

## IV

September 23—William H. McGuffey  
 November 11—Armistice Day  
 December 28—Woodrow Wilson  
 January 24—Matthew F. Maury  
 April 28—James Monroe  
 June 5—J. L. M. Curry

It would add a fine touch to the occasion of the McGuffey celebration if one or two of the older members of the community, who as pupils in school years ago used McGuffey's readers or spellers, could be enlisted to take part in the program. It might be possible here and there to find enough of the old McGuffey books in the neighborhood to supply all the materials necessary for the celebration.

## V

October 19—Yorktown Day  
 November—Thanksgiving Day  
 January 19—Edgar Allan Poe (Also, Robert E. Lee)  
 March 29—John Tyler  
 April 30—First Inauguration of Washington.  
 May 29—Patrick Henry

For materials, the reference reading lists in the textbook (*Wayland's History of Virginia for Boys and Girls*) may be found of service. In addition, every school library should contain that excellent set of books, *Library of Southern Literature*, edited by President Alderman and others and published by the Martin-Hoyt Company, Atlanta, Ga. In the attractive volumes of this monumental work will be found valuable materials regarding every Virginia author of recognized standing. That is to say, almost or quite every person named in the above programs is given generous space and treatment in *The Library of Southern Literature*.

In a large school it might be found practicable to assign all of the above programs for use at the same time (for the same year), each one being given to a particular department or grade.

## IV

## MODERN ARITHMETIC

"The mathematical ignorance of the average educated person has always been complete and shameless, and recently I have become so impressed with the unedifying character of the arithmetical teaching to which ordinary children are liable to be exposed that I have ceased to wonder at the wide spread ignorance."

The above quotation from the preface of a little book written some fifteen years ago by an able Englishman, in which he referred to the arithmetic teaching to which English children were liable to be exposed, seems to be just as applicable to American children of today. Although the Perry Movement started a wave that has to a large extent wiped out the old textbook of "rules and cases" with little rational explanation and with its hordes of puzzle problems, it went too far and substituted rational explanations which were not rational to a child of arithmetic age and which therefore must be committed to memory in order to be recited by the child. It produced a set of arithmetic texts which made no careful distinction between the fundamental rules, the operation of which must become mechanical, and the rational processes to which these fundamental operations should be applied, and left in the texts and in the courses for which these texts were used as a basis numerous comparatively useless topics. Take for an example a course of study outlined for one of the states not so very long ago:

Grade 1, ages 6-7 years. Number space to 100, Addition tables, Process of carrying, Subtraction.

Grade 2, ages 7-8 years. Multiplication to  $9 \times 9$ , Carrying in multiplication.

Grade 3, ages 8-9 years. Multiplication to  $12 \times 12$ , Multiplication of more than one figure, Long division, Measures.

Grade 4, ages 9-10 years. Fractions—all operations, Measures—all tables.

Grade 5, ages 10-11 years. Decimal fractions, Denominate numbers.

Grade 6, ages 11-12 years. Review of frac-

tions, Percentage, Profit and loss, Commission, Simple interest.

Grade 7, ages 12-13 years. Percentage completed, Simple and compound interest, Simple banking business, Ratio and proportion, Square root.

Grade 8, ages 13-14 years. Review of measures, Application to measurement of common surfaces and solids, Rapid calculations, Stocks and bonds, Insurance, Taxation, Algebraic notation sufficient for the use of formulas.

Let us examine this outline from a practical point of view. When the four fundamental operations — addition, subtraction, multiplication and division—of integers, fractions and decimal fractions have been carefully taught in such a way that they become purely mechanical operations, the pupil has learned absolutely all the pure arithmetic for which there will be any demand in later life, and unless he is going to specialize (in which case special rules and forms will be given him at the proper time), only the simpler fractions need be introduced. When it comes to denominate numbers, how many people besides teachers know or care what a dram avoirdupois weight is? What is a cwt.? How many pints in a bushel? To quote again from Lodge: "The cumbrous system of weights and measures still surviving in this country should not be made use of to furnish cheap arithmetical exercises of proposterous intricacy and uselessness."

The writer dropped into a modern school some time ago and was asked by the principal what classes he should like to observe. Indicating a preference for mathematics, he was shown into an arithmetic class; and this is what he saw. The class was working in denominate numbers, and after two weeks, the teacher said, had reached square measure. The pupils at the board were struggling to reduce a given number of square inches or square feet to acres (as if such a reduction should ever be necessary). The numbers 9, 44,  $30\frac{1}{4}$  apparently had no meaning for them except as part of a 'table'. One pupil was having a hard time dividing by nine by *long division*, another was struggling to know how to get the proper remainder after dividing by  $30\frac{1}{4}$ . He apparently knew that he must multiply by 4 and divide

by 121, but he could not get the proper remainder. The mechanical work was slow and inaccurate. In a moment's conversation, as the writer was leaving the room, the teacher imparted the information that he was having a hard time 'teaching them to divide by  $30\frac{1}{4}$ '. Upon being asked why, if this must be done, it was not done in the form 30.25, he replied that he would teach both ways before he got through with it, and added that he 'hoped to get as far as compound addition in eight weeks more.' Ten weeks on that sort of thing! and they could not multiply and divide correctly.

Simple interest is not simple, nor practical either, in the usual form of: Find the interest on \$342.97 for three years, seven months, and nineteen days at five percent. Ask yourself, gentle reader, if you ever borrowed any money (if you are a teacher I presume you have) and failed to pay the interest the very day the year was up, what was the attitude of the lender? Then there is the inverse case of commission, usually given in a form in which it is not used; and compound interest worked by the long method, and used chiefly by bankers and actuaries, and by them done entirely by previously prepared tables.

Stocks and Bonds, Insurance, Taxes! If you or I want to invest in stocks and bonds we go to a reputable broker and get him to do our buying and selling for us and pay him without question the brokerage he asks. We pay our taxes by the amount that is on the tax ticket, and not by our calculations as to what should be there; and, as for insurance, we have to pay the premiums that the agent reads to us out of a little book that he carries in his pocket, the method of obtaining which even he does not know.

I might speak of the calculations for carpeting, papering, plastering, brick-laying, painting, roofing, etc., but I will not. If we might only take some of the time devoted to these things, so useless and monotonous to the pupil, we might be able to teach pupils who would appreciate the fact that after all is said, in any problem the important thing is the correct answer in the shortest time possible. If our pupils could be trained in speed and accuracy in the fundamental operations they would not be hampered when

the time came for them to make rational applications of these operations.

Let us consider the minimum essentials of a course in arithmetic. Perhaps they may be summarized as follows:

#### THE WHOLE OF PURE ARITHMETIC

Addition, subtraction, multiplication, and division of integers.

Common fractions introduced both as parts of a unit and as indicated division. (It will be noted that the latter gives an easy rational explanation of such processes as changing an improper fraction to a mixed quantity, changing a whole or mixed quantity to an improper fraction, and reducing fractions to higher or lower terms). The four fundamental operations applied to fractions.

Decimal fractions, including the changing of decimal fractions to common fractions and the reverse, and the four fundamental operations applied to decimal fractions.

Let these operations be thoroughly drilled into the pupils during the first five grades until they become entirely mechanical, the drill work being varied by simple exercises which bring out the arithmetic facts and their uses in the daily life of the child, care being taken that the numbers used are not such as to tire the child in the accomplishment of any single exercise and that the reasoning is not so difficult as to take the child's mind too much off the mechanical operation that he is using. When this has been done let arithmetic stop.

At the beginning of the sixth grade perhaps we might introduce a new course called 'Computation', written a little less formally than the usual texts on arithmetic. The opening chapter might begin somewhat like this:

"We have all studied arithmetic. We have learned to add, subtract, multiply, and divide numbers. This knowledge will enable us, if rightly used, to make most of the calculations needed in practical life. The subject, the study of which we are now entering upon, computation, may be said to be the application of the principles of arithmetic to the solution of problems which arise in the daily lives of some of us, and this study is a guide to the proper application of these principles."

Presupposing the knowledge of the four fundamental operations, succeeding chapters might be as follows:

Chapter 1. *Cost of Supplies.* Problems relating to the cost of food, clothing, live

stock, toys, etc., could be introduced and with them the common measures of length, capacity, and area.

Chapter 2. *Bills and Accounts.* In this chapter the pupil not only gets practice in the same sort of computations that were introduced in the previous chapter, but also learns the proper form of making out a bill, receipting it, and making change when a bill of larger denomination is presented in payment of an account.

Chapter 3. *Personal Account at a Bank.* In this chapter the pupil learns what a bank is, the guardian of one's money, and how to open an account and draw a cheque in payment of a bill, how to indorse a cheque and deposit it in the bank, the value of a cancelled cheque as a receipt. And he gets further practice in actual computation and in elementary book keeping by means of the problems.

Chapter 4. *Areas,* chiefly floor space and city lots calculated in square feet or fractions thereof, and land calculated in acres and fractions of an acre, or perhaps in square rods, introducing such portions of the tables as needed.

Chapter 5. *Extension of Arithmetic.* Percentage as developed from decimal fractions. The three problems of percentages developed in a logical way as applications of fractions.

Chapter 6. *Rent.* Rent as money paid for the use of property. Rent determined as a certain percent of the capital invested in the property after certain yearly fixed charges for repairs, insurance, and taxes have been deducted. Problems bringing out these principles.

Chapter 7. *Interest.* Interest as money paid for the use of money. Rent payable monthly, interest payable yearly (or at the banks at shorter intervals). The lending function of a bank. Discount at a bank. Notes and other evidences of indebtedness. Compound interest explained and illustrated and exercises to be solved by means of interest tables. Savings banks.

Chapter 8. *Arithmetic Applied to the Household.* Budget: division of income for shelter, upkeep, food, clothing, higher life and savings.

To these chapters might be added an

appendix containing chapters on commission, insurance, both fire and life, stocks and bonds, taxes and other business activities, giving a theoretical exposition of the methods used and showing illustrative exercises, but confining the problems to the results of investments made when definite data are given as to the cost of these investments by the commission merchant, the insurance agent, the stock broker, or the assessor.

These latter chapters might be very well omitted, or only given at the discretion of the instructor.

It is the opinion of the writer that such a method of procedure may perhaps be the answer to the ever-present search for a course in arithmetic suitable to the needs of the junior high school, and also that such a treatment of the subject might perhaps eliminate some of the arithmetical weariness and dislike of the pupil who has been dragged through a course of, to him at least, apparent uselessness. Is it not possible that a course planned in some such way as this might be finished in the seventh grade, leaving the mathematics of the eighth to be given either as algebra to the pupil who expects to continue through the high school or as book-keeping for those who will not continue?

The writer is deeply interested in this subject and invites discussion as to its plausibility.

HENRY A. CONVERSE

V

HEALTH THE RECONSTRUCTION  
CENTER OF HOME ECONOMICS  
TEACHING

The home economics conference of the N. E. A centered its attention about four of the most vital problems confronting the teacher of home economics in the high school and in the grades. The problems were put as follows:

1. Does home economics teaching function as it should for the girl of high school age?

2. Methods of contributing to vitality of teaching in the grades.

3. How can the school child be given an interest in right food habits through regular school channels?

4. Factors involved in training girls as consumers.

The keynote of the convention was that of the reconstruction of teaching home economics, and placing future emphasis upon "health" and "economics of buying." Much stress was placed upon the fact that the teacher of home economics has a greater responsibility than merely that of teaching the fundamental principles of "cooking" and "sewing." She must consider each child as a future citizen of the nation, who must be prepared to render the most efficient service of which she is capable; and in order that she may be mentally efficient, she must have that degree of health which makes for "initiative, endurance, and success." All work, therefore, bearing upon foods and clothing must necessarily have for its objective the maintenance of health. Millions of dollars are spent annually for food, clothing, and upon household operations by the women of America. Is it not imperative that every girl and woman should understand the economics of buying, that she should be taught to look upon food, clothing, and furniture as merchandise?

In this reconstruction program the teacher of home economics finds herself not only laden with a responsibility for her students, but with a very definite responsibility to the community in which she lives. Miss Agnes Craig, of Springfield, Mass., stressed the necessity of the correlation of all high school subjects; that each subject should be taught with a view to contributing to better home making and better community life. She deplored the fact that the American women were not concentrating their interests upon one phase of social betterment and actually performing a service to their communities, but that each woman who felt the desire of leadership set herself about organizing a social service club, regardless of the community's need or the number of existing organizations which were carrying on parallel work. She felt that women had proved their ability to cope with men, and now that it was time to plow down in their expression of self-determination, and use the power