
**An Inductive Arithmetic for Intermediate and Higher
Grades of Public and Private Schools**

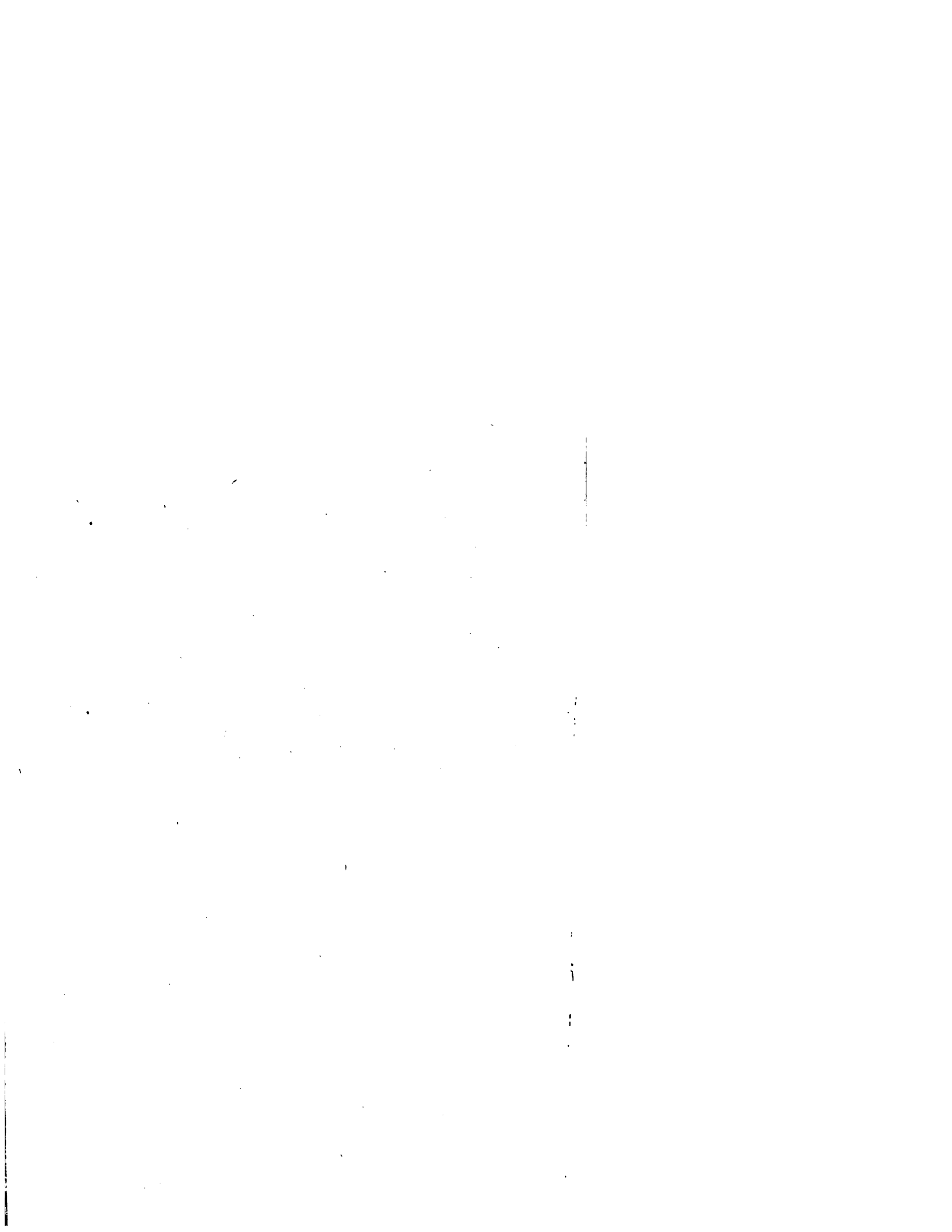
Dunbar Joseph Henry

Title: An Inductive Arithmetic for Intermediate and Higher Grades of Public and Private Schools

Author: Dunbar Joseph Henry

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DUNBAR'S Inductive Arithmetic

A Presentation of Business Methods Based
upon Inductively Developed Principles.

By J. H. Dunbar, A. M., Claremont, N. H.

Published in Four Parts, Parts I and II now ready,
Parts III and IV in preparation.

The following are the two points of special superiority claimed for this work:

It develops arithmetical principles, in place of presenting arbitrary arithmetical rules; it thus stimulates the interest and expands the mind of the pupil.

It aims to present direct, common-sense, business-like methods, and thus to produce correct and rapid accountants.

That these claims are not without some foundation will, we think, be admitted by those who read the testimonials in this circular from prominent business men and well-known educators and school officials.

An idea of the plan followed in the development of principles may be obtained from the sample page on the back of this circular. Such development of a principle is always followed by model solutions, complete and systematic explanations, and a large number of exercises for practice.

Hartford, Vt., Aug. 8, 1894.

Prof. J. H. Dunbar,

Plain of
compre-
hension

Dear Sir: I have carefully examined your "Inductive Arithmetic," and find it more than interesting.

It presents a method of instruction for the school room which is at once original, clear, and plain of comprehension to the student mind. Its arrangement is methodical, building on from one branch to another in logical sequence, so as to present a truly inductive system of instruction.

A truly
inductive
system

Its propositions and definitions are terse and come directly to the point. From the business man's standpoint it also has superior suggestions and practical methods. Its ready ways of calculation in every-day transactions, and particularly in matters of interest computations, are quick and economize one's time. A complete mastery of this work by the student would seem to equip him for all the arithmetical problems of commercial and ordinary business life. Your treatise deserves success and will command it.

Comes
directly
to the
point

Truly yours,

(Ex-Governor of Vermont, and President Samuel E. Pingree.
of White River Saving Bank)

A new
depart-
ure

Bethel, Vt., June 28, 1894.

J. H. Dunbar, Esq.,

Dear Sir: I have recently examined a copy of your Arithmetic with much interest. It is a new departure in the line of text-books. The arrangement is admirable, and the style clear, simple, and logical. It seems calculated to stimulate the mind of the pupil and suggest practical methods to the instructor; to educate as well as to instruct.

Educates
as well as
instructs

The treatment of the subject of interest is the best I have ever seen, accurate and plain.

The general adoption of the book is to be hoped for and will be a universal benefit to scholars and schools. I have no doubt it will receive the practical approval it deserves.

A univer-
sal bene-
fit to
scholars
and
schools

Sincerely yours,

(Ex-Pres. Vt. Bar Association.) Wm. B. C. Stickney.

Burlington, Vt., Aug. 1, 1894.

Presents
practical
business
methods

Mr. J. H. Dunbar,

My Dear Sir: I have examined your new "Inductive Arithmetic," and am much pleased with it. You seem to have caught and confined in your book practical business methods. This is emphatically true of those portions devoted to "Compound Num-

bers" and to "Interest." I congratulate you on your success in your new field.

(Member of Congress from Vermont.)

Very truly,

D. J. Foster.

Remarkable for short cuts and logical reasoning

Beverly, Mass., July 25, 1895.

Mr. J. H. Dunbar,

Dear Sir:

I have examined your "Inductive Arithmetic" with keen interest.

It is remarkable for the clearness of its methods, its short-cuts to results, and the way in which from first to last the pupil is led to reason logically.

Effects quick, correct solutions

Because its methods thus effect quick, correct solutions, and at the same time tend to develop the reason, it meets equally the demand both of the business man and the teacher.

The pupil must receive from its study that intellectual stimulus which he fails to get from those arithmetics which merely frame rules for purely mechanical processes.

Meets demand both of business man and teacher

Yours cordially,

Prin. Beverly (Mass.) Training School.

Isabel Chapin.

Claremont, N. H., Mar. 24, 1902.

During the spring of 1901, while I was a member of the Claremont School Board, portions of Dunbar's Inductive Arithmetic, Part I. and "Business Methods in Interest," were introduced into the Claremont schools. From personal knowledge I can testify that both pupils and teacher were highly pleased with the books, and that the results of their use were in every way satisfactory. To those school officers who, like myself, believe that the best textbook on arithmetic is the one which presents the most business-like methods, and which best develops thinking on the part of the pupil, I heartily commend this work.

Highly satisfactory to teachers and pupils

C. H. Wilson.

Un-equaled for supplementary work

Lempster, N. H., Mar. 26, 1902.

This is to certify that we used Dunbar's Inductive Arithmetic in three of our schools last fall and liked them very much. We never have had any book so good for supplementary work or one which awakened the reasoning faculties in children so well. I should recommend its use in any school advanced enough to use it.

Un-rivaled for awakening reasoning faculties

Jennie L. Olmstead, Member of School Board.

Each ques- **39. To Multiply by 147, 125 25 5, etc.**

tion is to We are to multiply a certain number by 147.
We first multiply by 7 units.
We have left 14 tens by which to multiply.

be read, How will the product by 14 compare with the product by 7?
How, then, after obtaining the product by 7 can we obtain
the product of the same multiplicand by 14?

weighed, If the product by 7 is 28, what will be the product by 14?
If the product by 7 is 91, what will be the product by 14?
If the product by 7 is 214, what will be the product by 14?

and an- How will the order of a product by tens compare with the
order of the product of the same multiplicand by units?

swered by Where, then, should the right-hand figure of the product
by the 14 tens be placed with reference to the right-hand
figure of the product by the 7 units?

the pupil, Give, then, a special rule for multiplying by 147.

who thus We are to multiply a number by 125 25 5.
We first multiply by 5.
After obtaining the product by 5, how can we obtain the
product by 25?

gains Where shall we place the right-hand figure of the product
by the 25 tens?

practice How will the product by 125 compare with the product by
25?

in expres- How, then, after obtaining the product by 25, can we ob-
tain the product by 125?

sive read- How does the order of the 125 compare with the order of
the 25?

ing and in How, then, will the order of the product by 125 compare
with the order of the product by 25?

clear con- Where, then, should the right-hand figure of the product by
125 be placed with reference to the product by 25?
Give, then, a special rule for multiplying by 125 25 5.

ception Where should the right-hand figure of a partial product be
placed with reference to the right-hand figure of a preceding
partial product?

and ex- If the partial multiplier is four orders higher than the pre-
ceding partial multiplier?
If it is five orders higher?
If it is six orders higher?
If it is ten orders higher?

pression Give, then, a special rule for multiplying a number

of ideas

By 426.	By 600 150 30 6.
By 6 42.	By 625 125 25 5.
By 36 6.	By 256 128 32 8.
By 21 7.	By 210 105 15 5.
By 7 21.	By 39 27 81.

AN
INDUCTIVE ARITHMETIC

FOR
INTERMEDIATE AND HIGHER GRADES OF PUBLIC
AND PRIVATE SCHOOLS

BY
J. H. DUNBAR, A. M.

CLAREMONT, N. H.:
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1902

✓
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Preface.

Shall arithmetic be taught as a science or as an art? Shall its principal aim be to aid in developing a trained and logical brain or to produce an expert accountant? It is the theory of the author of this book that the subject should be regarded as equally important from both stand-points, and that both aims should be kept in view alike by those who write text-books and those who teach them. In spite of the fact that the statement is that of one who has written an arithmetic issued by a large publishing house, and of one who is adorned with the degree LL. D., it is rather less than a half-truth to assert that "In the extending of taxes, or the finding of interest in banks, or in making bills for lumber, for excavations, for mechanics' work, etc.—the results are not obtained by computation; they are taken from prepared tables." The statement may apply in certain sections of our country, but in New England, at least, the carpenter is as little troubled at being called upon to make out a bill of lumber as he would be at being required to repeat the easier portions of the multiplication table, and the bank cashier or clerk names the interest on any ordinary principal, for 60 days, or any convenient part or multiple of that number, in less time than he could open the pages of the book with prepared tables. What characterizes the real student of arithmetic is not a pocket filled with printed technical tables, but a head filled with thoroughly comprehended principles, and with the necessary number, always small, of essential facts. A young

man thus endowed need have no anxiety in whatever field of arithmetic work he may chance to be placed. As may be assumed from the preceding remarks, the author will endeavor in the remaining parts of his arithmetic to give a clear and comprehensive treatment, with numerous concrete illustrations, of practical measurements and the problems of commercial arithmetic.

The plan of this book may be stated in a few words. It is to guide the mental efforts of the pupil instead of performing the work for him, and to guide them along the most direct and natural path, whether this be the beaten track followed through many generations, or some hitherto unexplored way which serves to straighten and shorten a crooked portion of the regular road. In other words the two-fold aim kept constantly in view is that the pupil should follow the most direct path, and know his exact bearings at every point. To make the attainment of this end absolutely certain, every page of the book has been developed and tested in the class room, and every principle has been demonstrated to be within the ready comprehension of any average pupil. That it will be as favorably received by the progressive teachers of New England, and prove as satisfactory to them, as the part that preceded it, is the hope and confident belief of its author.

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