			+ 673		− 12,335		+ 752
+ 21502			− 7834		+ 32,451		− 1286

These numbers, possessing the relations pointed out, are necessarily all fabricated numbers. Further analysis herewith submitted shows the origin of their fabrication, and discloses other remarkable relations.

In order to determine the apparent relative amount of duty exacted on these differences in excess, or remitted on the differences in defect according to the entries for Home Consumption, reference must be had to the first or Provincial order of Differences as deduced from the returns credited to the separate Provinces and exhibited in detail in subsequent pages.

Then there is to be considered the Dump or Depository—

Manufactures of Cotton—All other—Great Britain	$3,735,249
" " " —United States	1,622,752
Woollens—All other—Great Britain	5,130,623
" " —United States	147,614

THE BERNOULLI TABLE

And the Fabricated Trade Tables concerning Cotton Goods and Woollen Goods in 1878.

The Differences between the forged Imports of Cotton Goods and of Woollen Goods in the Canadian Trade Tables of 1878, and embodied in the Despatch of March 19th, 1879, are nothing more than the grouped Differences between Bernoulli's Series, No IV. to 48 terms, and Dr. Edward Young's forged Fish Exports from the United States in 1872–3 to British America.

The sum of Dr. Edward Young's Fish, Fish Oil, Shell Fish and Products of the Sea Exports to British America in 1872–3, amounts to $195,726, and consists of 49 terms.

The sum of 48 terms, including three cyphers, of the IVth Column of Bernoulli's Table, is 194,580.

Sum of Young's Series to 49 terms	195,726
Sum of Bernoulli's Series, Column IV. to 48 terms	194,580
Difference	1,146

But 1140 is equal to 969 (the sum of 20 terms of Bernoulli's Column III), plus 171; or 1146 = 969 + 171 + 6. These three quantities are interealated for the three cyphers in the Bernoulli Columns

Placed side by side and the differences between Bernoulli's and Young's Columns recorded, the result is as given below. The Negative terms of the Differences give the sum of the Positive terms or Excess of Values Entered for "Home Consumption" over "Imports" for Cottons and Woollens, in the Canadian Trade Tables of 1878, and embodied in the "Despatch of March 19th, 1879." The Positive terms give the same aggregate. When these Differences are properly grouped and added they give in regular sequence both the Positive and Negative terms, or Excess and Defect of Values of "Entries for Home Consumption" as compared with "Imports." The entire relation is shown on the next page. The mathematical formula is given at the close of Chapter II. In Chapter II. the distinction between Provincial Differences and Dominion or Final Differences is pointed out. The Provincial Differences are the most important and misleading deceptions.

TABLE showing the Arithmetical Relationship between Bernoulli's Column No. IV, Dr. Edward Young's Fish Trade Figures of 1872–73 and the Canadian Trade Tables of 1878.

No. IV shows the difference between Bernoulli's Series, No. IV, to 48 terms, and Dr. Edward Young's United States Fish Trade Figures of 1872-73.

No. V. and VI show that these differences are equal to the sums of the Positive Terms or "Final Differences" between the entries for Home Consumption and Imports for 1872-73.

No. VII shows that the figures are reciprocally interchangeable, sums one of the other, and apply also to the negative Differences.

No. IV.

Bernoulli's Series IV, with 1146, intercalated, the figures in italics.	Dr. Young's Fish Trade Figures of 1872-73.	Differences.
1	3	— 2
4	6	— 2
6	8	— 2
10	30	— 20
20	52	— 32
35	58	— 23
56	62	— 6
84	76	+ 8
120	108	+ 12
165	174	— 9
171	240	— 69
220	258	— 38
286	280	+ 6
364	329	+ 35
455	338	+ 117
569	350	+ 219
680	353	+ 327
816	459	+ 357
969	700	+ 269
969	839	+ 130
1140	900	+ 240
1330	932	+ 398
1540	989	+ 551
1771	1188	+ 583
2024	1338	+ 686
2300	1571	+ 729
2600	1642	+ 958
2925	1712	+ 1213
3276	1863	+ 1413
3654	1884	+ 1770
4060	2144	+ 1916
4495	2354	+ 2141
4960	2477	+ 2483
5456	2598	+ 2858
5984	2614	+ 3370
6545	2830	+ 3715
7140	3452	+ 3688
7770	3801	+ 3969
8436	4553	+ 3883
9139	4790	+ 4349
9880	5204	+ 4676
10660	5293	+ 5367
11480	5894	+ 5586
12341	6530	+ 5811
13244	7894	+ 5350
14190	17929	— 3739
15180	17971	— 2791
16215	29597	—13382
0	49068	—49068
195,726	195,726	or 138,366

No. V.

Sum of Negative or positive Differences.
2
2
2
6
9
20
23
32
38
69
3739
2791
13382
49068
69183

The remaining positive Final Differences, necessarily amount to 69,183, and the Joint Cotton and Woollen Series for 1878, have their equivalents for positive terms in either of the positive or negative Series of Differences between Bernoulli's column IV and Dr. Young Fish Figures of 1872-73, and their figures are sums of those Differences.

The quantity 24,350. being the sum of the defect of values entered for "Home Consumption" as compared with "Imports," is easily obtained by the processes illustrated in No. VII.

Sum of Differences without regard to signs 138,366
" " according to signs..... 69183 – 69183 = 0

No. VI.

The Figures in the Despatch of March 19th, 1879. The Final Series for Cottons and Woollens in 1878.

Positive terms of excess of values entered for "Home Consumption over values of "Imports," being Final Differences. *Positive Terms.*				Negative terms, of defect of values entered for "Home Consumption," as compared with "Imports," being Final Differences. *Negative Terms:*			
2	...	..	1	1	...	...	90
180	..	...	2	2	...	...	100
562	...	...	3	3	..	...	158
973	..	...	4	4	...	..	176
750	..	...	5	5	...	..	300
1599	..	...	6	6	...	...	519
1600	...	...	7	7	...	...	842
3119	...	...	8	8	...	...	1043
7150	...	...	9	9	...	...	1048
7424	...	...	10	10	...	...	1470
8488	...	...	11	11	...	...	2287
11806	...	..	12	12	...	...	2523
25830	...	...	13	13	...	...	3406
				14	...	...	3705
				15	...	...	6683
$69183							$24350

No. VII.

The Final Differences in the Trade Tables of 1872-73 and in the Despatch of March 19th, 1879, are sums of the Differences, without regard to signs, between Dr. Young's Fish Trade Figures of 1872-73 and the Bernoulli Series in Column IV.

The Positive Terms.				The Negative Terms.			
6	9	20	2	23	2	6	2
35	2	32	23	32	9	35	25
139	551	38	327	35	20	117	32
		583	398		69		117
180	562	673	750	90	100	158	176
117	2	8	9	23	2	20	12
269	20	12	69	32	8	23	35
213	38	958	240	35	35	32	38
	117	2141	2483	210	117	38	958
	210		4349		357	729	
	1213						
1599	1600	3119	7150	300	519	842	1043
9	8	8	2	23	2	9	2
12	12	69	20	32	20	20	38
3688	958	357	69	35	35	117	2483
3715	2141	3969	210	958	1413	2141	
	5367	3688	240				
		3715	729	1048	1470	2287	2523
			5367				
			5811	2858	3370	5811	
			13382	398	327	729	
				69	8	117	
				38		20	
				35		6	
				8			
7424	8488	11,806	25,830	3406	3705	6683	

It follows as an arithmetical consequence of the foregoing relations, that if double the sum of the "Excess of Values" entered for "Home Consumption" over values of "Imports" for Cottons and Woollens in the Canadian Trade Tables of 1878, be added in the form of the Column of Differences to Bernoulli's Column No. IV, with 1146 intercalated, the resulting quantities are Dr. Edward Young's United States Fish Export Trade figures to British America in 1872-73. Numerous other relations will appear in succeeding pages.

But this is not all. No. VII shows that the separate terms of the Differences when properly grouped make up not only each separate term of the excess of values entered in the Canadian Trade Tables for "Home Consumption," on which duty is paid, but also the defect of values entered for Home Consumption as compared with imports. But these separate terms constituting the "defect of values" do not appear in the aggregates 138,366 or 69,183, and yet they are represented figure for figure, when proper adjustment of the Differences is made. These Differences, then, enclose term for term two Series, viz., the Positive terms and also the Negative terms of the Final or Dominion Differences for Cottons and Woollens in 1878. They make up as shown in No. VII, not only 69,183 but also 24,350 and the sum of these, viz., 93,533, and they do this term for term.

So that the Differences between Bernoulli's Column No. IV and Young's United States Fish Trade Figures 1872–3 made up, term for term, all the Final or Dominion Differences in the official Canadian entries purporting to represent Canadian Trade in Cottons and Woollens with Great Britain and the United States in the year 1878. In other words, the differences between Bernoulli's Column IV and Young's Fish Trade Figures, are Dr. Edward Young's and Mr. Commissioner Johnson's private representation of the trade of Canadian merchants with the United States and the people of Great Britain in Cottons and Woollens for the year named. And this private representation is based on a prior private representation of trade between the United States and Canada in respect of the Products of the Sea.

AN IMPORANT PROPERTY OF BERNOULLI'S TABLE.

In the foregoing table the sum of the Differences between separate figures of the Bernoulli Series and Dr. Ed. Young's United States Fish Series is equal to double the sum of the positive terms or excess of values of the Canadian Cotton Series of Differences in 1878.

This relation in another form obtains between some of the Bernoulli Series.

For instance: When the Difference between the separate figures of the Series in Column IX and XI to 20 terms is taken, the sum of these Differences without regard to signs is equal to double the difference between the last terms of each, or with regard to signs, equal to 0. This relation is shown below:

Column IX.	Column XI.	Differences.	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
1	0	+ 1	
9	0	" 9	
45	1	" 44	
165	11	" 154	
495	66	" 429	16,796
1,287	286	" 1,001	
3,003	1,001	" 2,002	
6,435	3,003	" 3,432	
12,870	8,008	" 4,862	
24,310	19,448	" 4,862	
43,758	43,758	0	
75,582	92,378	−16,796	
167,960	167,960	0	or 33,592 without regard to signs.

The last term of Column XI is..... 92,378
The last term of Column IX is..... 75,582

Difference..... 16,796

Sum 167,960

or the sum is equal to ten times the Difference, and $33,592 \times 5 = 167,960$.

This property of some of the Columns of Bernoulli's Table is introduced here for future reference.

CHAPTER II.

THE RECORD BY PROVINCES—YEAR 1878.

Special attention is directed to the following pages. The subject treated relates to the Official Record of Canadian Trade by Provinces. All the details are given. The process of arriving at the results is displayed in full. The accuracy of the figures is striking. They are necessarily all fabricated, because they form when properly grouped

1st, An arithmetical Progression *(see ante)*;

2nd, They can be put in the form of the Fire Brick and Clay Series;

3rd, They are mathematically related to Edward Young's United States Fish Trade figures in United States Official Records;

4th, They are mathematically related to Bernoulli's table;

5th, They are mathematically equivalent to the sums of the Co-efficients of the successive expansions of the Binomial $(1+1)$ to the power of n, where n is successively equal to 1, 2, 3, 4, 5, &c., to any number of terms represented by n;

6th, They are mathematically subordinate to the general formula given at the end of this chapter.

The Record by Provinces, as distinguished from the Dominion Record—Year 1878.

COTTON GOODS.

COTTONS, BLEACHED OR UNBLEACHED, &c.*

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order of Differences.	2nd Order of Differences grouped.	3rd Order of Differences further grouped.	4th or Final Order of Differences.
		$	$				
Great Britain	Ontario	105,528	104,137	— 1391	G. Britain.		
United States	"	162,476	161,663	— 1413	+ 1811	G. Britain	
Great Britain	Quebec	239,938	238,042	— 1896	1227	+ 3038	G. Britain.
United States	"	143,812	143,812	0	+ 3038	— 4508	— 1470
					1391	— 1470	
Great Britain	Nova Scotia	38,923	40,734	+ 1811	1896 1221		U. States.
United States	"	82,251	80,315	— 1936	— 4508 U. States.	U. States.	— 3406
Great Britain	New Brunswick	34,045	32,824	— 1221	+ 269	+ 269	
United States	"	128,261	127,935	— 326	269 1413	— 3675 — 3406	
Great Britain	Manitoba	2978	4,205	+ 1227	1936 326		
United States	"	2785	3,045	+ 269	— 3675	— 1936	
	Total			11,490			

COTTONS, PRINTED, PAINTED, OR COLOURED, &c.

Great Britain	Ontario	725,883	720,955	— 4928	G. Britain.		
United States	"	326,205	326,309	+ 104	+ 8630	G. Britain.	
Great Britain	Quebec	977,243	976,595	— 648	4928 648	+ 8630	G. Britain.
United States	"	397,630	396,924	— 706	37 108	— 7030	
Great Britain	Nova Scotia	76,795	76,758	— 37	1309	+ 1600	+ 1600
United States	"	59,421	59,383	— 38	— 7030	U. States.	
Great Britain	New Brunswick	159,764	159,656	— 108	U. States.	— 1153	U. States.
United States	"	78,447	78,038	— 409	+ 104 1	+ 105 — 1048	— 1048
Great Britain	Manitoba	13,844	22,474	+ 8630	105		
United States	"	7,220	7,220	0	706 38		
Great Britain	British Columbia	4,657	3,348	— 1309	409		
United States	"	5,393	5,394	+ 1	— 1153		
			Total	16,918		+ 2648	

* Where a Province is omitted, the Imports and Entries for Home Consumption are the same.

GINGHAMS AND PLAIDS, &c.

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order of Differences.	2d Order of Differences.	3d Order of Differences.	4th Order of Differences.
		$	$				
Great Britain	Ontario	1,552	1,624	+ 102			
United States	"	823	721	— 102	G't Britain.		
Great Britain	Quebec	10,844	10,844	0	+ 102	G't Britain.	
United States	"	629	629	0	83 / 185	+ 185 / — 5	G't Britain.
Great Britain	Nova Scotia	5,588	5,588	0	— 5	+ 180	+ 180
United States	"	1,389	1,389	0		U. States.	
Great Britain	New Brunswick	1,395	1,390	— 5	U. States.	+ 2 / — 102	U. States.
United States	"	1,533	1,533	0	+ 2 / — 102	— 100	— 100
Great Britain	Manitoba	436	519	+ 83	— 100		
United States	"	89	91	+ 2			
	Total			294		— 80	

JEANS, DENIMS AND DRILLINGS, &c.

Great Britain	Ontario	2,372	2,708	+ 336	G't Britain.		
United States	"	35,829	35,422	— 407	+ 336	G't Britain.	
Great Britain	Quebec	15,805	15,392	— 413	1,790		
United States	"	57,629	58,286	+ 657	2,126	+ 2,126 / — 527	G't Britain.
Great Britain	Nova Scotia	2,048	2,048	0	413	+ 1,599	+ 1,599
United States	"	9,005	9,005	0	114 / — 527	U. States.	
Great Britain	New Brunswick	1,138	1,138	0	U. States.	+ 1,080	
United States	"	18,906	18,906	0	+ 657	— 407	
Great Britain	Manitoba	251	137	— 114	19 / 404	+ 673	+ 673
United States	"	1,591	1,610	+ 19	1,080		
Great Britain	British Columbia	5,315	7,105	+ 1,790	— 407		
United States	"	14,417	14,821	+ 404			
	Total			4,140		+ 926	2,272

CLOTHING AND WEARING APPAREL, &c.

Imported From	By	Imports	Entered for Home Consumpt'n.	1st Order of Differences.	2d Order of Differences.	3d Order of Differences.	4th Order of Differences.
		$	$				
Great Britain	Ontario	40,104	40,017	— 87			
United States	"	48,307	48,149	— 158	G't Britain.		
Great Britain	Quebec	44,916	44,773	— 143	+ 2,442	G't Britain, + 3,500	
United States	"	23,554	23,479	— 75	1,058	— 381	G't Britain.
Great Britain	Nova Scotia	25,405	25,405	0	+ 3,500	+ 3,119	+ 3,119
United States	"	31,048	30,967	— 81	87	U. States.	U. States.
Great Britain	New Brunswick	39,860	39,709	— 151	143	+ 224	— 90
United States	"	66,316	66,316	0	151	— 314	
Great Britain	Manitoba	18,273	20,715	+ 2,442	— 381	U. States.	
United States	"	3,572	3,796	+ 224	+ 224	— 90	
Great Britain	British Columbia	4,784	5,842	+ 1,058	158		
United States	"	13,012	13,012	0	75		
	Total			4419	81		
					— 314	+ 3,029	

ALL OTHER, NOT ELSEWHERE SPECIFIED.

Great Britain	Ontario	1,002,050	1,005,623	+ 3,573	G't Britain.		
United States	"	367,751	363,572	— 4,179	+		
Great Britain	Quebec	553,421	550,084	— 3,337	3,573	G't Britain.	
United States	"	171,206	171,240	+ 34	59	+ 11,825	G't Britain.
Great Britain	Nova Scotia	105,716	105,775	+ 59	372	— 3,337	
United States	"	79,003	79,003	0	1,037	+ 8,488	+ 8,488
Great Britain	New Brunswick	53,053	53,425	+ 372	6,784	U. States.	
United States	"	65,997	65,079	— 918	+ 11,825	+ 1,696	U. States.
Great Britain	Manitoba	7,676	8,713	+ 1,037	— 3,337	— 5,401	— 3,705
United States	"	12,435	14,097	+ 1,662	U. States.		
Great Britain	British Columbia	19,564	26,348	+ 6,784	+		
United States	"	21,572	21,268	— 304	1,696		
	Total			22,259	4,179	— 4,783	
					918		
					304		
					— 5,401		

COTTON THREAD ON SPOOLS, &c.

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order of Differences.	2nd Order of Differences.	3rd Order of Differences.	4th Order of Differences.
Great Britain	Ontario	9,755	9,755	0			
United States	"	473	473	0	G. Britain.		
Great Britain	Quebec	113,143	121,399	+ 8256	+ 8256	G. Britain.	
United States	"	369	369	...	− 693	+ 8256	
Great Britain	New Brunswick	32,139	31,446	− 693	− 139	− 832	G. Britain
United States	"	895	895	0	− 832	+ 7424	+ 7424
Great Britain	British Columbia	1039	900	− 139	U. States.	U. States.	U. States.
United States	"				0	0	0
				9088		+ 7424	

CARPETS OF ANY MATERIAL, EXCEPT WOOL, &c.

Great Britain	Ontario	50,347	50,680	+ 333	G. Britain.		
United States	"	4,099	3,941	− 158	+ 333	G. Britain.	
Great Britain	Quebec	16,907	17,446	+ 539	539	+ 872	G. Britain.
United States	"	1,592	1,592	0	+ 872	− 310	+ 562
Great Britain	Nova Scotia	8,428	8,118	− 310	− 310	+ 562	U. States.
United States	"	297	297	0	U. States.	U. States.	− 158
				1340	− 158	− 158	
						+ 404	

The figures of Prince Edward Island from Great Britain and the United States are recorded as showing no difference between "Imports and "Entered for Home Consumption" in respect of Cotton Goods. In cases where the "Import" entries and "Entries for Home Consumption" are the same, the items are not here introduced.

THE FIRST ORDER OF DIFFERENCES FOR COTTON GOODS, [illegible]8.

Positive Terms.

	+
United States	1
United States	2
United States	19
United States	34
Great Britain	59
Great Britain	83
Great Britain	102
United States	104
United States	224
United States	269
Great Britain	333
Great Britain	336
Great Britain	372
United States	404
Great Britain	539
United States	657
Great Britain	1037
Great Britain	1058
Great Britain	1227
United States	1662
Great Britain	1790
Great Britain	1811
Great Britain	2442
Great Britain	3573
Great Britain	6784
Great Britain	8630
Great Britain	8256
	+ 41,808

	+ 41,808
	− 28,140
Total Difference	69,948
Total Sum	13,668

Negative Terms.

	−
Great Britain	5
Great Britain	37
United States	38
United States	75
United States	81
Great Britain	87
United States	102
Great Britain	108
Great Britain	114
Great Britain	139
Great Britain	143
Great Britain	151
United States	1[illegible]3
United States	158
United States	3[illegible]4
Great Britain	310
United States	326
United States	407
United States	409
Great Britain	413
Great Britain	648
Great Britain	693
United States	706
United States	918
Great Britain	1221
Great Britain	1309
Great Britain	1391
United States	1413
Great Britain	1896
United States	1936
Great Britain	3337
United States	4179
Great Britain	4928
	− 28,140

The Third Order of Differences for Cotton Goods, 1878.

Country Imported From.	Positive Terms.	Negative Terms.
Great Britain	3038	4508
United States	269	3075
Great Britain	8630	7030
United States	105	1153
Great Britain	185	5
United States	2	102
Great Britain	2126	527
United States	1080	107
Great Britain	3500	381
United States	224	14
Great Britain	11825	3337
United States	1690	5401
Great Britain	8256	832
Great Britain	872	310
United States	0	158
Total	41,808	28,140

The Fourth, being the Dominion, or Final Order of Differences for Cotton Goods, 1878.

Country Imported From.	Positive Terms.	Negative Terms.
Great Britain	180	90
Great Britain	562	100
United States	673	158
Great Britain	1599	1048
Great Britain	1000	1470
Great Britain	3119	3496
Great Britain	7424	3705
Great Britain	8488	
Total	23,645	9977

	Third Order.		*Final Order.*
	+ 41,808		+ 23,645
	− 28,140		− 9,977
Sum	13,668	Sum	13,668
Difference	69,948	Difference	33,622
Therefore,	41,808		28,140
	9,977	is equal to	23,645
	51,785		51,785

The Differences arranged according to Countries will display other relations. These will be found at the close of the analysis concerning Woollen Goods according to Provinces. The "Country imported from," refers only to the positive terms.
The entire relation of the figures in respect of Country is shown on page 10—Table A.

The Record by Provinces, as distinguished from the Dominion Record—Year 1878.

WOOLLEN GOODS.

WOOLLENS—BLANKETS, &c.

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order.	2nd Order.	3rd Order.	4th Order.
		$	$				
Great Britain	Ontario	45,359	45,066	— 293			
United States	"	11,106	10,878	— 228	G't Britain. + + 25,001		+
Great Britain	Quebec	62,564	61,034	— 1530	3,275	+28276	
					28,276	— 2446	25,830
United States	"	6,662	6,662	0	293		
Great Britain	Nova Scotia	8,346	7,981	— 365	1,530		
					365		
					258		
United States	"	1,492	1,492	0	2,446		
Great Britain	New Brunswick	19,917	19,659	— 258	U. States. + 52	+ 52	
United States	"	4,367	4,367	0	52	— 228	— 176
Great Britain	British Columbia	7,985	32,986	+ 25,001	228		
United States	"	1,233	1,233	0			
Great Britain	Manitoba	26,124	29,699	+ 3275			
United States	"	527	579	+ 52			
				31,002			

CARPETS, &c.

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order.	2nd Order.	3rd Order.	4th Order.
Great Britain	Ontario	259,439	254,874	— 4565			
United States	"	7402	7102	— 300	G't Britain.		
Great Britain	Quebec	207,143	208,447	+ 1,304	+ 1,304	+ 2371	— 2523
United States	"	753	753	0	452	— 4894	
					615		
					2,371		
Great Britain	Nova Scotia	51,602	52,054	+ 452	—		
United States	"	331	331	0	4,565		
Great Britain	New Brunswick	116,161	115,832	— 329	329		
					4,894		
United States	"	4920	4920	0	U. States.	+ 0	— 300
					+	— 300	
Great Britain	British Columbia	5351	5966	+ 615	0		
United States	"	405	405	0	—		
Great Britain	Manitoba			7,565	300		
United States	"						

FLANNELS, &c.

Great Britain	Ontario	38,858	39,354	+ 496			
United States	"	14,048	13,664	— 384	G. Britain.		
					+		
					496	+ 1282	— 2287
Great Britain	Quebec	148,401	147,817	— 584	786	— 3569	
United States	"	15,233	14,520	— 713	1282		
Great Britain	Nova Scotia	28,985	26,919	— 2066	—		
					584		
					2066		
United States	"	8,991	8,991	0	724		
					195		
Great Britain	New Brunswick	31,637	30,913	— 724	3569		
United States	"	28,527	28,527	0	U. States.		
					+		
Great Britain	British Columbia	3,294	4,080	+ 786	54	+ 54	— 1043
United States	"	943	943	0	—	— 1097	
Great Britain	Manitoba	8,914	8,719	— 195	384		
					713		
United States	"	33	87	+ 54	—		
					1097		
				6002			

TWEEDS, &c.

Great Britain	Quebec	321,725	321,683	— 42			
United States	"	6,916	6,916	0	G. Britain.		
Great Britain	Ontario	440,490	434,640	— 5850	+		
					0	+ 0	— 6683
					—	— 6683	
					42		
United States	"	1,909	1,390	— 519	5850		
					168		
Great Britain	Nova Scotia	75,607	75,439	— 168	623		
					—		
United States	"	543	543	0	6683		
					U. States.		
Great Britain	New Brunswick	88,779	88,156	— 623	+		
					0	+ 0	— 519
United States	"	658	658	0	—	— 519	
					519		
				7202			

CLOTHING, &c.

Imported From	By	Imports.	Entered for Home Consumpt'n.	1st Order.	2nd Order.	3rd Order.	4th Order.
Great Britain	Ontario	178,088	179,046	+ 958	G. Britain.		
United States	"	23,590	23,030	— 560	+ 958		
Great Britain	Quebec	102,744	105,665	+ 2921	2921		
United States	"	10,855	10,449	— 406	6484		
					2234	+ 12,597	
					12,597	— 791	
Great Britain	Nova Scotia	Same.	Same.	0	—	11,806	+ 11,806
United States	"	"	"	0	445		
					346		
Great Britain	New Brunswick	126,027	125,582	445	791		
United States	"	12,823	13,368	+ 545			
Great Britain	British Columbia	30,479	36,963	+ 6484	U. States.		
United States	"	52,250	51,668	— 582	+ 545		
					1005		
					—	+ 1550	
Great Britain	P. E. Island	17,947	17,601	346	1550	— 1548	+ 2
United States	"	2,662	2,662	0	—	2	
					560		
					466		
Great Britain	Manitoba	55,625	57,859	+ 2234	582		
United States	"	1,808	2,903	+ 1005	—		
					1548		
				16,486			

WORSTED AND YARN, &c.

Great Britain	Ontario	19,707	19,244	— 463	G. Britain.		
United States	"	2,267	2,267	0	+	+ 0	
					0	— 842	— 842
Great Britain	Quebec	23,396	23,155	— 241	—		
					463		
United States	"	2,833	2,833	0	241		
					138		
Great Britain	British Columbia	2,490	2,352	— 138	—		
					842		
United States	"	63	63	0	U. States.		
					+	0	0
					0		
					—		
				842	0		

ALL OTHER.

Imported From	By	Imports.	Entered for Home Consumpt'n	1st Order of Differences	2d Order of Differences.	3d Order of Differences.	4th Order of Differences.
Great Britain	Ontario	1,602,731	1,611,801	+ 9070	G't Britain.		
United States	"	78,984	80,553	+ 1569	+		
					9070		
Great Britain	Quebec	2,363,615	2,364,277	+ 662	662		
United States	"	26,014	25,721	— 293	4160	+13892	
					—	— 6742	+ 7150
					13892		
					—	7150	
Great Britain	Nova Scotia	406,713	404,359	— 2354	2354		
United States	"	9,423	8,688	— 735	3652		
					736		
Great Britain	New Brunswick	545,325	541,673	— 3652	—		
United States	"	16,393	16,393	0	6742		
					U. States.		
Great Britain	British Columbia	28,812	32,972	+ 4160	+		
United States	"	8,737	8,737	0	1569	+ 1778	
					209	— 1028	+ 750.
					—		
					1778	750	
Great Britain	Manitoba	48,122	47,386	— 736	—		
					293		
United States	"	701	910	+ 209	735		
					—		
				23,440	1028		

RECAPITULATION.

WOOLLENS.

	Differences 1st Order.
Blankets	$ 31,002
Carpets	7,565
Clothing	16,486
Worsted, &c.	842
Flannels, &c.	6,002
Tweeds, &c.	7,202
All other	23,440
	$ 92,539

COTTONS.

	Differences 1st Order.
Cottons, Bleached, &c.	$ 11,490
Cottons, Printed, &c.	16,918
Ginghams and Plaids	204
Jeans, Denims, &c	4,140
All other	22,250
Cotton Thread, &c.	9,088
Carpets	1,340
	$ 69,948

Total Differences Woollen Goods	$ 92,539
" Cotton Goods	69,948
	$162,487

THE SECOND ORDER OF DIFFERENCES FOR WOOLLEN GOODS, – 1878.

Positive Terms.	+
United States	+ 52
United States	54
United States	209
Great Britain	452
Great Britain	496
United States	545
Great Britain	615
Great Britain	662
Great Britain	786
Great Britain	958
United States	1005
Great Britain	1304
United States	1509
Great Britain	2234
Great Britain	2921
Great Britain	3275
Great Britain	4160
Great Britain	6484
Great Britain	9070
Great Britain	25001
Total	61,852

	– 61,852
	– 30,687
Difference	92,539
Sum	31,165

Negative Terms.	–
Great Britain	– 42
Great Britain	138
Great Britain	168
Great Britain	195
United States	228
Great Britain	241
Great Britain	258
Great Britain	293
United States	293
United States	300
Great Britain	329
Great Britain	346
Great Britain	365
United States	384
United States	406
Great Britain	445
Great Britain	463
United States	519
United States	560
United States	582
Great Britain	584
Great Britain	623
United States	713
Great Britain	724
United States	735
Great Britain	736
Great Britain	1530
Great Britain	2066
Great Britain	2354
Great Britain	3652
Great Britain	4565
Great Britain	5850
Total	30,687

Great Britain	$ 58,418	more on certain classes of goods.
United States	3,434	" "
Great Britain	25,967	less " "
United States	4,720	" "
	$ 92,539	

Sum of Cotton discriminating Differences	$ 69,948
" Woollen "	92,539
Total	$162,487

THE THIRD ORDER OF DIFFERENCES FOR WOOLLENS IN 1878.

+	−
52	228
54	300
1282	519
1550	791
1778	842
2371	1028
12,597	1097
13,892	1548
28,276	2446
	3569
	4894
	6683
	6742
61,852	30,687

	+ 61,852
	− 30,687
Difference ...	92,539
Sum	31,165

	+	−
1st or 3rd Order of Differences for Cottons in 1878	41,808	28,140
" " Woollens "	61,852	30,687
Sum.....	103,660	58,827
		103,660
		58,827
Total for 3rd Order of Differences for Cottons and Woollens in 1878		162,487
	and	103,660
	less	58,827
	gives	44,833

THE FOURTH BEING THE DOMINION OR FINAL ORDER OF DIFFERENCES FOR WOOLLENS IN 1878.

Positive Terms.		*Negative Terms.*	
United States	2	176	United States
United States	750	300.....	United States
Great Britain	7,150	519	United States
Great Britain	11,806	842..	Great Britain
Great Britain	25,830	1,043	United States
	45,538	2,287.....	Great Britain
		2,523	Great Britain
		6,683.....	Great Britain
		14,373	

	+ 45,538
Difference	− 14,373
	59,911
Sum	31,165

Sum of Positive Terms of the Final Order for Woollens in 1878	45,538
" " Cottons "	23,645
Total sum of Positive Terms for Woollens and Cottons "	69,183
Sum of Negative Terms of the Final Order for Woollens in 1878	14,373
" " Cottons	9,977
Total sum of Negative Terms for Woollens and Cottons in 1878	24,350

THE FINAL DIFFERENCES FOR COTTON GOODS AND WOOLLEN GOODS.

POSITIVE TERMS OR EXCESS OF VALUES Entered for "Home Consumption," over values of "Imports." *Positive Terms—Final Differences.*		NEGATIVE TERMS OR DEFECT OF VALUES Entered for "Home Consumption," as compared with "Imports." *Final Differences—Negative Terms.*	
2	1	1	90
180	2	2	100
502	3	3	158
673	4	4	176
750	5	5	300
1599	6	6	519
1600	7	7	842
3119	8	8	1043
7150	9	9	1048
7424	10	10	1470
8488	11	11	2287
11806	12	12	2523
25830	13	13	3406
		14	3705
		15	6683
$69183			$24350

Turning to page 5, the reader will find that these are the Differences derived from Bernoulli's Column IV and Dr. Edward Young's Fish Trade figures of 1872 73.

COMPARISON BETWEEN THE SUMS OF THE DIFFERENCES, WITH AND WITHOUT REGARD TO SIGNS, ARRANGED ACCORDING TO COUNTRIES, AS DERIVED FROM THE PROVINCIAL OR FIRST ORDER OF DIFFERENCES AND THE FINAL OR DOMINION ORDER OF DIFFERENCES IN THE YEAR 1878.

TABLE A.—1878

Cotton Goods—Year 1878:—

	First Order.	*Final Order.*		*Differences.*	
Great Britain	+ 38,432 —	+ 22,972	=	+ 15,460	= 30,920 or 0
"	— 16,930 —	— 1,470	=	— 15,460	
United States	+ 3,376 —	+ 673	=	+ 2,703	= 5,406 or 0
"	— 11,210 —	— 8,507	=	— 2,703	
	69,948	33,622		36,326	

Woollen Goods—Year 1878:—

	First Order.	*Final Order.*		*Differences.*	
Great Britain	+ 58,418 —	+ 44,786	=	+ 13,632	= 27,264 or 0
"	— 25,967 —	— 12,335	=	— 13,632	
United States	+ 3,434 —	+ 752	=	+ 2,682	= 5,364 or 0
"	— 4,720 —	— 2,038	=	— 2,682	
	92,539	59,911		32,628	

Total Difference between 1st Order of Differences and final Order of Differences for Cotton and Woollen Goods in 1878:—

	36,326	
	32,628	
Total Difference	68,954	
Total Sum 1st or Provincial Order, Cottons and Woollens		162,487
" Final or Dominion Order "		93,533
	Difference	68,954
Sum of Final Positive Terms, without regard to countries		69,183
Sum of Final Negative " "		24,350
	Sum	93,533
	Difference	44,833

The quantity 69,183 has been shown on page 5 to be the sum of half the Differences between Bernoulli's Column No. IV and Dr Edward Young's Fish Trade Figures for 1872 73. The relations of the other aggregates have now to be shown.

CHAPTER III.

THE RELATION BETWEEN BERNOULLI'S COLUMN NO. IV AND THE DETAILS OF THE DIFFERENCES BETWEEN COTTON AND WOOLLEN "IMPORTS" AND "ENTRIES FOR HOME CONSUMPTION" FIGURES IN THE YEAR 1878, AND THE MATHEMATICAL FORMULA SHEWING THEIR ORIGIN.

I.

It has been shewn on page 5 that where the Differences are taken figure for figure, between Dr. Edward Young's United States Fish Trade Figures for the year 1872-73 and Bernoulli's Column, No. IV, to 48 terms, the result is the positive terms of the Canadian Final Differences between "Entries for Home Consumption" and "Imports" in relation to the trade of Canada in Cottons and Woollens with Great Britain and the United States in the year 1878. It remains to show that like relations subsist between Bernoulli's Column IV and the other aggregates given in Table A.

The sum of the Positive Terms for Cottons and Woollens is	69,183
" Negative " "	24,350
Total	93,533
The sum of 40 terms of the Bernoulli Column No. IV is	91,390
Difference	2,143
But 2,143 is the sum of the Negative Terms for Cottons in respect of Great Britain, and the Positive Terms for Cottons in respect of the United States, viz., Great Britain	1,470
United States	673
	2,143

As exemplified in Table A where the account stands :-

Great Britain—Charged for certain classes of Cotton Goods	$ 1,470 less than imported
United States " "	673 more than imported

II.

It follows that the remaining quantities showing the discriminating Differences between charges on Imports from Great Britain and the United States in respect of duties on different classes of goods are equal to the sum of 40 terms of the Bernoulli Series, No. IV, and may be derived from that source because the individual quantities or terms possess in relation to one another like properties, and both are mathematically equivalent to *Dr. Edward Young's Fish Trade Figures of 1872-73*. This second relation is shown below.

1.	The sum of Cotton Positive Terms representing the excess of charges over Imports on certain classes of goods against Great Britain is	$22,972
2.	The sum of Woollen Positive Terms representing the excess of charges on certain classes of goods against Great Britain is	44,786
3.	The sum of Cotton Negative Terms representing the defect of charges on certain classes of goods in favor of the United States is	8,507
4.	The sum of Woollen Negative Terms representing the defect of charges on certain classes of goods in favor of Great Britain is	12,335
5.	The sum of Woollen Negative Terms representing the defect of charges on certain classes of goods in favor the United States is	2,038
6.	The sum of Woollen Positive Terms representing the excess of charges on certain classes of goods against the United States is	752
	Total excess or defect of charges on certain classes of Cotton or Woollen goods as they appear from the Final Differences	91,390
	The sum of 40 terms, including cyphers of Bernoulli's Column No. IV, is	91,390
	Difference	0

III.

All of the foregoing separate quantities are shown below to be sums of terms in the first forty terms of Column IV of the Bernoulli Table. It is to be borne in mind that this equivalency can be greatly varied, and that each Bernoulli term from Column IV is the sum of all the terms in Column III next above it, or the sum of all the sloping terms to the left. Thus 364 is not only equal to 78+66+55+45+36+28+21+15+10+6+3+1 but it is also equal to 286+ the sloping terms 66+11+1, and these may be substituted. These remarks apply to each individual member given below.

THE SUMS OF THE FINAL DIFFERENCES FOR COTTONS AND WOOLLENS IN TABLE A, IN TERMS OF THE BERNOULLI COLUMN IV.

SECTION I.

The quantity 22,972.

The 40th Term of Bernoulli's Column IV	9,139
" 39th "	8,436
" 31st "	4,060
" 30th "	969
" 15th "	364
" 5th "	4
	22,972

SECTION IV.

The quantity 752.

The 15th Term of Bernoulli's Column IV	364
" 14th "	286
" 9th "	56
" 8th "	35
" 6th "	10
" 4th "	1
	752

SECTION II.

The quantity 44,786.

The 38th	Term of Bernoulli's Column IV	7,770
" 37th	"	7,140
" 36th	"	6,545
" 35th	"	5,984
" 34th	"	5,456
" 33rd	"	4,960
" 32nd	"	4,495
" 25th	"	2,024
" 14th	"	286
" 9th	"	56
" 8th	"	35
" 7th	"	20
" 6th	"	10
" 5th	"	4
" 4th	"	1
		44,786

SECT

The qu

The 30th	Term of Berne IV	3,654
" 29th	"	3,276
" 10th	"	816
" 18th	"	680
" 9th	"	56
" 7th	"	20
" 5th	"	4
" 4th	"	1
		8,507

SECTION III.

The quantity 2,038.

The 25th	Term of Bernoulli's Column IV	2,024
" 6th	"	10
" 5th	"	4
		20,38

SECTION VI.

The quantity 12,335.

The 28th	Term of Bernoulli's Column IV	2,925
" 27th	"	2,600
" 26th	"	2,300
" 24th	"	1,771
" 23rd	"	1,540
" 21st	"	1,140
" 8th	"	35
" 7th	"	20
" 5th	"	4
		12,335

SECTION VII.

The quantity 1470.

The 20th	Term of Bernoulli's Column IV	969
" 16th	"	455
" 8th	"	35
" 6th	"	10
" 4th	"	1
		1470

SECTION VIII.

The quantity 673.

The 16th	Term of Bernoulli's Column IV	455
" 11th	"	120
" 10th	"	84
" 6th	"	10
" 5th	"	4
		673

Hence all the aggregates and all the separate quantities from which these aggregates are formed present themselves in Bernoulli's Column IV, and also, from the construction of the Table, in Column III, and in the sloping columns. It now remains to supply the general mathematical formula by means of which all of these quantities may be obtained in regular order.

THE MATHEMATICAL FORMULA.

I.

Each separate quantity in the foregoing Sections I to VIII, inclusive, can be expressed by the Mathematical Formula—

$$\frac{a\,(a+1)\,(a+2)\,(a+3)\text{ to }\ldots\ldots\{a+(n-2)\}}{1,\ 2,\ 3,\ 4,\ 5,\ 6,\ 7,\ 8\text{ to }\ldots\ldots\ldots\ldots(n-1)} = A$$

Where a is equal to the number of the column in Bernoulli's Table, and n is equal to the number of terms in the column *including cyphers.*

EXAMPLE 1.—The quantity 5984 in Section II is the 35th term in Column IV, with three cyphers.
Therefore n = 32 plus three cyphers, and a = 4.
Substituting these values of n and a, viz. 32 and 4 in the above formula, the expression becomes—

$$\frac{4,\ 5,\ 6,\ 7,\ 8,\ 9,\ \&c.,\ \text{to}\ \{4+(32-2)\}}{1,\ 2,\ 3,\ 4,\ 5,\ 6,\ \&c.,\ \text{to}\ (32-1)} = \frac{4,\ 5,\ 6,\ 7,\ 8,\ 9,\ \&c.,\ \text{to}\ 34}{1,\ 2,\ 3,\ 4,\ 5,\ \&c.,\ \text{to}\ 31}$$

$$= \frac{32,\ 33,\ 34}{1,\ 2,\ 3} = 16 \times 11 \times 34 = 5984$$

All the quantities in Sections I to VIII being represented by the general formula A, each separate section consists of the sums of A, A^1, A^2, A^3, A^4, &c. The values of A, A^1, A^2, A^3, A^4, &c., being determined by the *place* of the term in the column.

Each aggregate in Sections I to VIII, such as 22,972 is represented by $A + A^1 + A^2 + A^3 + A^4$, &c.

Where $A^1 = \ldots\ldots\frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(37-2)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (37-1)} = 9139$ (see Table),

$A^2 = \ldots\ldots\frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(36-2)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (36-1)} = 8436$ "

$A^3 = \ldots\ldots\frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(28-2)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (28-1)} = 4060$ "

$$A^{4} = \frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(17-4)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (17-4)} = 969$$

$$A^{3} = \frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(12-2)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (12-1)} = 364$$

$$A^{0} = \frac{4,\ 5,\ 6,\ 7,\ \&c.,\ \text{to}\ \{4+(2-2)\}}{1,\ 2,\ 3,\ 4,\ \&c.,\ \text{to}\ (2-1)} = 4$$

II.

Each separate quantity in the foregoing Sections No. I to VIII inclusive, is the sum of all the terms above it in Bernoulli's Column No. III, and can also be expressed by the formula

$$S = \frac{l.n}{a}$$

which constitutes the Alegebraic expression of Bernoulli's 12th Property.

For example: The quantity 2925 is the 1st term in Section VI. By referring to Bernoulli's extended table, this number is found to be the sum of 325 + 300 + 276 + 253 + 231 + 210 + 190 + 171 + 153 + 136 + 120 + 105 + 91 + 78 + 66 + 55 + 45 + 36 + 28 + 21 + 15 + 10 + 6 + 1.

Similarly each quantity in the eight sections can be expressed in a series found ready formed in the Bernoulli Table.

But 2925 is also equal to the sum of the terms in the sloping column whose base is next above it, or equal to 2600+300+24+1=2925. So also 300 is equal to 276+23+1 and 276 = 253 + 22 + 1, and 253 = 231 + 21 + 1, and so on throughout the entire series given above, and throughout the large number of different but equal series formed out of each, and all the quantities in the eight sections.

These quantities can, therefore, be put in the subjoined form:

$$\begin{aligned}
2925 &= 2600 \\
&\quad\ 300 \\
&\quad\ 24 \\
&\quad\ 1 \\
2925 &= 2600 \\
300 &= \left\{\begin{matrix} 276 \\ 21 \\ 1 \\ 24 \\ 1 \end{matrix}\right. \\
2925 &= 2600 \\
276 &= \left\{\begin{matrix} 253 \\ 22 \\ 1 \\ 23 \\ 1 \\ 24 \\ 1 \end{matrix}\right. \\
2925 &= 2600 \\
253 &= \left\{\begin{matrix} 231 \\ 21 \\ 1 \\ 22 \\ 1 \\ 23 \\ 1 \\ 24 \\ 1 \end{matrix}\right. \\
2925 &= 2600 \\
231 &= \left\{\begin{matrix} 210 \\ 20 \\ 1 \\ 21 \\ 1 \\ 22 \\ 1 \\ 23 \\ 1 \\ 24 \\ 1 \end{matrix}\right. \\
2925 &= \&c.,\ \&c.
\end{aligned}$$

Until they finally resolve themselves into Bernoulli's Columns I and II.

The quantity 2600 can be put in similar form, and all the quantities in Sections I to VIII possess like properties. But these are similar to the properties possessed by Dr. Edward Young's Fish Trade figures for several years, which follow the same law.

III.

THE FISH TRADE FIGURES.

Take, for example, Young's Fish Trade figures given in TABLE III, being Statement No. VI, showing the United States Exports of Fish, Shell Fish, Fish Oils and Products of the Sea to British America in 1872-73:

The Foreign item $20,597 Sardines in Oil exported to Quebec, Ontario, &c., is made up of the mixed Foreign and Domestic items:—

$17,929 'all others' to Quebec, Ontario, &c.
6,530 Domestic Exports to Nova Scotia and N. B.
4,852 " " to British Guiana.
280 Sardines to B. W. Indies.
6 Dried Fish to Quebec.

$29,597.

$17,929 is made up of :—

$16,001 U. S. Exports to Nova Scotia and N. B.
1,338 all others.
350 Sardines to N. S.
240 Herring to British Guiana.

$17,929 All others to Quebec, Ontario, &c.

$16,001 is made up of :—

$7,894 Fish other cured to British West Indies.
6,530 " pickled to " "
1,571 " " Newfoundland.
6 " dried to Quebec, &c.

$16,001 Exports to Nova Scotia and New Brunswick.

$17,971 Fish dried to B. W. Indies, &c , is made up of :—

$16,001 Foreign Exports to N. S. and N. B.
1,338 'all others' to British Columbia.
258 Fish, Pickled to British Guiana.
240 Herring to "
76 Dried Fish to Nova Scotia and N. B.
52 Pickled " to Quebec, &c.
6 Dried " to "

$17,971 Fish, dried, to B. W. I.

$5,894 Mackerel to Nova Scotia and N. B. is made up of :—

$4,553 "Fish, all others," to Nova Scotia and N. B.
1,338 " " to British Columbia.
3 Fish, pickled, to "

$5,894.

$5,204 Herring to Nova Scotia and Newfoundland is made up of :

$2,144 Fish, pickled, to Nova Scotia and N. B.
2,614 Fish, smoked, to British Guiana.
338 Fish, other cured, "
108 Fish, fresh, to Quebec, Ontario, &c.

$5,204.

$7,894 'Fish, other cured, to B. W. Indies' is made up of :—

$6,530 Fish, pickled, to British West Indies.
989 All others to British Guiana.
258 Fish, pickled, to "
108 Fresh fish to Ontario and Quebec.
6 Smoked fish " "
3 Pickled fish to British Columbia.

$7.894

$6,530 'Fish, pickled, to B. W. Indies' is made up of :—

$ 70 Smoked fish.
2,144 Fish, pickled.
1,712 Fish, other cured.
2,598 Oysters.

$6,530

$1,571 Fish, pickled, to Newfoundland is made up of :—

$989 Fish, all others, to British Guiana.
350 Sardines to N. S. and N. B.
174 Fresh fish to B. W. Indies.
52 Pickled fish to Quebec, Ontario, &c.
6 Smoked fish to " "

$1,571

$1,188 Sardines in Oil, is made up of :—

$280 Sardines to Br. West Indies.
258 Fish, pickled, to British Guiana.
240 Herring to British Guiana.
174 Fish, fresh, to Br. West Indies.
108 " " to Quebec, Ontario, Manitoba.
76 " smoked, to Nova Scotia and N. B.
52 " pickled, to Quebec, Ontario and Manitoba.

$1,188

$1,338 'all others' to British Columbia is made up of :—

$459 Oysters to Newfoundland.
338 Cured fish to British Guiana.
280 Sardines to British West Indies.
258 Pickled fish to British Guiana.
3 " to British Columbia.

$1,338

And so on in regular sequence from beginning to end of the Table forming part of Statement VI, Table III.

The reduction of larger terms of this series to smaller terms is shown in the subjoined illustration:

Year 1873	From Table in Commerce and Navigation Reports.	Foreign Exports to N. S. and N. B., $16,001, according to (1) (2) (3) (4).		
	$	$		
Foreign exports of the United States to Nova Scotia and New Brunswick	16,001	6,530		
Domestic Exports to do.	6,530	989		
		258		
		108	7,894	From (1)
Total	22,531	6		
		3		
		70		
		2,144		
		1,712	6,530	From (2)
		2,598		
		989		
		350		
		174	1,571	From (3)
		52		
		6		
		6	6	From (4)
			From Table in Commerce and Navigation Reports.	
			330	
			4553	
Foreign Exports from Table	16,001	16,001	5204	
			5894	
			16,001	

Expressed in language, these quantities in I and II and indirectly in III from the construction of the Table, are the equivalents of the sums of the co-efficients of the successive expansions of $(1 + 1)$ to the power of n.

Other formulæ, which may be obtained from modern algebras used in schools and colleges can be rendered applicable. It is curious to note that in the examples given in some of these algebras, the series forming the 3rd and 4th columns of Bernoulli's Table are employed.

Special reference will be made to these formulæ and examples in a succeeding chapter.

CHAPTER IV.

The Canadian Trade Tables of 1883 are Fabricated Records.

In a published letter bearing date Windsor, Nova Scotia, May 16th, 1884, the details of the Trade in Cotton Goods of all descriptions between Canada and the United States, and Canada and Great Britain, were submitted to the Rt. Hon. Sir Charles W. Dilke, M. P., then President of the Local Government Board in London.

This voluminous document, of which the published letter was an abstract, was returned to me. The document contained the Differences between the alleged Imports of Cotton Goods by Canada from Great Britain and the United States and the alleged "Entries for Home Consumption" in the form of an Arithmetical Progression; also, in the form of the "Fire-brick and Clay Series." It also contained numerous and striking illustrations showing the relation between these Differences and the United States and Canadian Fish Trade figures from 1867 to 1873, the whole being subject to the mathematical formulæ exhibited on pages 18 and 19.

Therefore, it is not necessary to republish the voluminous statements therein made and proved, as they are nothing more than a repetition of the processes used in proving the fabricated character of the Cotton and Woollen Trade Returns for 1878, as shown in preceding pages. But because it is intended in succeeding pages to show the wonderful accuracy and relationship of the fabricated figures in the Canadian and United States Records of Trade by a peculiar and original process, it is necessary to publish the Differences for Cottons and Woollens in the years 1883 and 1885.

FINAL OR DOMINION DIFFERENCES AS DISTINGUISHED FROM PROVINCIAL DIFFERENCES,

(THE YEAR 1883)

TABLE showing the Final or Dominion Differences in positive or negative terms between the alleged values of items "Imported" and "Entered for Home Consumption," in the Trade and Navigation Tables of Canada for the year 1883.

CHARACTER OF GOODS,—COTTONS,—YEAR 1883.

(Pages in Trade and Navigation Tables, 68 to 80 inclusive.)

Country.	Goods.	Imported.	Entered for Home Consumption.	Difference.
		$	$	$
Great Britain	Cottons, Grey and Bleached, &c.	473,212	480,844	+ 7,632
United States	" " "	450,040	439,302	11,248
Great Britain	" Ginghams and Plaids (dyed)	17,511	17,696	+ 185
United States	" " "	9,166	9,166	0
Great Britain	" Denims, Drillings, &c.	409,034	429,329	+ 20,295
United States	" " "	329,069	325,969	— 3,100
Great Britain	" White or Dyed Cotton Jeans, &c.	1,358,748	1,374,798	+ 16,050
United States	" " " "	269,137	265,501	3,636
Great Britain	" Wadding, Batting, Warps, &c. (not dyed)	15,883	15,158	— 725
United States	" " " " "	28,149	29,505	+ 1,356
Great Britain (1)	" Knitting Yarn, Hosiery do., &c.	3,514	3,516	+ 2
United States	" " " "	14,748	14,748	0
Great Britain	" Wadding, Batting, Warps, &c. (dyed)	3,525	3,046	— 479
United States	" " " " "	31,374	31,631	+ 257
Great Britain	" Knitting Yarn, &c. (dyed)	20,092	20,889	+ 197
United States	" " "	14,093	14,093	0
Great Britain	" Seamless Bags	4,378	4,378	0
United States	" "	18,306	16,060	— 2,246
Great Britain	" Shirts and Drawers, &c.	315,382	317,607	+ 2,225
United States	" " "	34,545	34,005	— 540
Great Britain	" Sewing Thread on spools	320,896	324,047	+ 3,841
United States	" " "	12,612	12,612	0
Great Britain	" Sewing Thread in Hanks, &c.	152,342	151,434	— 908
United States	" " "	511	511	0
Great Britain	" Duck, for boats, &c.	1,884	954	— 930
United States	" " "	174,735	175,665	+ 930
Great Britain	" Bed Comforters, &c.	15,577	11,048	— 4,529
United States	" "	2,102	2,016	— 86
Great Britain	" Clothing or other material not otherwise prov'd for, &c.	283,628	283,552	— 76
United States	" " " " "	225,006	225,224	+ 218
Great Britain	" Bags by the Needle	6,078	5,520	— 558
United States	" " "	9,661	7,364	— 2,297
Great Britain	" Netting for Boots, &c.,	5,089	5,328	+ 239
United States	" " "	471	471	0
Great Britain	" Prunella for Boots, &c. (2)	7,399	12,007	+ 5,308
United States	" " "	866	866	0
Great Britain	" Parasols and Umbrellas	189,288	189,956	+ 668
United States	" " "	2,421	2,487	+ 66
Great Britain	" Shawls	16,194	16,128	— 66
United States	" "	880	880	0
Great Britain	" Velveteens, &c.	317,167	317,226	+ 59
United States	" "	1,823	1,823	0
Great Britain	" Winceys, Plain, &c.	321,541	352,568	+ 31,027
United States	" " "	395	365	— 30
Great Britain	" Winceys, Checked, &c.	21,831	21,584	— 247
United States	" "	221	221	0
Great Britain	" Winceys, Checked, &c., over 25 in.	27,551	28,333	+ 782
United States	" " " "	165	165	0
Great Britain	" All other Manufactures of N. E. S. (3)	3,455,317	3,473,878	+ 18,561
United States	" " " "	421,837	421,224	— 613

SUPPLEMENTARY TABLE.

Country.	Items.	Imports.	Entered for Home Consumption.	References.
Great Britain	Bags containing Fine Salt	10,417	10,258	— 159
United States	" " "	93	95	+ 2
Great Britain	Carpets, not elsewhere specified	169,437	169,286	— 151
United States	" " "	0	0	0

Special attention is directed to this supplementary table. Its properties are specified further on.

N. B.—The duty is based upon the entries for "Home Consumption."

(1) Reference to the Trade Tables, page 67, shews that British Columbia did not import any "*Knitting Yarn, &c.,*" from Great Britain in 1883, but there are entered 2 dollars' worth for "Home Consumption" from Great Britain. It is noteworthy that without this 2 dollars, the "Series for Cottons for 1883" would be incomplete.

(2) $7,297 "Imported," $12,607 "Home Consumption."

(3) The item "All other N. E. S." is remarkable, because it is so much greater than the sum of by far the larger portion of the articles enumerated. In the presence of the "Series of Differences," it may well be asked: Of what articles N. E. S. (not elsewhere specified) do 3,455,317 dollars' worth consist?

PROVINCIAL AND DOMINON DIFFERENCES.

Comparison between the First or Provincial Order of Differences and the Final or Dominion Order of Differences for the Year 1883.

COTTON GOODS OF ALL DESCRIPTIONS.

Year 1883. *First or Provincial Order of Differences.*				Year 1883. *Final or Dominion Order of Differences.*			
Great Britain.		United States.		Great Britain.		United States.	
+	−	+	−	+	−	+	−
7849	120	458	1304	7632	725	1356	11248
1396	2558	3457	645	188	479	257	3100
1065	125	172	817	20295	908	930	3639
310	24	863	93	16050	930	218	2246
22337	114	917	1167	2	4529	66	540
827	123	439	7590	197	76		86
14192	2608	257	810	2225	558		2297
2586	1710	930	5919	3841	66		20
982	725	285	4499	239	247		613
2	479	2	1428	5308			
194	50	66	818	668			
9816	352	145	540	59			
105	908		86	31027			
706	930		67	782			
3552	4741		2299	18561			
5	23		20				
284	507		37				
235	558		721				
289	90						
53	116						
89	93						
239	109						
$308	247						
388	1730						
369	1641						
1							
50							
229							
32							
10700							
13055							
7212							
193							
589							
17810							
3761							
237							
124							
3							
119,234	20,681	7991	28,950	107,071	6518	2827	23,786
306	502	2			159	2	
148	103				151		
	144						
	15						
119,688	21,445	7993	28,950	107,071	8828	2829	23,786

The quantities below the first totals are placed in the Canadian Trade Tables far apart from the other items—they will be found on pages 7 and 43—and are the Differences in the items "*Bags*" containing Fine Salt, and "Carpets" not elsewhere specified. The relations of these quantities are very noteworthy.

WOOLLEN GOODS OF ALL DESCRIPTIONS.

COMPARISON BETWEEN THE FIRST AND FINAL ORDER OF DIFFERENCES FOR WOOLLEN GOODS, 1883.

First or Provincial Order of Differences.				*Final or Dominion Order of Differences.*			
Year 1883. Great Britain.		Year 1883. United States.		Year 1883. Great Britain.		Year 1883. United States.	
+	−	+	−	+	−	+	−
2110	428	167	50	176	14908	167	50
114	520	224	125	1811	17369	224	
760	16184	279		1011	9041	154	
1194	6215	126		9586	776	126	
609	11285	1310		1888	7279	1310	
176	2432	1089		2359	2785	1089	
514	4132			278	492		
1897	3311			452	151		
225	2112						
325	86						
313	225						
281	2019						
92	688						
790	3179						
453	1717						
15170	1406						
1539	649						
225	544						
600	210						
2094	4470						
1424	4499						
868	650						
201	42						
278	164						
452	134						
306	492						
148	502						
	103						
33,158	68,398	3195	175	17,561	52,801	3070	50

COMPARISON BETWEEN THE SUMS OF THE DIFFERENCES WITH AND WITHOUT REGARD TO SIGNS ARRANGED ACCORDING TO COUNTRIES AS DERIVED FROM THE PROVINCIAL OR FIRST ORDER OF DIFFERENCES AND THE FINAL OR DOMINION ORDER OF DIFFERENCES FOR THE YEAR 1883.

TABLE B., 1883.—COTTON GOODS.

	First or Provincial Order.		*Final or Dominion Order.*			
Great Britain	+ 119,688	—	+ 107,071	=	+ 12,617	25,234 or 0
"	— 21,445	—	— 8,828	=	— 12,617	
United States	+ 7,993	—	+ 2,829	=	+ 5,164	10,328 or 0
"	— 28,950	—	— 23,786	=	— 5,164	
	178,076		142,514		35,562	

WOOLLEN GOODS — YEAR 1883.

	First Order.		*Final Order.*			
Great Britain	+ 33,158	—	+ 17,561	=	+ 15,597	31,194 or 0
"	— 68,398	—	— 52,801	=	— 15,597	
United States	+ 3,195	—	+ 3,070	=	+ 125	250 or 0
"	— 175	—	— 50	=	— 125	
	104,926		73,482		31,444	

Sum of Differences { 35,562 / 31,444 } 67,006

Total sum of First or Provincial Order, Cottons and Woollens	$283,002
" Final or Dominion Order, " "	215,996
Difference	67,006
Sum of Provincial Positive Terms without regard to countries	+ 164,034
" " Negative " " "	− 118,968
Difference	$283,002

The Supplementary Cotton Differences derived from "Imports" of "Bags containing Fine Salt," and "Carpets not elsewhere specified," are so remarkable as to deserve special notice.

The Items in the Trade Tables are as follows:—

Carpets not elsewhere specified.	Imported.	Entered for Home Consumption	Differences.
Great Britain.—Ontario	64,383	63,881	— 502
Quebec	61,789	62,104	+ 306
Nova Scotia	12,939	12,939	0
New Brunswick	16,835	16,983	+ 148
Manitoba	12,087	12,087	0
British Columbia	916	813	— 103
P. E. Island	479	479	0
			— 151
Bags, containing Fine Salt.			
Great Britain.—Ontario	1,251	1,107	— 144
Quebec	9,023	9,008	— 15
British Columbia	141	141	0
P. E. Island	2	2	0
			— 159
United States.—			
Ontario	39	39	0
Quebec	8	8	0
Manitoba	5	5	0
British Columbia	41	43	+ 2
			+ 2

The Supplementary Series is,—

2
2
15
103
144
148
151
159
306
502

1532

The several sums of these quantities are respectively equal to the sums of the Differences between Bernoulli's columns—The Fish Trade Figures and the Cotton and Woollen Series.

CHAPTER V.

The Canadian Trade Tables of 1885 are Fabricated Records.

These Differences have not been published. They are very remarkable. All the terms of the first or Provincial order of Differences for Cottons in 1885, in respect of Great Britain, are sums of each other, the larger terms being sums of the smaller terms. It is necessary to show there relations, and also to exhibit them in the form of an Arithmetical progression for the purpose of illustrating the further remarkable relationship between all the Trade Tables from 1867 to 1885 specially portrayed in the following pages.

The Process for obtaining the Differences is precisely similar to those exhibited in relation to Cotton Goods and Woollen Goods in 1878 and 1883. To introduce the details would unnecessarily encumber this preliminary view of the fabricated nature of our Canadian Trade Records. The matter must necessarily become subject to thorough investigation with reference to Canadian Trade in many other branches than those pertaining to Cottons and Woollens.

Attention is particularly directed to the property above named viz.—that the larger terms of the Differences are nothing more than sums of the smaller terms, and comparison is requested with Dr. Edward Young's fish Trade Figures for the year 1872-3, as fully illustrated in TABLE III, where it is shown that this property of the Bernoulli Series belongs to them.

FIRST ORDER OR PROVINCIAL DIFFERENCES — COTTONS — 1885.

Great Britain.

+	—
3	1
6	3
13	12
16	28
16	55
28	130
49	132
90	170
106	183
121	202
139	293
189	345
337	392
371	401
403	412
508	441
542	530
727	539
597	606
645	777
710	907
981	908
1066	944
1479	2004
1820	2205
1997	4510
4044	7102
6002	12953
+ 23,005	=37,185

+ 23,005
— 37,185

Sum..... — 14,180

Difference..... 60,190

60,190
27,511

Sum 87,701

Difference . 32,679

United States.

+	—
94	1
108	96
119	100
187	1246
224	249
424	341
606	583
652	1030
1517	6091
2088	651
3800	
5598	
1796	
+ 17,123	— 10,388

+ 17,123
— 10,388

Sum..... + 6,735

Difference.. 27,511

— 14,180
+ 6,735

— 7,445

20,915

FINAL DIFFERENCES — CCTTONS — 1885.

Great Britain.

+	−
13	13
16	36
28	202
106	293
139	517
337	1073
645	6908
727	7261
910	16823
987	
1791	
6195	
7951	
+18,945	− 33,125

− 33,125
+ 18,945

Sum..... − 14,180

Difference..... 52,070

United States.

+	−
1	3
108	1246
306	341
606	349
1282	1076
7447	
+ 9750	− 3015

+ 9750
− 3015

+ 6735

12,765

52,070
12,765

Sum.....64,835

Difference .. 39,305

FIRST ORDER OR PROVINCIAL DIFFERENCES.—WOOLLENS, 1885.

Great Britain.

+	−
212	8869
171	6881
207	141
1034	386
1740	677
3730	519
144	1031
178	2255
2589	1938
207	242
13	649
871	4170
427	3601
329	415
330	157
542	310
161	37
2334	
8280	
424	
203	
912	
2760	
233	
1345	
190	
4147	
427	
+ 34,144	−32,278

+ 34,144
− 32,278

Difference..... 66,422

Sum... 1866

United States.

+	−
154	233
2	3985
102	15
+ 258	− 4233

− 4233
+ 258

4491

− 3975

FINAL OR DOMINION DIFFERENCES—WOOLLENS, 1885.

Great Britain. +		Great Britain. −	United States. +		United States. −
978		7243	154		4216
1923		2615	102		15
9819		197			
2683		2167			
1502		400			
4147		6899			
427					
21,479		19,613	+ 256		− 4231
		+ 21,479			− 4231
		− 19,613			+ 256
	Difference.....	41,092		Difference.....	4487
	Sum.....	1866		Sum.....	− 3975

THE ARITHMETICAL PROGRESSION TABLE FOR THE YEAR 1885.

COTTONS.

The First or Provincial Differences for Cottons in respect of Great Britain for the Year 1885, in the form of an Arithmetical Progression, with 10 as a Common Difference.

1	1	1	12	1	16	3	12	1	1
3	6	13	28	49	16	12	13	12	16
6	13	16			28	55	55	28	28
								49	55
10	20	30	40	50	60	70	80	90	100
1	1	3	1	13	28	3	1	1	1
3	13	6	3	16	132	6	3	6	13
106	106	121	6	121		55	6	13	16
			130			106	170	170	170
110	120	130	140	150	160	170	180	190	200
12	3	13	106	12	121	12	1	1	1
28	28	28	13	49	139	28	6	13	6
170	189	189	121	189		28	13	16	293
						202	90	90	
							170	170	
210	220	230	240	250	260	270	280	290	300
1	1	3	12	13	1	1	3	1	28
16	3	6	189	337	3	3	12	3	183
293	16	28	139		6	16	28	49	189
	130	293			13	13	337	337	
	170				337	337			
310	320	330	340	350	360	370	380	390	400
3	49	13	28	3	132	13	3	49	1
6	371	16	412	6	139	16	106	441	3
401		401		441	189	441	371		6
									49
									441
410	420	430	440	450	460	470	480	490	500

And so on continuously.

With 100 as a Common Difference:

1	1	1	28	1	1	1	1	1	1
16	13	6	183	3	90	3	6	3	55
28	16	293	189	6	106	90	90	6	944
55	170			49	493	606	106	293	
				441			597	597	
100	200	300	400	500	600	700	800	900	1000
6	1	3	1	6	121	3	3	6	3
28	3	12	12	139	1479	16	106	12	16
1066	130	121	28	645		202	710	493	55
	1066	183	293	710		1479	981	1479	106
		981	1066						1820
1100	1200	1300	1400	1500	1600	1700	1800	1900	2000

And so on.

With 1000 as a Common Difference.

530	1997	2004	1997	4510	4044	6002	7102
403	3	981	1820	441	1820	981	777
55		12	183	49	132	16	121
12		3			3	1	
					1		
1000	2000	3000	4000	5000	6000	7000	8000

6002	6002	4044	6002	7102	12953	12953	12953
2205	2205	4510	4510	4510	28	981	1997
777	1066	1066	392	371	16	49	49
16	710	371	90	16	3	16	1
	16	6	6	1		1	
	1	3					
9000	10000	10000	11000	12000	13000	14000	15000

And so on.

It is to be noted with regard to these Arithmetical Progressions formed out of the Differences between "Imports" and "Entries for Home Consumption" in the Canadian Trade Tables for 1875, that the next succeeding Table shows that the larger terms of the First or Provincial Series of Differences are nothing more than sums of the smaller terms. Therefore, the preceding progressions can be put in a vast variety of forms by substituting for values of the larger quantities the equivalent values in terms of the smaller quantities.

EXAMPLE.—Let it be required to put the quantity 400 in different forms of terms of the Differences.

$$\left.\begin{matrix}28\\183\\189\end{matrix}\right\} = 400 = \left.\begin{matrix}28\\13\\170\\189\end{matrix}\right\} = \left.\begin{matrix}28\\13\\170\\13\\6\end{matrix}\right\} = \left.\begin{matrix}28\\13\\3\\6\\55\\106\end{matrix}\right\} = \left.\begin{matrix}28\\13\\3\\6\\55\\16\\90\\6\end{matrix}\right\} = \left.\begin{matrix}28\\13\\3\\6\\55\\16\\1\\12\\28\\49\\13\\3\\6\\55\\16\\1\\12\\28\\49\\6\end{matrix}\right\}$$

And so on down to the lowest terms.

THE ARITHMETICAL PROGRESSION FOR WOOLLENS. — 1885.

FIRST OR PROVINCIAL ORDER OF DIFFERENCES.

(Some quantities are introduced in duplicate for special reasons.)

2	15	2	171	190	310	13	161
37	141	13	329	203	212	212	310
161	144	178		207	178	233	329
		207				242	
200	300	400	500	600	700	700	800
2	144	13	161	190	15	2	310
37	427	310	415	233	178	427	178
212	329	677	424	677	330	871	912
649					677		
900	900	000	1000	1100	1200	1300	1400
13	2	161	2	2	2	2	13
161	37	190	15	190	37	13	37
1326	649	1349	912	677	178	15	212
	912		871	1031	871	330	1938
					912	1740	
1500	1600	1700	1800	1900	2000	2100	2200
2	15	2	171	212	2	2	37
37	144	37	157	233	310	37	203
161	141	171	329	2255	154	161	2760
157	157	178	912		2334	242	
912	912	871	1031			203	
1031	1031	329				2255	
		912					
2300	2400	2500	2600	2700	2800	2900	3000
329	171	15	310	13	2	37	37
1031	212	37	330	37	13	310	161
1740	233	141	2760	212	37	203	203
	329	144		649	310	212	310
	2255	203		2589	649	178	329
		2760			2589	2760	2760
3100	3200	3300	3400	3500	3600	3700	3800
13	15	13	2	2	2	677	2
157	3985	157	15	15	37	233	13
3730		190	37	102	1031	190	15
		233	178	6881	2760	3730	330
		677	871		4170	4170	1740
		3730	912				3730
			3985				4170
3900	4000	5000	6000	7000	8000	9000	10000

And so on.

THE FIRST ORDER OR PROVINCIAL DIFFERENCES.—WOOLLENS, 1885.

THE LARGER TERMS ARE SUMS OF THE SMALLER TERMS.

2	144	13	13	2	2	37	190
37		141	144	15	15	141	
102				144	154		
141	144	154	157	161	171	178	190
13	2	212	2	2	15	2	2
190	15		13	37	141	15	13
	190		15	203	154	141	144
			203			171	171
203	207	212	233	242	310	329	330
37	203	2	2	13	190	212	13
171	212	13	15	207	329	330	15
178		15	203	207			102
		233	207				519
		161					
386	415	424	427	427	519	542	649
13	171	178	2	15	2	13	37
15	178	310	15	107	13	37	161
649	212	424	102	912	15	329	1740
	310		912		141	330	
					144	1031	
					1034		
677	871	912	1031	1034	1349	1740	1938
190	2	13	2	13	13	2	2
1031	427	330	207	37	157	15	415
1034	871	677	1031	161	161	37	3730
	1034	1740	1349	427	310	330	
				203	329	3601	
				2760	2760		
2255	2334	2760	2589	3601	3730	3985	4147
13	190	2	2				
15	330	15	15				
157	2760	677	330				
3985	3601	3601	242				
		3985	8280				
4170	6881	8280	8869				

On page 32 the "Fire-brick and Clay Series" is put in terms of the Provincial Differences for Cottons for the year 1885. Any well-trained school boy can put the first order of Provincial Differences for Woollens in the terms of the "Fire-brick and Clay Series." Thus reversing the operation, but using Cotton Differences in one case and Woollen Differences in the other. I do not introduce this form of the Differences for Woollens for the year 1885, because it can be so easily effected by any one who choses to take that trouble.

THE FIRST ORDER OR PROVINCIAL DIFFERENCES.—COTTONS, 1885.

ALL THE TERMS OF THE FIRST OR PROVINCIAL DIFFERENCES FOR COTTONS IN 1885, IN RESPECT OF GREAT BRITAIN, ARE SUMS OF EACH OTHER, THE LARGER TERMS BEING SUMS OF THE SMALLER TERMS.

3	3	1	1	12	6	6	1
3	3	3	3	16	12	49	12
	6	3	12		13		28
		6			28		49
6	12	13	16	28	49	55	90
16	3	3	1	1	3	13 13	13
90	12	6	3	6	6	170 170	189
	106	121	6	132	55	6	
			16		106		
			106				
106	121	130	132	139	170	183 189	202
1	16	3	1	3	3	16	3
13	28	49	3	6	6	16	6
90	293	293	6	12	392	371	403
189			16	371			
			345				
293	337	345	371	392	401	403	412
1	6	1	3	12	3	3	3
28	12	3	16	530	6	6	6
412	49	6	508		530	49	597
	441	12				539	
		508					
441	508	530	527	542	539	597	606
1	1	132	130	1	1	12	1
3	3	645	777	130	3	13	13
6	6			777	16	49	16
13	55				16	907	55
16	645				908		981
606							
645	710	777	907	908	944	981	1066
1	1	1	1	6	6	12	16
3	3	55	16	12	13	13	371
6	837	181	508	183	1820	441	2205
403	1479	1820	1479	2004	2205	4044	4510
1066							
1479	1820	1997	2004	2205	4044	4510	7102
13	6						
1479	12						
4510	55						
	202						
	1066						
	4510						
	7102						
6002	12953						

It would needlessly encumber this Exposition to put the terms of the First Order of Provincial Differences for Cottons in 1885, in the form of equivalents to Dr. Edward Young's United States Fish Trade Figures for the year 1874. These are tabulated in Table IV, and any school boy can put the above First Order of Differences for Cottons for the year 1885 in the equivalent form of the column of United States Fish Figures given in Statement No. IX, Section I, Table IV.

THE "FIRE-BRICK AND CLAY SERIES" IN TERMS OF THE FIRST OR PROVINCIAL DIFFERENCES FOR COTTONS IN 1885.

3	1	1	1	1	28	6	16	3	3	1	6
6	3	3	3	3	28	12	16	10	6	9	12
	6	6	6	6		55	28	106	12	13	28
		12	16	16			28		121	139	139
				16							
9	10	22	26	42	56	73	88	125	142	162	185
3	1	1	16	1	12	1	3	1	6		
6	3	6	16	28	28	3	6	28	12		
12	6	16	28	55	170	13	55	337	371		
337	542	542	530	710	1066	16	202	1066	1066		
						202	1066				
						1066					
358	552	565	590	794	1276	1301	1332	1432	1455		
1	28	1	6	13	16	12	1	1			
3	189	3	12	55	412	13	16	6			
13	1479	6	55	189	2205	55	28	13			
106		49	1820	2205		508	1479	55			
1479		1820				2205	2205	202			
								1479			
								2205			
1602	1696	1879	1893	2462	2633	2793	3729	3961			
3	1	106	1	1	16	1					
12	12	530	3	3	412	3					
55	28	2205	6	6	4044	6					
4044	202	7102	28	28	12953	12					
	4044		4044	183		121					
			7102	441		7102					
				4044		12953					
				7102							
4114	4287	9943	11,184	11,868	17,425	20,198					

These interchangeable figures can thus be represented in many equivalent forms, one of these being a prior series twelve years old, and purporting to represent the Fish Exports of the United States in 1874 to British America.

COMPARISON BETWEEN THE SUMS OF THE DIFFERENCES WITH AND WITHOUT REGARD TO SIGNS ARRANGED ACCORDING TO COUNTRIES AS DERIVED FROM THE PROVINCIAL OR FIRST ORDER OF DIFFERENCES AND THE FINAL OR DOMINION ORDER OF DIFFERENCES FOR THE YEAR 1885.

TABLE C., 1885.—COTTON GOODS, YEAR 1885.

	First Order.		*Final Order.*		*Differences.*	
Great Britain	+ 23,005	—	+ 18,945	=	+ 4060	8,120 or
"	— 37,185	—	— 33,125	=	— 4060	
United States	+ 17,123	—	+ 9,750	=	+ 7373	14,746 or
"	— 10,388	—	— 3,015	=	— 7373	
	87,701		64,835		22,866	

WOOLLEN GOODS, YEAR 1885.

	First Order.		*Final Order.*		*Differences.*	
Great Britain	+ 34,144	—	+ 21,479	=	+ 12,665	25,330 or
"	— 32,278	—	— 19,613	=	— 12,665	
United States	+ 258	—	+ 256	=	+ 2	4 or 0
"	— 4,233	—	— 4,231	=	— 2	
	70,913		45,579		25,334	

Total sum First or Provincial Order—Cottons and Woollens,	$ 158,614
" Final or Dominion Order,	110,414
Difference,	48,200
Sum of Provincial Positive Terms without regard to countries,	+ 74,530
" " Negative " " " "	— 84,084
Difference,	158,614

CHAPTER VI.

THE INTERCHANGEABLE OFFICIAL FIGURES OF TWO NATIONS.

In this Chapter some illustrations are given of the interchangeable character of the quantities employed under the supervision of Dr. Edward Young and Mr. Commissioner Johnson, in the Manufacture of Canadian and United States Records of Trade. These illustrations cover the years from 1872 to 1885, inclusive.

Any person who chooses to take the trouble can put all the Canadian Entries for Cotton Goods and Woollen Goods in the form of an indefinite Arithmetical Progression, by pursuing the process indicated in the following pages, for the years 1878, 1883 and 1885, and, I have reason to believe, for many other years and many other classes of goods.

Any person can also take the differences between the "Imports" and "Entries for Home Consumption," and put them in terms of the Denominational Figures used by Dr. Edward Young to represent United States Trade in Fish, Fish Oils, Shell Fish and Products of the Sea. These again can be put in terms of the "Fire-brick and Clay Series," and they can all be reduced down to the Bernoulli Columns III. and II. In other words, they are all the equivalents of the sums of selected Co-efficients of the Expansions of $(1+1)$ or $(1-1)$ to the power of n, where n is successively equal to 1, 2, 3, 4, 5, &c., as far as it is found convenient to go. The work is done by means of a "Ready Reckoner."

These Trade Tables are, in fact, practical illustrations in figures, of Bernoulli's famous words engraven on his tomb:

EADEM MUTATA RESURGO.

To these illustrations I have added one of the equivalent forms of the "Fire-brick and Clay Series," in terms of Bernoulli's Column No. III.

Also, First—A mathematical formula for obtaining any desirable ratio between two quantities, and the corresponding series in Bernoulli's Table.

Second—A general mathematical expression for the terms of any one of the vertical columns in Bernoulli's Table.

Third—The mathematical process for converting Bernoulli's Formula into the "Differential Method" of expressing the sum of a Series, as given in modern algebras.

THE WONDERFUL ACCURACY OF THE FIGURES.

It is time now to direct attention once again to the surprising accuracy of the Figures employed. Nothing short of a joint ready-reckoner could have produced this accuracy. Custom House figures in 1878, 1883, and 1885, referring to certain classes of goods, are found to be interchangeable with Custom House records relating to other classes of goods in prior years,—1872-3 or 1873-4, for instance—and also interchangeable with the dutiable Custom House Records of a neighboring people, numbering fifty-six millions, the greater portion of whom are more or less engaged in commercial transactions whose alleged records possess these properties. The illustrations given below are types only of a vast system.

THE ALLEGED CUSTOMS HOUSE ENTRIES FOR THE YEARS 1878, 1883 AND 1885, IN THE FORM OF AN ARITHMETICAL PROGRESSION.

The following tables show how the alleged Custom House entries themselves, for the years 1878, 1883 and 1885, may be grouped in the form of an Arithmetical Progression, with 1000 as a common difference.

THE QUANTITY 1000, WITHOUT REGARD TO SIGNS.

Year 1878.	*Year 1883.*	*Year 1885.*
Equivalent Differences.	Equivalent Differences.	Equivalent Differences.
Cottons only.	Cottons only.	Cottons only.
+ 562	+ 782	+ 403
+ 180	+ 218	+ 542
— 158		— 55
— 100		
1000	1000	1000

Year 1878.—The corresponding entries with their negative signs changed:

Great Britain—Carpets of any material, except Woollen, ...	$ 96562	— $ 96000
Great Britain—Ginghams and Plaids, ...	20385	— 20205
United States—Carpets of any material, except Woollen, ...	8058	— 7900
United States—Ginghams and Plaids, ...	4463	— 4363
	129468	128468

$ 129468
128468
1000

Year 1883.—The corresponding entries with negative signs changed:

Great Britain.—Wincys, Checked, &c., over 25 inches,	$ 28313	—	$ 27551
United States.—Clothing, or other material not otherwise provided for,	225224	—	225006
	253557		252557

$ 253557
252557
1000

Year 1885.—The corresponding entries with negative signs changed:

Great Britain.—All other,	40504	—	40101
Great Britain.—Parasols,	61001	—	60946
Great Britain.—Cottons, Printed or Dyed,	37923	—	37381
	139428		138428

$ 139428
138428
1000

THE QUANTITY 2000.

Year 1878. Equivalent Differences. Cottons & Woollens.	*Year 1883.* Equivalent Differences. Cottons only.	*Year 1885.* Equivalent Differences. Cottons only.
— 100	— 908	+ 1997
— 300	— 613	— 3
+ 1600	— 479	
2000	2000	2000

Year 1878.			
	$		$
United States.—Ginghams and Plaids,	4,463	—	4,363
United States.—Carpets,	14,253	—	13,953
Great Britain.—Cottons, Printed, Painted, &c.,	1,984,044	—	1,982,444
	2,002,760		2,000,760

$ 2,002,760
2,000,760
2,000

Year 1883.			
	$		$
Great Britain.—Sewing Thread, in Hanks, &c.,	152,342	—	151,434
United States.—All other Manufactures N. E. S.,	421,837	—	421,224
Great Britain.—Wadding, Batting, Warps, &c.,	3,525	—	3,046
	577,704		575,704

$ 577,704
575,704
2000

Year 1885.			
	$		$
Great Britain.—Cottons, Bleached, &c.,	29,429	—	27,432
Great Britain.—Wincys, &c.,	15,189	—	15,186
	44,618		42,618

$ 44,618
42,618
2000

THE QUANTITY 3000.

Year 1878. Equivalent Differences.	*Year 1883.* Equivalent Differences.	*Year 1885.* Equivalent Differences.
— 1048	+ 1356	— 2004
— 842	+ 782	+ 981
+ 562	— 558	— 12
— 158	+ 218	+ 3
— 300	— 86	
— 90		
3000	3000	3000

Year 1878.			
	$		$
United States.—Cottons, Printed and Painted,	893,681	—	892,633
Great Britain.—Worsted and Yarn,	66,051	—	65,209
Great Britain.—Carpets of any material, except Woollen,	96,562	—	96,000
United States.— " " " "	8,058	—	7,900
United States.—Carpets,	14,253	—	13,953
United States.—Clothing, &c.,	191,441	—	191,351
	1,270,046	—	1,267,046

$ 1,270,046
1,267,046
3000

Year 1883.	$		$
United States.—Wadding, Batting, Warps, &c., (not dyed)	29,505	—	28,149
Great Britain.—Wincеys, Checked, &c., not over 25 in.,	28,333	—	27,551
Great Britain.—Bags by the Needle,	6,078	—	5,520
United States.—Clothing or other material, &c.,	225,224	—	225,066
United States.—Bed Comforters,	2,102	—	2,016
	291,242		288,242

$ 291,242
288,242

3000

Year 1885.	$		$
Great Britain.—Velveteens,	206,178	—	204,174
Great Britain.—Bed Comforters,	3,476	—	2,495
Great Britain.—Jeans and Contilles,	2,229	—	2,217
Great Britain.—All other,	73,788	—	73,785
	285,671		282,671

$ 285,671
282,671

3000

THE QUANTITY 4000.

Year 1878. Equivalent Differences.	*Year 1883.* Equivalent Differences.	*Year 1885.* Equivalent Differences.
+ 1509	+ 1356	+ 1997
+ 1600	— 908	+ 1820
— 519	— 558	— 183
+ 180	— 613	
— 100	— 479	
+ 2	— 86	
4000	4000	4000

Year 1878.	$		$
Great Britain.—Jeans, Denims, &c.,	28,528	—	26,929
Great Britain.—Cottons, Printed, Painted, &c.,	1,984,044	—	1,982,444
United States.—Tweeds,	10,026	—	9,507
Great Britain.—Ginghams and Plaids,	20,385	—	20,205
United States.— " "	4,463	—	4,363
United States.—Clothing, &c.,	128,448	—	128,446
	2,175,894	—	2,171,894

$ 2,175,894
2,171,894

4000

Year 1883.	$		$
United States.—Wadding, Batting, &c.,	29,505	—	28,149
Great Britain.—Sewing Thread in Hanks, &c.,	152,342	—	151,434
Great Britain.—Bags by the Needle,	6,078	—	5,520
United States.—All other manufactures N. E. S.,	421,837	—	421,224
Great Britain.—Wadding, Batting, Warps, &c.,	3,525	—	3,046
United States.—Bed Comforters	2,102	—	2,016
	615,389		611,389

$ 615,389
611,389

4000

Year 1885.	$		$
Great Britain.—Cottons, Bleached,	29,429	—	27,432
Great Britain.—All other,	564,379	—	562,559
Great Britain.—Shirts,	97,671	—	97,488
	691,479	—	687,479

$ 691,479
687,479

4000

And so on, continuously, up to 10,000, or 20,000, or 50,000, &c., &c.

In a similar manner all the Custom House entries answering to the Differences on pages 1 and 2, 21, 22, 23, 25 and 26, can be put in the form of an Arithmetical Progression with a common difference of 1000, or 100 or 10. Where the reduced Dominion differences form only an Arithmetical Progression with 1000 as a common difference, then the Provincial differences furnish the details for a common difference of 100 or 10, as shown on pages 27 and 28, for the year 1885.

Now, the terms of every Arithmetical Progression are subject to certain mathematical relations, and the grouped Custom House entries being in the form of an Arithmetical Progression are subject to the same relations. This is a point which need not be illustrated, for it requires no demonstration, it is a mathematical certainty. It remains to show that the Equivalent Differences can all be put in terms of Dr. Edward Young's Fish Trade Figures, and thus connect the deceptions going on now, with the deceptions which have been successful, but still remain to be used again, as these Trade Tables for 1885 foreshadow.

THE EQUIVALENT COTTON OR WOOLLEN DIFFERENCES FOR 1878, 1883 AND 1885 IN TERMS OF DR. EDWARD YOUNG'S FISH TRADE FIGURES TAKEN FROM THE UNITED STATES COMMERCE AND NAVIGATION REPORT, FOR 1872-73.

(See Table III., Statement No. VI., for Denominational details.)

YEAR 1878.

Equivalent Differences. Cottons only.	$	Equivalent Denominational Figures of Young's U. S. Fish Trade Record in 1872-73.
562	258	Fish, Pickled, to British Guiana.
	108	" Fresh, to Quebec.
	76	" Smoked, to Nova Scotia.
	62	" Whale Oil to Nova Scotia & New Brunswick.
	52	" Pickled, to Quebec.
	6	" Dried, to "
180	174	" Fresh, to Honduras.
	6	" Dried, to Quebec.
158	62	Whale Oil to Nova Scotia and New Brunswick.
	58	Spermaceti to Quebec, &c.
	30	Sperm, to "
	8	Whalebone to British Columbia.
100	62	Whale Oil to Nova Scotia and New Brunswick.
	30	Sperm to " "
	8	Whalebone to British Columbia
1000	1000	

YEAR 1883.

Equivalent Differences. Cottons only	$	Equivalent Denominational Figures of Young's U. S. Fish Trade Record in 1872-73.
782	353	Fish, Dried, to British Columbia.
	338	" Cured, to British Guiana.
	52	" Pickled, to Quebec.
	30	Sperm to Quebec, &c.
	6	Fish, Smoked, to Quebec.
	3	" Pickled, to British Columbia.
	174	" Fresh, to British West Indies.
218	30	Sperm to Quebec.
	8	Whalebone to British Columbia.
	6	Fish, Smoked, to Quebec.
1000	1000	

YEAR 1885.

Equivalent Differences. Cottons only.		
403	240	Herring to British Guiana.
	108	Fish, Fresh to Quebec.
	52	" Pickled, to "
	3	" " to British Columbia.
542	240	Herring to British Guiana.
	174	Fish, Fresh, to British West Indies.
	76	" Smoked, to Nova Scotia and New Brunswick.
	52	" Pickled to Quebec.
55	52	" " "
	3	" " to British Columbia.
1000	1000	

YEAR 1878.

Equivalent Differences Cottons & Woollens.		
100	62	Whale and Fish Oils to N. S. and N. B.
	30	Sperm, to Quebec, &c.
	8	Whalebone to British Columbia.
300	108	Fish, Fresh, to Quebec.
	76	" Smoked to N. S. and N. B.
	58	Spermaceti to Quebec.
	52	Fish, Pickled, to British Columbia.
	6	" Dried, to Quebec.
1600	459	Oysters to Newfoundland.
	350	Sardines to Nova Scotia and New Brunswick.
	280	" to British West Indies.
	258	Fish, Pickled, to British Guiana.
	174	" Fresh, to British West Indies.
	76	" Dried, to Nova Scotia and New Brunswick.
	3	" Pickled, to British Columbia.
2000	2000	

YEAR 1883.

Equivalent Differences Cottons only.		
908	350	Sardines, &c., to Nova Scotia and New Brunswick.
	240	Herring to British Guiana.
	258	Fish, Pickled, to British Guiana.
	52	" " to Quebec, Ontario.
	8	Whalebone to British Columbia.
613	353	Fish, Dried, to British Columbia.
	108	" Fresh, to Quebec.
	62	Whale Oil to Nova Scotia and New Brunswick.
	52	Fish, Pickled, to Quebec.
	30	Sperm to do.
	8	Whalebone to British Columbia.
479	240	Herring to British Guiana.
	108	Fish, Fresh, to Quebec.
	76	" Dried, to Nova Scotia.
	52	" Pickled, to Quebec.
	3	" " to British Columbia.
2000	2000	

YEAR 1885.

Equivalent Differences. Cottons only.		
1997	1884	Mackerel to British West Indies.
	58	Spermaceti to Quebec.
	52	Fish, Pickled, to Quebec.
	3	" " to British Columbia.
3	3	Fish, Pickled, to British Columbia.
2000	2000	

YEAR 1878.

Equivalent Differences.		Equivalent Denominational Figures of Young's U. S. Fish Trade Records in 1872-73.
1042	932	Whalebone to Quebec, &c.
	58	Spermaceti to "
	52	Fish, Pickled to "
	6	" Dried, to "
842	459	Oysters to Newfoundland.
	350	Sardines to Nova Scotia.
	30	Sperm to Quebec.
	3	Fish, Pickled to British Columbia.
562	353	Fish, Dried, to British Columbia.
	108	" Fresh, to Quebec.
	62	Whale Oil to Nova Scotia and New Brunswick.
	30	Sperm to Quebec.
158	6	Fish, Dried, to Quebec.
	3	" Pickled, to British Columbia.
300	240	Herring to British Guiana.
	52	Fish, Pickled, to Quebec.
	8	Whalebone to British Columbia.
90	52	Fish, Pickled, to Quebec.
	30	Sperm to Quebec.
	8	Whalebone to British Columbia.
3000	3000	

YEAR 1883.

Equivalent Differences.		Equivalent Denominational Figures of Young's U. S. Fish Trade Records of 1872-73.
1356	700	Whale Oil to British Guiana.
	350	Sardines in Oil to N. S. and N. B.
	240	Herring to British Guiana.
	58	Whalebone to Quebec.
	8	" British Columbia.
782	700	Whale Oil to British Columbia.
	52	Fish, Pickled, to Quebec.
	30	Sperm to Quebec.
558	338	Fish, Other Cured, to British Guiana.
	108	" Fresh, to Quebec.
	76	" Dried, to Nova Scotia and New Brunswick.
	30	Sperm to Quebec.
	6	Smoked Fish to Quebec.
218	108	Fish, Fresh to Quebec.
	58	Spermaceti to do.
	52	Pickled Fish to Quebec.
86	62	
	8	
	6	
3000	2990	

YEAR 1885.

Equivalent Differences.		Equivalent Denominational Figures of Young's Fish Table.
2004	1863	Herring to British West Indies.
	108	Fish, Fresh, to Quebec.
	30	Sperm to Quebec.
	3	Fish, Pickled, to British Columbia.
981	700	Whale Oil to British Guiana.
	240	Herring to " "
	30	Sperm to Quebec.
	8	Whalebone to British Columbia.
	3	Fish, Pickled, to " "
12	6	Fish, Dried, to Quebec.
3	3	" Pickled, to British Columbia.
	6	" Dried, to Quebec.
3000	3000	

And so on for succeeding terms.

The above illustration for the year 1883 is introduced to show that these Equivalent Differences, although they produce the required number 3000 for cottons, yet cannot be put in terms of Dr. Edward Young's Fish Trade Figures for 1872-73, the quantity 86 not being interchangeable with them. Therefore other Equivalent Differences must be taken,—such as the following, which answer all the conditions;

782 = { 350, 280, 62, 52, 30, 8

218 = { 108, 58, 52

908 = { 909, 8

613 = { 459, 58, 52, 30, 8, 6

479 = { 280, 108, 52, 30, 6, 3

3000 3000

On page 29 it is stated that "some quantities are introduced in duplicate for special reasons." The reasons are that unless regard is had to the duplicate or triplicate forms in which the different terms of the Arithmetical Progression may be put, efforts to obtain the equivalent differences in terms of Dr. Edward Young's Fish Trade Figures may fail.

The reader will bear in mind that the foregoing "Denominational Figures of Young's United States Fish Trade Records of 1872-73," can be put in terms of an Arithmetical Progression, as in Section III, Statement VII, Table III; also, that the larger terms are sums of the smaller terms; also, that these denominational figures can be put in terms of the United States IMPORTS from British America, as in Section I, Statement VIII, Table IV; also, that they can be put in terms of the "Fire-brick and Clay" Series, as in Section I, Statement VII, Table III; and if the reader will turn to the succeeding page, he will find the "Fire-brick and Clay Series" in terms of Bernoulli's Column No. III. The relationship is thus carried back from 1885 to 1867, and then back to the Bernoulli Table, first published in 1713, or 173 years ago.

THE "FIRE-BRICK AND CLAY SERIES" IS THE EQUIVALENT OF BERNOULLI'S COLUMN No. III.

(It will be remembered that the name "Fire-brick and Clay" Series is derived from the substitution of 11,184 dollars' worth of "Fire-bricks and Clay" for "Fish," in the rendering of the Canadian Trade Tables of 1867.)

See TABLE II, STATEMENT I, *for the Origin of this Remarkable Series.*

It is shown in Table II, Statement IV, that the "Fire-brick and Clay Series" consists of the sums of the quantities 9, 10, 22, 26, 42 and 56, being its six lowest terms. These quantities are the equivalents of the grouped sums of the first ten terms of Bernoulli's Column No. III. The terms are 0, 0, 1, 3, 6, 10, 15, 21, 28 and 36, which are themselves the successive sums of the natural numbers 1, 2, 3, 4, 5, 6, 7, &c., as may be seen by examining Bernoulli's Table.

$$9 = \left\{\begin{matrix}0\\3\\6\end{matrix}\right. \quad 10 = \left\{\begin{matrix}1\\3\\6\end{matrix}\right. \quad 22 = \left\{\begin{matrix}1\\6\\15\end{matrix}\right. \quad 26 = \left\{\begin{matrix}1\\10\\15\end{matrix}\right. \quad 42 = \left\{\begin{matrix}6\\15\\21\end{matrix}\right. \quad 56 = \left\{\begin{matrix}1\\10\\45\end{matrix}\right.$$

By substituting these values or their equivalents in Statement IV, Table II, the "Fire-brick and Clay Series" can be put in terms of the quantities 1, 3, 6, 10, 15, 21, 28, 36, &c., &c., or column III of Bernoulli's Table.

But this form would be purposeless. The property of the Bernoulli Series is that each term of any series is the sum of two preceding terms of the same and next adjoining column to the left. The "Fire-brick and Clay Series" can therefore be put in small groups of Column III and IV, of which the following is one of a vast number of equivalent forms. The endless variety of these forms of the larger terms is a notable feature.

THE "FIRE-BRICK AND CLAY SERIES" IN THE TERMS OF BERNOULLI'S COLUMNS III AND IV.

3	1	1	1	6	6	1	28
6	3	6	10	15	10	10	45
	6	15	15	21	36	45	
9	10	22	26	42	52	56	73
10	6	28	3	10	1	3	1
78	28	36	6	55	6	21	3
	91	78	153	120	351	528	561
88	125	142	162	185	358	552	565
1	4	1	6	6	3	1	4
28	10	1275	20	1326	6	10	220
561	78		1275		45	66	1378
					1378	1378	
590	794	1276	1301	1332	1432	1455	1602
4	703	28	6	120	3	1128	1
66	1176	325	55	1081	190	1275	6
300		1540	1176	1432	2600	1326	300
1326			1225				3654
1696	1879	1893	2462	2633	2793	3729	3961
3	1	3	28	3	3	3	
6	36	15	496	325	6	595	
45	190	45	10660	11480	120	19600	
4060	4060	9880			17296		
4114	4287	9943	11,184	11,808	17,425	20,198	

It must be borne in mind that in order to appreciate the full value of the artificial construction of the "Fire-brick and Clay Series" this remarkable series is not only the equivalent of the sums of groups of its first six terms, but it is also the equivalent of the foregoing sums of the terms of the Bernoulli's Columns III and IV, each term of which is itself the sum of a prior series either vertical or sloping in Bernoulli's Table.

Further, the "Fire-brick and Clay Series" has been shown in Table II to possess certain properties; in Table III it represents the terms of Young's United States Export Fish Trade figures; in Table IV, Young's United States Import Fish Trade figures; also, in Table IV, Young's United States Fish Trade Export figures for 1874, jointly with the Canadian Fish Trade Import figures for 1874; also, it embraces the Cotton and Woollen Series of Differences for the years 1878, 1883 and 1885; and it assumes the form of an indefinite Arithmetical Progression. All these figures specified are interchangeable, and have been proved to be so, together with equivalency to Bernoulli's Columns III or III and IV.

Hence the figures or quantities specified are nothing more than the equivalents of the sums of the selected Coefficients of the Expansion of the Binomial $(1+1)$ to the power of n.

Now let the reader look at the origin, and subsequent use to which this series has been applied, and then consider the object of its presence in United States and Canadian Records of Government, and dwell for a few minutes on its appearance and application in the Canadian Trade Tables for 1885, as shown on page 32. Let the reader then ask himself, whether it is not time for those who care for the privileges of freedom, and are conscious of having duties as freemen to fulfil, to bestir themselves in a matter which threatens to strike at the root of freedom, and to destroy the equality of all men before the law.

CERTAIN PROPERTIES OF BERNOULLI'S TABLES.

I.

TO OBTAIN ANY RATIO BETWEEN TWO SERIES.

Any desirable ratio between the sums of the terms of different series framed according to Bernoulli's Table can be secured by means of the following deduction from the 12th property.

Let S = the sum of n terms in any column a of the table.
" l = the last of n terms in column a

Then

$$S : n.l = 1 : a$$

or

$$S.a = n.l$$

A deduction from Formula No. (1) given in Bernoulli's Table.

EXAMPLE.—The sum of 19 terms in Column XI is 75,582
The last or 19th term in Column XI is 43,758
Then 75,582 is to $19 \times 43,758$ as 1 : 11
or $11 \times 75,582 = 19 \times 43,758$

75,582	43,758
11	19
75,582	393,822
75,582	43,758
831,402	831,402

Bernoulli expresses this remarkable relation in the following quaint language, as given in the translation published by FRANCIS MASERES, Cursitor Baron of the Court of Exchequer in 1795: "The sum of any number of terms in any of the vertical columns contained in the foregoing table of combinations is to the sum of the same number of terms all equal to the last of them, in the proportion of 1 to the exponent of the said column, or to the number which denotes or expresses its place in the said table."

II.

GENERAL EXPRESSION FOR THE TERMS OF ANY ONE OF THE VERTICAL COLUMNS IN BERNOULLI'S TABLE.

Let S = the sum of the Series in any Column a to n terms, including cyphers, according to Bernoulli's Table. Then

$$S = 1 + a + \frac{a(a+1)}{2} + \frac{a(a+1)(a+2)}{2.3} + \frac{a(a+1)(a+2)(a+3)}{2,3,4} + \frac{a(a+1)(a+2)(a+3)(a+4)}{2,3,4,5} + \text{&c., &c.}$$

EXAMPLE.—Let $a = 12$, and n the number of terms $= 21$; equal to $10 + 11 = 21$, including cyphers, being 10 quantities and 11 cyphers.

The Series is

$$S = 1 + 12 + 78 + 364 + 1365 + 4368 + 12,376 + 31,824 + 75,582 + 167,960$$

And according to Bernoulli's formula,

$$S = \frac{l \times n}{a} \qquad S = \frac{167,960 \times 21}{12} = 293,930$$

In detail, the calculation is as follows:

$a = 12$; $n = 10$ quantities, then,

$$S = 1 + 12 + \frac{12,13}{2} + \frac{12,13,14}{2,3} + \frac{12,13,14,15}{2,3,4} + \frac{12,13,14,15,16}{2,3,4,5} + \frac{12,13,14,15,16,17}{2,3,4,5,6} + \frac{12,13,14,15,16,17,18}{2,3,4,5,6,7}$$

$$+ \frac{12,13,14,15,16,17,18,19}{2,3,4,5,6,7,8} + \frac{12,13,14,15,16,17,18,19,20}{2,3,4,5,6,7,8,9}$$

$= 1 + 12 + 78 + 364 + 1365 + 4386 + 12,376 + 31,824 + 75,582 + 167,960$, which is the XIIth Column in Bernoulli's Table to 21 terms, and each of the quantities in the series is equal to the sum of the series in the column next preceding it to the left and beginning with the quantity one square above it. Thus, 75,582 is the sum of all the quantities in Column XI from 43,758 upwards, and there are 19 terms in that column, including cyphers; or 75,582 is the sum of the VIIIth column, beginning with 31,824 and thence upwards. 31,824 is the sum of the VIIth column, beginning with 12,376 and thence upwards; or of the XIth column, beginning with 19,448 and thence upwards, and so on for all the quantities in the series.

It is to be noticed that the sloping column to the left of 75,582 up to No. 11, consists of the same figures as the vertical column No. XII over 75,582. This rule holds good throughout, together with numerous other relations between columns and parts of columns, which it is not necessary now to point out.

III.

THE EFFECT OF POSITION IN USING BERNOULLI'S TABLE.

The effect of position in Bernoulli's Table is remarkable, and must always be attended to. The value of n varying with each column.

When using any of the formulæ given in school or college algebras for determining the sum of a series by the Differential Method, such as that given on page 337, of Hind's Elements of Algebra, 5th Ed., and applying it to Bernoulli's Table, the value of n must be made equal to $(n - a + 1)$ on account of the cyphers which Bernoulli's formula alone includes.

The equation then becomes

$$(1)\quad S = \frac{(n-a+1)\ (n-a+2)\ (n-a+3)\ (n-a+4)}{1.\ 2.\ 3.\ 4}$$

$$(2)\quad S = \frac{l \times n}{a.}$$

EXAMPLE.—Let it be required to find from either formula the sum of 40 terms of the series

$$1 + 4 + 10 + 20 + 35 + 56 + 84 + \&c., \text{ to} \ldots 9139,$$

which is the 40th term in the Bernoulli Column IV. including cyphers.

Then from (1) $S = \frac{(40\ \ 3)\ (40-2)\ (40-1)\ (40-0)}{1.\ 2.\ 3.\ 4} = \frac{37 \times 38 \times 39 \times 40}{1.\ 2.\ 3.\ 4.} = 91390$

From (2) $S = \frac{9139 \times 40}{4} = 91390.$

Many other striking features and properties of Bernoulli's remarkable table are pointed out in the *Ars Conjectandi*, or in the MASERES translation, or are easily deduced by any one familiar with the elements of Algebra.

THE MAGNITUDE OF THE IMPOSTURE.

It will be understood why no attempt is made in this Exposition to arrive at an approximation to the extent to which the use of the artifice portrayed affects the visible record of Canadian Trade since 1878, when it is stated that the combined PROVINCIAL DIFFERENCES in the year 1883, for Cotton Goods and Iron Goods in relation to trade with Great Britain and the United States, amount to no less than $377,000. If the signs only of these Differences be changed, the resulting sum would represent a difference in the record of the Trade, from what it now is, of $754,000 for these two articles alone in one year.

But besides Iron Goods and Cotton Goods and Woollen Goods, there are numerous other commodities in which the recorded "Differences" between "Imports" and "Entries for Home Consumption" are very large. These figures have no relation to the "Valuator's" estimate, or to "Bonded Goods," or to "Drawbacks," or any other Custom House contingency. They are the grouped terms of a continuous Arithmetical Progression, interchangeable with United States prior Custom House entries, and interchangeable with a prior Canadian series, already successfully utilized, and interchangeable with Bernoulli's wonderful grouped figures, 170 years old. Consequently, they are fabricated figures from year to year, and mathematically related to the Custom House details of a neighbouring nation.

EADEM MUTATA RESURGO.

A STATEMENT AND CONCLUSION.

In what I have now portrayed there lies an instruction and a warning not to be disregarded.

We are brought face to face with the most far-reaching conspiracy—for it deserves no better name—history discloses.

This conspiracy has had for its object the systematic joint falsification, by a secret mathematical process, of the Annual Trade Records of two independent nations, during a time of profound peace, and in the midst of laudable commercial rivalry.

This secret process has already been jointly and successfully used in relatively distorting the Trade Records of these neighboring nations, so as to give preponderance to one of them during an international arbitration in a matter governed by treaties, and of the highest moment to the interests of the maritime portion of both nations.

As a consequence of the successful practice and continued maintenance of this conspiracy, we have now to confront and discuss serious international complications, to the detriment of good neighborhood and the promotion of ill-will. Therefore, it is necessary to present the facts fairly before the public, in order to lessen these evils; not to do so, would encourage multiplying troubles.

The necessary Annual Official Statistics of the United States in relation to the Fish Trade, during the period when these records were under the supervision and control of Dr. Edward Young, were fabricated throughout, and made

subordinate to reciprocal Canadian statistics by a mathematical process pursued in common at Washington and at Ottawa. The method and its results are sufficiently described in this book, but susceptible of much more ample demonstration.

This secret process has subsequently been continued by Canadian officials up to the present time, and in such a gross form that the figures of the National Records of the Trade of Canada in their latest issue, are interchangeable with those of the earlier Trade Records of her powerful and independent neighbor, and mathematically related to them. They can all be put in the form of an endless Arithmetical Progression, with subordinate consequences.

In glaring contradiction to the solemn averments made in the Canadian Parliament (1), and re-echoed in the Imperial Parliament (2), some years since, this unexampled abuse of trust is mathematically proved in the pages of this book to have been going on then, as stated, and also to be going on now, but with tenfold greater contingent burdens. The responsibility resting on those who favored this subterfuge, and permitted the secret scheming to continue, has yet to be measured.

If papers are called for in the House of Representatives, it will be found that I have not been remiss in communicating the grave delinquencies of Dr. Edward Young to the Government of the United States, even so far back as 1882 (3).

These printed communications point out the artificial construction of Dr. Edward Young's Trade Figures in the United States Commerce and Navigation Reports for six years. They notice also his misrepresentations of Canadian Official Returns in the "Monthly Reports."

I now find that the special features then enlarged upon are nothing more than the subordinate consequences of the continued use of selected co-efficients of the successive expansions of the Binomial $(1+1)$ to the power of n, in order to represent United States Trade in the Products of the Sea.

The absence of mathematical proof of the fraud may account for the absence of notice being taken of the statements made.

But the permitted continuance of these practices in Canada derives special force from the fact " with the exception of the formula, the whole was described by me in a communication to the Rt. Hon. Sir Charles W. Dilke, (4), when that statesman occupied the position of President of the Local Government Board, in May, 1884, and a synopsis was previously published by me and circulated in England, and sufficiently so in Canada (5).

The title of the voluminous paper addressed to Sir Charles Dilke and returned to me, was as follows:

"THE CANADIAN OFFICIAL FRAUDS CONTINUOUSLY PRACTICED IN RELATION TO THE CANADIAN PROTECTIVE TARIFF AND CANADIAN TRADE WITH THE UNITED KINGDOM."

This vast fraud, as continued since 1877, unequally affects the international Trade Relations of many millions of people on this continent alone. It has favoured the industries of one class and abused the privileges and rights of another class. It has unequally and inequitably represented, by means of forged figures, the several industries of these classes, and their commercial relations. Page 5 of this book embodies an indictment no one can dispute; Chapter VI further confirms it.

The hidden influence this fraud exercises may at any moment be called into action. Unless exposed to public view, it may again suddenly become an unsuspected controlling power in legislation, in the adjustment of treaties, in arbitration, and in the administration of the law.

The conspiracy has already become a rooted and a growing evil, which must be extirpated at any cost, or it will lead to grave international bickerings, and internal unrest, if not disaffection.

It is not very long since that men wondered at the saying imputed to a distinguished personage, exalted in rank and high in public estimation, that "Representative institutions are now on their trial." It looks as if this saying had a great deal of truth in it.

The irony cast by the process I have outlined, on solemn arguments based on the interchangeable figures which are its outcome, is unspeakable.

(1.) See official report of the Discussion in the Canadian Senate and the Canadian House of Commons, in January and February, 1881, respecting the charges made by me; also, Mr. Commissioner Whitcher's whitewashing memorandum for Sir J. A. Macdonald, and my reply to His Excellency the Governor-General of the Dominion, concerning this outrage against truth and honour.

(2.) Sir Charles W. Dilke, 1881.

(3.) The United States Spurious Statistics and the conspiracy which created them,—being letters addressed to the Hon. Frederick T. Frelinghuysen, Secretary of State, dated—1st. Windsor, Nova Scotia, Oct. 16, 1882. 2nd.—Windsor, Nova Scotia, Nov. 1, 1882. 3rd.—Windsor, Nova Scotia, Nov. 30, 1882.

(4.)

NOTTINGHAM, July 14th, 1884.

To the Right Honourable Sir CHARLES W. DILKE, M. P., President of the Local Government Board.

Sir,—I have the honour to transmit a printed copy of the "Correspondence with the late Lord Frederick Cavendish," published with the consent of the Marquis of Hartington.

I should now be very grateful if you would authorize me to publish my letter of May 10th to yourself, with the addenda, omitting such passages, if any, you might deem unnecessary.

There could only be three purposes served by such an act, namely:—
The suppression of continued atrocious crimes.
Justice to millions of the industrial classes of our countrymen; and
An impetus given to the principles of Just Government.

I have the honour to be your obedient servant,

HENRY YOULE HIND, M. A.

Local Government Board, Whitehall, July 17th, 1884.

Sir,—In reply to your letter, I am directed by Sir Charles Dilke to say that he never under any circumstances consents to the publication of correspondence with him.

I am your obedient servant,

(Signed) J. E. C. BODLEY.

H. Y. HIND, Esq.

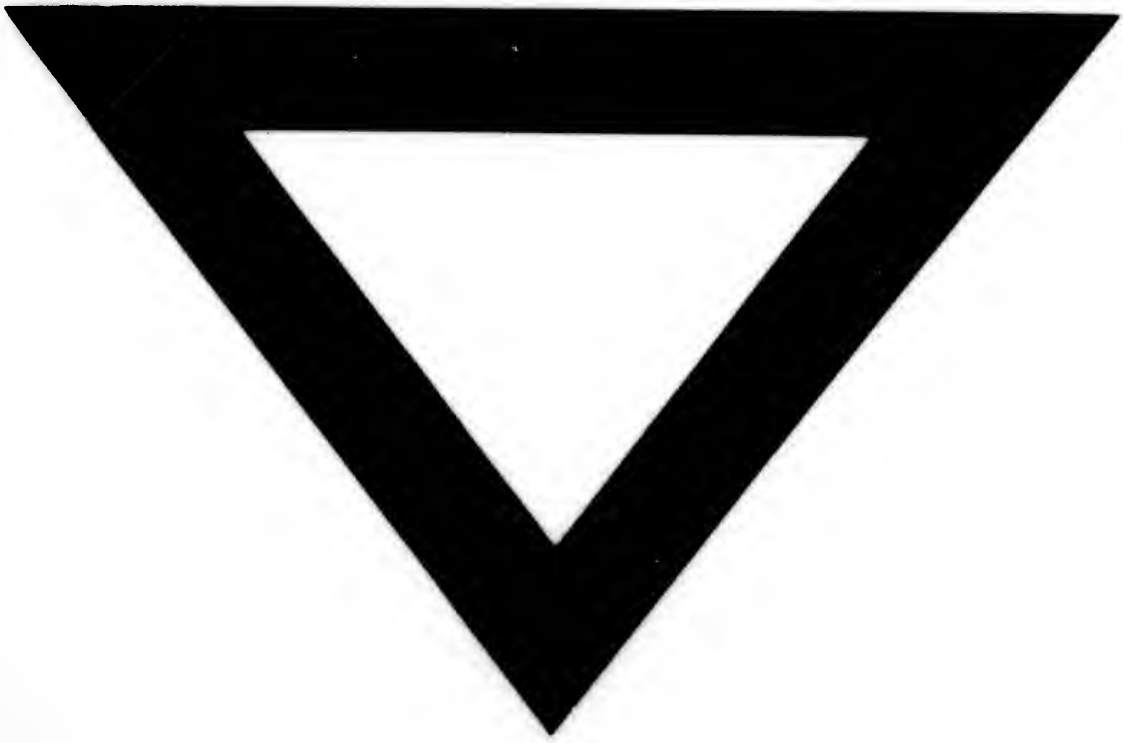
(5.) Concerning a letter to the Rt. Hon. Sir Charles W. Dilke, M. P., President of the Local Government Board, relating to the Forged Trade Tables of the Dominion of Canada for the years 1878 and 1883, with an illustration of one method of fraud.—May 1884.

Considering that I have received the consent of the Rt. Hon. the Marquis of Hartington (1) to the publication of correspondence with the late Lord Frederick Cavendish, relating to the first discovery of the conspiracy, now more fully developed, I am not stepping beyond the limits of respectful bearing if I point to certain conditions and suggest a query.

The highest human function is the administration of justice. To this end we are governed by direct or delegated authority. Can it be the function of the Minister of Customs, or of the Governor-General, to receive manufactured Records of Government which display their own one-sided falseness, and furnish an unanswerable indictment against their compiler and his evil methods?

It now remains for those who seek to mould public opinion, or profess to guide and protect public morality, to take the matter in hand, and aid in sustaining the principle on which our liberties rest,—that all men are equal before the law.

The independent press of both countries can do infinite good by persistently calling attention to this matter, inquiring into its insidious partiality, and denouncing a practice which can only lead to discontent and destroy the blessings of good neighbourhood.

HENRY YOULE HIND.

(1.) Fraudulent Official Records of Government.—Correspondence with the late Lord Frederick Cavendish, M. P. Published with the consent of the Rt. Hon. The Marquis of Hartington, M. P., Secretary of State. War Department, July, 1884.