

Substituting we get,

$$D = \frac{20}{111} \{80 (C + D) + C\} \text{ or } 353 D = 262 C.$$

$$D = \frac{20}{17} \{B + \frac{1}{5} (B + D)\} \text{ or } 2620 B = 4716 D.$$

$$D = \frac{20}{111} \{A + \frac{1}{3} (A + D)\} \text{ or } 524 A = 1179 D.$$

From this we find A's time =  $\frac{524}{1179}$  of D's time, and  $\frac{524}{1179}$  of D's time = B's time.

$$\therefore A's \text{ time} = \frac{524}{1179} = \frac{1}{2} \text{ of } B's \text{ time. } \therefore \frac{1}{2} \text{ of } B's \text{ time} =$$

$$2 \text{ hrs. } B's \text{ whole time} = 10 \text{ hrs.}$$

$$A's \text{ time} = 10 - 2 = 8 \text{ hrs.}$$

$$\text{Also } D's \text{ time} = \frac{1179}{524} \text{ of } A's \text{ time} = 18 \text{ hrs.}$$

$$\text{Also } C's \text{ time} = \frac{353}{262} \text{ of } D's \text{ time} = 12 \text{ hrs.}$$

S. POOL.—(a) Suppose the waggon to go 210 ft.:

$$210 \div 10\frac{1}{2} = 20 \text{ turns made by front wheel.}$$

$$210 \div 11\frac{1}{2} = 18 \text{ turns made by hind wheel.}$$

$$\text{Diff.} = 2 \text{ turns in } 210 \text{ ft.}$$

$$1 \text{ turn in } 105 \text{ ft.}$$

$$440 \text{ turns in } 105 \times 440 = 48200 \text{ ft.}$$

G. B., Cashtown.

## Literary Chat.

The motto of Lord Clyde's life, always inscribed upon the fly-leaf of his pocket memorandum-book, says: "By means of patience, common sense, and time, impossibilities become possible."

A good style is the vivid expression of clear thinking, and it can be attained only by those who will take infinite pains, in the first place, to purge their own minds of ignorance and half-knowledge, and in the second, to clothe their thoughts in the words which will most fitly convey them to the minds of others.—Prof. Hurley.

The "Swiss Cross" is the name of a new monthly magazine to be published from January, 1887, from the office of Science, New York. The prospectus announces that the periodical will be devoted to spreading among the people a love and knowledge of nature. The "Swiss Cross" is to be hereafter the efficient organ of the Agassiz Association.

D. C. Heath & Co. will publish in April a valuable book for Teachers, entitled: *Suggestive Lessons in Language and Reading*, by Anna B. Badlam, of the Rice Training School, Boston, Mass. These Lessons are said to be plain and practical, being a transcript of work that has been successfully done in the school-room. They are intended for children from five to eight years of age, the plan being so elastic that it may be used in any of the primary grades.

Ginn & Company have in press an edition of Cobes' *Tablet*, edited with Introduction, Notes, Vocabulary, and Grammatical Questions, by Richard Parsons, Professor of Greek, Ohio Wesleyan University. The publishers say that this little volume has arisen from a belief that Cobes' *Tablet* deserves a higher recognition than it has received from educators, and that in its preparation the works of Schweighäuser, Simpson, Drosihn, Büchling, and Jerram have been consulted, besides some minor editions prepared for school and gymnasium use.

Two new processes in illustrating Juvenile Books have been adopted this year by the Worthington Company of New York. One is seen in *Worthington's Annual*, and the other in "*From Meadow Sweet to Mistletoe*." The *Annual* is printed in alternate tints. It is the first book ever so printed, and a patent has been applied for. *From Meadow Sweet to Mistletoe* is illustrated by the photogravure-lithographic process, and is also the first book ever printed in this way, the photogravure process having heretofore been only applied to costly works, such as the Vanderbilt and Meissonier galleries, etc. These two processes, as applied by this publishing house at an immense expense, certainly are entitled to warmest praise, and the new and beautiful books thus embellished should command large sales.

### An Awful Doom

of any nature is usually avoided by those who have foresight. Those who read this who have foresight will lose no time in writing to Hallett & Co., Portland, Maine, to learn about work which they can do at a profit of from \$5 to \$25 and upwards per day and live at home, wherever they are located. Some have earned over \$50 in a day. All is new. Capital not required. You are started free. Both sexes. All ages. Particulars free. A great reward awaits every worker.

## Literary Reviews.

VEAZIE'S FOUR-PART SONG READER. By G. A. Vezie, jr., Supervisor of Music, Chelsea, Mass. Introduction price, 40 cents. (Ginn & Company).

Designed for the upper classes in Mixed or Boys' Schools, and also for adult singing, singing clubs, and conventions. The elementary choral practice is based upon Holmann, and designed to follow Mason's old Third or his Advanced Third Music Readers. The exercises and songs are arranged for soprano, alto, tenor, and bass, each part kept within easy limits. This limitation of range is, it is claimed, secured without sacrificing the interest of the music, and has been found to improve the carrying of the voice, and to be of special value to boys whose voices are nearing the transition state. The songs are of a high order, being selected from standard school-works of Europe.

OCCUPATION, RECREATION, AND INSTRUCTION FOR THE FIRST WEEKS AT SCHOOL.

This is an attractive little primer published by Ginn & Co., Boston, and intended as a child's companion during its first weeks in the school-room. Some of its specialties are short sentences, occupying but a single line, frequent repetition of words, number training of a pictorial character, and color plates, affording applications of number, material for thought and language, etc. The authors are J. H. Stickney, author of *Language and Reading Series*, and S. C. Peabody, Teacher in First Grade Primary School.

THE PHILOSOPHY OF WEALTH—ECONOMIC PRINCIPLES NEWLY FORMULATED. By John B. Clarke, A.M., Professor of History and Political Science in Smith College; Lecturer on Political Economy in Amherst College. (Boston: Ginn & Company).

It would be impossible within the narrow limits at our disposal to do justice to this work, which is a thoughtful and able contribution to the discussion of a subject second to none in intense practical interest. Such questions as the relation of labor to wealth, the elements of social service, the law of demand and supply, and above all, the ethics of trade are unquestionably among those least satisfactorily settled and most needing settlement at the present day. Detached sentences such as the following, can convey no idea of either the completeness of the author's theory, or the cogency of his reasoning, but they may serve as hints of the spirit in which he has approached his task.

"The purely competitive system of industry has had its youth, its manhood, and its decrepitude. It has developed, first, a conservative rivalry, then a sharp and destructive contest, and finally a movement toward consolidation and monopoly."

"Moral force as an economic agent, is the characteristic of the new regime."

"Composition without moral restraints is a monster as completely antiquated as the saurians of which the geologists tell us."

"The theory of the modern bargain appears to be that of the mediæval judicial combat: let each do his worst, and God will protect the right."

"What is ordinarily termed a good bargain is, morally, a bad bargain. It is unequal and good for one party only. Whenever such a transaction takes place, some one is plundered."

As the author observes in his preface, this book cannot be a text-book in the ordinary sense of the term, because of its incompleteness. It omits whatever is common to economics and practical politics, and has nothing to say about the burning questions of currency and protection. But it is a work which cannot fail to be both interesting and helpful to the many, teachers and others, who, as readers, observers, and thinkers, are in revolt against the general spirit of the old political economy.

THE AUTOBIOGRAPHY OF BENJAMIN FRANKLIN, WITH NOTES AND A CHAPTER COMPLETING THE STORY OF HIS LIFE. (Houghton, Mifflin & Company, Boston and New York).

This book, which contains also a sketch of Franklin's life from the point at which his biography ends, is one of the "Riverside Literature Series." Well printed on good paper and neatly bound in paper, and sold at fifteen cents, it affords an excellent example of what is being done at the present day in the way of putting the best literature within reach of the millions.

THE ELEMENTS OF EUCLID, Books I-VI, and part of Books XI and XII. (Cambridge, Drighdon, Bell & Co. By Horace Drighdon, B.A., formerly Scholar of Queen's College, Cambridge; Headmaster of Harrison College, Barbados).

The special features of this edition of Euclid are in the fact that it is a new translation from the Greek text, in a somewhat more modern form than the current translations, and that to aid the student to solve questions such as are set in examinations, the solutions of a considerable number of important propositions are incorporated in the text, with riders attached to them.

SECOND NATURAL HISTORY READER. By Rev. J. G. Wood, M.A. (Boston School Supply Company).

The first volume of this attractive series of children's readers was noticed in a previous issue. The essential features of the second are the same, the words used in the descriptive lessons being however, but still mostly of one syllable. The illustrations are many and clear, the paper and printing good, and the lessons convey in language suited to the child much interesting information about the habits of animals.