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A COURSE OF STUDY

FOR

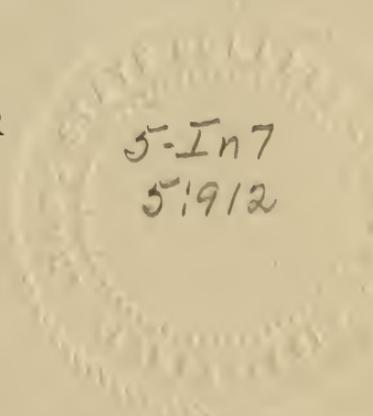
THE PUBLIC SCHOOLS OF COLORADO

ISSUED BY

The Department of Public Instruction



1912
DENVER



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INTRODUCTION

This course of study is issued as a guide for the use of teachers and pupils. Its object is so to arrange the work of our schools that the children, particularly those of the rural schools, may follow a plain, simple, progressive line of study, to the end that, at its completion, they may have a good common-school education.

It has been carefully prepared, and I wish to urge that its provisions be followed in their entirety. This must be done if the parts are to bear the proper relations to each other and to the whole. To omit a part renders the work of pupils incomplete and defeats the end and aim of the course of study; for to accomplish careful and systematic work a definite plan must be followed.

This course of study seeks only to suggest what should be taught, and relies upon the individuality of the teacher to say how the subject is to be handled. Its aim is to make as simple and intelligent classifications as possible; to reduce to a minimum the loss of time attendant upon the frequent change of teachers; to put the school work of the state upon a common basis, in order that the amount of work accomplished may be uniform; to establish co-operation between parents and school officials by making them better acquainted with what our schools are striving to accomplish for the children; and to regulate the work so that children may not only be interested and continue to attend school, but may receive full credit for their work.

The work of a year is outlined, but the apportionment of the work to each month is suggestive, and during the first year of its use many necessary changes must be made by the teachers in order to make the transition from the old course to the new with the least disadvantage to the pupils concerned.

Primarily the course of study is fitted for the graded schools having eight years of nine months each, which is the standard for all schools, and it is therefore necessary for the teachers in schools having less than nine months, or those in any graded school having but one teacher, or where there is a large per cent of foreign-born pupils, to adapt the outline in order to make it fit the needs of their schools. With these differences in mind, the conditions as they exist in our rural schools have been kept constantly in mind, and an effort to secure the most profitable course for them has been made.

In this course of study we do not seek to add to the burden of the teacher, but to lessen her work, and to unify the school

work of the state by presenting a definite plan and outline of the work. The suggestions given will enable a progressive teacher to outgrow the limits of any course of study. I trust that you will use it faithfully, and discard its suggestions only when confident that you have a better way.

There is practically nothing new in this course of study, unless it be the arrangement of the material. If due credit is not given for the work of others, the compilers ask charity; for they have endeavored to give credit where credit is due, and have not intentionally taken as their own the thinking of others. It has been their endeavor to preserve the work of former years, and to make such improvements as time and experience have proved desirable.

In its preparation the state superintendent of public instruction and deputy have been aided by an efficient committee, to whom they wish to extend their sincere thanks and acknowledge their indebtedness:

C. E. Chadsey, superintendent Denver schools; Flora I. Doble, principal Milton School, Denver; J. H. Shriber, county superintendent; Marie L. Woodson, East Side High School; Anna L. Force, principal Columbian School, Denver; Theophilus Emory Fitz, dean of music, State Teachers' College; Professor J. E. Huchingson, supervisor of penmanship, Denver; Florence Barrett, assistant Department of Music, Denver; Louise Klein, principal Central School, Denver; Jennie L. Tressel, county superintendent; Lucy H. Hall, superintendent Englewood schools; Emma A. Finney, principal Fort Lupton; S. Arthur Johnson, dean Agricultural College; Clara M. Keirn, county superintendent; H. M. Barrett, principal Pueblo High School; J. W. Ellison, principal Logan School, Denver; W. S. Shafer, superintendent Cripple Creek schools; Dr. H. A. Fynn; Dr. Robert Levy; Dr. G. Walter Holden; Dr. H. G. Wetherill; Dr. John S. Chase; S. Poulterer Morris; Margaret Mendenhall Smith, principal Emerson School, Denver; E. K. Whitehead, secretary Humane Society; W. E. Vaplon, instructor in animal husbandry, Agricultural College, Fort Collins; Igna Allison, Agricultural College; Anna W. Eagleton, Columbine School, Denver; Frona R. Houghan, principal Gilpin School, Denver; Ada M. Fleming, Chicago.

Allen Mark Wilson

September 1, 1912.

SUGGESTIONS

"The course of study exists for the child and not the child for the course."

As children spend more time preparing for recitations than in reciting, the time spent at their desks must be remunerative; hence a program of study as well as a program of recitation is necessary. A course of study states what should be taught, allotting the time to be spent.

All lessons should be definitely planned for tomorrow's work. Make each moment count.

Use the time allotted to the recitation period for that recitation. Never use it to get ready.

Definitely assign lessons. State what is to be done and how.

Insist upon quickness of mind and body, and upon prompt and unquestioning obedience.

Do not do the talking. Teach pupils to talk freely. They should be encouraged to talk correctly and without interruption upon a topic for several minutes.

Cultivate in pupils a regard for public property; also pride in the schoolhouse and playgrounds.

Form "Clean-up Clubs" to care for the grounds and adjoining neighborhood, and establish a "Patrol" to maintain law and order. Control on the playground means control in the schoolroom.

Make the school a social center. Help in every possible way to improve the material, intellectual, social and religious condition of the people with whom your lot is cast.

Teach the dignity and reward of labor.

Be frank and sincere.

Teach true patriotism and the ways of peace.

Join in making a splendid American history, unspotted by blood, unmarred by hate and passions. Give attention to the outward symbols of good breeding.

Encourage politeness to teachers and classmates.

Encourage the study of current events.

Set aside an afternoon when each pupil may give, in his own language, an account of some event of interest.

Consideration should be given to events that are attracting the attention of congress and the state legislature; to local matters

of the county and state, such as political, social and financial matters; to biographical sketches of local and state people of prominence; to educational topics; to achievements in science, art and industry.

It would be well for teachers to permit the pupils in the higher grades to read once or twice a week from a paper or magazine of current events. This exercise takes the place of the regular reading-lesson, and there should be free discussion in the class of the subjects read. The pupils should reproduce the same, and look up all locations and all new work. Assign different articles to different pupils, to be reported upon at a certain date. Require them to recite upon the topic, explain locations upon the wall maps, and any historical or other references.

Study the children in your school. Base their advancement upon your real knowledge of their work and ability.

Use a movable bulletin board to exhibit postals, pictures and newspaper clippings.

Use pen and ink in written lessons. These lessons are valuable for penmanship and neatness of habit.

Perry Pictures, Brown's Pictures and The Turner Pictures may be obtained for a few cents. These may be put on the walls temporarily for use in composition and language work, as well as to beautify the room. The Turner pictures by great masters, with accompanying literature, are obtained of Horace Turner, Boston.

The following firms supply five-cent classics: Charles E. Merrill Company, New York; Educational Publishing Company, Chicago; Orville Brewer Company, Chicago. C. M. Parker, Taylorville, Illinois, publishes penny classics.

If eighth grade graduates joined in writing their examination at one specified place, and an examining board, named by the county superintendent and teachers, graded the papers, the work accomplished would be more uniform, the passing on to the high school easier and more certain.

If the eighth grade graduates of a county had graduating exercises together, making it an event of genuine importance, it would create healthy pride and competition.

In some rural schools it seems necessary to combine classes in order to lessen the number of periods of recitation. Alternation is the systematic and regular union of two grades of pupils, both grades doing the work of one year in one class, while the other year's work is omitted. The next year the work omitted is

taken up and the first year's work dropped. In this way each pupil does all the work of the course, but not all in the same order, and the number of classes is diminished.

In the first and second years there cannot be much alternation, but classes in writing, drawing and nature studies should be combined, the teacher giving special direction and instruction to the different classes or sections on different days.

In the third and fourth years all of the work may be alternated, with the possible exception of arithmetic. But all pupils who have mastered addition, subtraction, multiplication and division of integral numbers, simple and compound, of fractions, common and decimal, may belong to the same class in arithmetic. It is not necessary that every pupil who begins to read in the third reader should begin with the first lesson.

In the fifth and sixth years all subjects may be alternated. In some localities it may be found difficult to combine classes in arithmetic; but certainly there should not be more than three arithmetic classes for third, fourth, fifth and sixth-year pupils. If possible, the number should be reduced to two.

ARITHMETIC

FIRST YEAR

First Four Months. Begin by teaching children the idea of size, position, extent, measurement, etc., by having them use and illustrate at their desks such terms as up, down; over, under; large, small; big, little; high, tall, low; short, long; wide, narrow; right, left; east, west; etc.

COUNTING.—Teach counting to ten by means of splints, blocks, grains of corn, pebbles, or other counters, without the use of figures. Place objects or counters in groups to represent numbers to ten. The name of the number is given by the teacher and repeated by the children. Write the figure on the board and ask them to read it. Each child will copy or write the figure from dictation on blackboard or paper. Teacher should be careful to place good models before the children for imitation. Count the doors and windows you see in the schoolroom. How many panes in each window? How many panels in each door? The glass in each window cost \$1.00. How much did all the glass cost?

DRAWING—PAPER-FOLDING.—Draw horizontal lines, one, two, three and four inches long. Draw vertical lines of the same length. Draw a **TWO-INCH SQUARE** and divide it into one-inch squares. A two-inch square equals how many one-inch squares? Draw a **THREE-INCH SQUARE**. Divide it into one-inch squares. A three-inch square is equal to — one-inch squares. Draw an **OBLONG** one inch by three inches. Draw an oblong two inches by three inches. Divide each oblong into one-inch squares. Allow the child to use ruler at first, then require him to draw to a scale of inches without it, using ruler to test accuracy of dimension. Require pupils to image the figures 4, 9, 3, 6, which represent the respective squares and oblongs divided.

Provide each pupil with a **FOUR-INCH SQUARE** of paper. Note the length and width. Count corners and edges. Fold the right edge upon the left. Crease. Unfold. How many oblongs? How wide is each oblong? How long is each oblong? Each oblong is what part of the four-inch square? Fold the right edge of the paper to crease; the left edge. Unfold. Tell number of oblongs, width, length and part each is of the four-inch square. Fold the lower edge upon the upper edge. Unfold. Tell number of oblongs, width, length, and part each oblong is of the four-inch square.

Fold the lower edge of the paper to the crease; the upper edge. Unfold. Give size of each square. Number of inch-squares in one row. Number of rows in all. Number of inch-squares in all. Continue to cultivate the imaging power by requiring answers to such questions: How many oblongs, giving length and width, in a four-inch square folded with the right edge upon the left edge? Count by 2's to 10. Then have children build columns thus:

$$\begin{array}{r}
 2 \\
 2 \ 2 \\
 2 \ 2 \ 2 \\
 2 \ 2 \ 2 \ 2 \\
 2 \ 2 \ 2 \ 2 \ 2 \\
 \hline
 4 \ 6 \ 8 \ 10
 \end{array}$$

that they may see and memorize the numbers of 2's it takes to make each sum, as 4, 6, 8, 10. Teach combinations with 1 and 2 to 10. Pupils should be led to tell stories involving these combinations. Teacher: "Who can make a story about 5 and 1?" Child: "If I have 5 cents and my mother gives me 1 cent more, I have 5 cents and 1 cent. 5 cents and 1 cent are 6 cents." Number stories afford an interesting means of drill in numbers as well as in language. Introduce subtraction, or "take away," in these stories. Teach subtraction as the inverse of addition. Count by 1's and 2's from 10 to 1, until descending numbers can be called quickly. Count by 2's to 20 and by 1's to 50.

Fifth Month. Review combinations given for first four months. Count to 50 by 2's and by 2's from 3 to 49. Make sure of combinations of the numbers 3, 4 and 5. Use some such form for each group:

$$\text{Five} = \left. \begin{array}{l} 1 \ 2 \\ 4 \ 3 \end{array} \right\} \text{Five 1's.}$$

Put splints in groups or draw tops or flags to show the following:

4 flags and 1 flag are —— flags. 5 flags less 1 flag are —— flags.
 3 flags and 2 flags are —— flags. 5 flags less 3 flags are —— flags.
 1 flag and 4 flags are —— flags. 5 flags less 4 flags are —— flag.

Sixth Month. Teach use of plus, +; minus, —; and equals, =; also inch, foot, yard, pint, quart, gallon, cent, nickel, dime. Fill a pint measure with sand or water and empty it into the quart measure. Do this again. You have shown that 2 pints equal 1

quart. Show in the same way that 4 quarts equal 1 gallon. Show with pebbles the combinations that form 6:

$$\begin{array}{r} \text{Six} = \\ \text{Six} = \end{array} \begin{array}{l} 1 \ 2 \ 3 \\ 5 \ 4 \ 3 \end{array} \left. \begin{array}{l} \text{Six 1's.} \\ \text{Three 2's.} \\ \text{Two 3's.} \end{array} \right\}$$

Lead children to make number stories as was done in previous months, using +, —, =. Make sure of combinations used thus far, using objects only to determine results.

Seventh Month. Count by 1's to 100, by 2's to 40, and by 10's to 100. Teach $\frac{1}{2}$ and $\frac{1}{4}$ with objects and drawings on black-board and slate. Combinations that form 7 and 8:

$$\begin{array}{r} \text{Seven} = \\ \text{Eight} = \end{array} \begin{array}{l} 1 \ 2 \ 3 \\ 6 \ 5 \ 4 \\ 1 \ 2 \ 3 \ 4 \\ 7 \ 6 \ 5 \ 4 \end{array} \left. \begin{array}{l} \text{Seven 1's.} \\ \text{Eight 1's.} \\ \text{Four 2's.} \\ \text{Two 4's.} \end{array} \right\}$$

Illustrate the combinations that make 7 and 8 by leading the children to tell number stories about each group. Use subtraction as the inverse of addition.

Eighth Month. Teach Roman numerals on the clock face; number of days in the week; weeks in the month; months in the year. Combinations that form 9 and 10:

$$\begin{array}{r} \text{Nine} = \\ \text{Ten} = \end{array} \begin{array}{l} 1 \ 2 \ 3 \ 4 \\ 8 \ 7 \ 6 \ 5 \\ 1 \ 2 \ 3 \ 4 \ 5 \\ 9 \ 8 \ 7 \ 6 \ 5 \end{array} \left. \begin{array}{l} \text{Nine 1's.} \\ \text{Three 3's.} \\ \text{Ten 1's.} \\ \text{Five 2's.} \\ \text{Two 5's.} \end{array} \right\}$$

Illustrate each group as in previous months. It is not expected that all children will be able to apply all the combinations used in the foregoing months, as they are to be continued in succeeding years until the naming of the resulting combinations and separations become automatic.

Ninth Month. Review essential things in year's work.

SECOND YEAR

Review combinations and other work of first year not familiar to class. Number relations to 20 should be the chief outcome of the second year's work, and the exercises of the first year should be continued in the second year with frequent reviews. When-

ever new facts or processes are to be learned, objects should be used to put old facts in new relations.

First Month. Count by 2's, 5's and 10's to 100 and backward by groups. Write numbers to 100 and the words to 12. Illustrate the combinations of 11 in number stories or little problems:

$$\text{Eleven} = \begin{array}{cccccc} & 1 & 2 & 3 & 4 & 5 \\ 10 & 9 & 8 & 7 & 6 & \end{array} \left. \vphantom{\begin{array}{cccccc} & 1 & 2 & 3 & 4 & 5 \\ 10 & 9 & 8 & 7 & 6 & \end{array}} \right\} \text{Eleven 1's.}$$

$$\begin{array}{ll} 2 \text{ pencils} + 9 \text{ pencils} = ? & 11 \text{ pencils} - 4 \text{ pencils} = ? \\ 5 \text{ pencils} + 6 \text{ pencils} = ? & 11 \text{ pencils} - 8 \text{ pencils} = ? \\ 4 \text{ pencils} + 7 \text{ pencils} = ? & 11 \text{ pencils} - 7 \text{ pencils} = ? \end{array}$$

$$\text{Add: } \begin{array}{cccccccc} & 2 & 8 & 6 & 7 & 9 & 3 & 10 & 4 & 5 & 1 \\ 9 & 3 & 5 & 4 & 2 & 8 & 1 & 7 & 6 & 10 & \\ \hline & - & - & - & - & - & - & - & - & - & \hline \end{array}$$

Subtract from 11 lower numbers in addends.

Second Month. Write numbers to 150 and words to 12. Write Roman numerals to 12. Teach use of times, \times , and divide by, \div . Combinations that form 12. Illustrate as in first month, using cents.

$$\text{Twelve} = \begin{array}{cccccc} & 1 & 2 & 3 & 4 & 5 & 6 \\ 11 & 10 & 9 & 8 & 7 & 6 & \end{array} \left. \vphantom{\begin{array}{cccccc} & 1 & 2 & 3 & 4 & 5 & 6 \\ 11 & 10 & 9 & 8 & 7 & 6 & \end{array}} \right\} \begin{array}{l} \text{Six} \times 2 = 12. \quad \text{Three} \times 4 = 12. \\ \text{Four} \times 3 = 12. \quad \text{Two} \times 6 = 12. \end{array}$$

Write table of 2's to 12. Apply subtraction and division 2's, to products obtained in table, thus: With the fact 2 times 6 equals 12, teach $12 \div 2 = 6$ and $12 \div 6 = 2$; $1/2$ of 12; $1/3$ of 12; $1/4$ of 12.

By use of drawings and paper-folding teach use of $1/2$, $1/3$, $1/4$, $1/5$ and $1/6$ in getting parts of easy numbers.

Third Month. Use the inch, foot and paper money made, to illustrate the combinations that form 14. Exercises in making change up to 15 cents. Read and write numbers to 200. Review the addition, multiplication and division tables already learned. Give drills from the blackboard. Teach a more accurate use of measuring with the ruler and with the pint, by giving problems.

Fourth Month. Count by 3's to 30 and 4's to 40, beginning with 0. Learn the addition and multiplication tables of 3's to 21, thus:

$$\begin{array}{ll} 1 + 3 = 4 & \\ 11 + 3 = 14 & 1 \times 3 = 3 \\ 2 + 3 = 5 & 2 \times 3 = 6 \\ 12 + 3 = 15 & 3 \times 3 = 9 \\ 3 + 3 = 6 & \end{array}$$

Count and write numbers to 300. Combinations to 16, using addition and subtraction facts, beginning with 10: $10 + 1 = ?$ $11 - 1 = ?$ $10 + 3 = ?$ $13 - 3 = ?$ $10 + 6 = ?$ $16 - 6 = ?$

Add and subtract 6 from these digits as:

$$\begin{array}{r} 8 \ 7 \ 9 \\ 6 \ 6 \ 6 \end{array}$$

Do this without the idea of carrying.

Fifth Month. Count by 2's, 3's, 4's and 5's to 60. Write numbers to 500. Add two and three figure numbers, as:

$$\begin{array}{r} 12 \\ 23 \\ \hline \end{array} \qquad \begin{array}{r} 132 \\ 433 \\ \hline \end{array}$$

Subtract digits from two and three figure numbers. No borrowing. Give much practice in increasing numbers of two orders (tens and units) by numbers of one order (units).

Introduce the idea of carrying, as $\begin{array}{r} 24 \\ 8 \\ \hline \end{array} =$ the sum of 8 and 4 for figures of the first order, and 1 and 2 for the figure of the second order. Apply forms used above in many abstract and concrete problems.

Sixth Month. Count by 3's and 4's to 100, beginning with numbers from 1 to 4. Backward from 40 to 0. Write numbers to 700. Add and subtract digital numbers of two orders, carrying and borrowing. Add simple columns, no addendum larger than 8 and sums not over 40.

Learn the addition and multiplication tables of 4's to 28 as in fourth month. Apply division 4's as in second month. Give drill in elementary combinations to 24. Make problems, using toy money in buying pints, quarts and gallons in combinations to 24.

Seventh Month. Count by 5's and 10's to 100. Backward to 0. Write numbers to 900. Review tables. Apply the denominate numbers in various ways—inch, foot, yard, square inch; pint, quart, gallon; second, minute, hour, day, week; nickel, dime, quarter-dollar, half-dollar, dollar. Continue operations in combinations. Memorize. Drill on simple column addition, using small addends with an occasional 9, sums under 50.

Abstract and concrete problems in addition and subtraction of numbers of three orders, no carrying or borrowing. Use as high as four numbers in the addition column.

Eighth Month. Count by 4's to 48, 5's to 50 and 6's to 36. Write numbers to 1,000. Count by 2's to 14 and back again. Divide (measure) 14 by small numbers, as 2, 3, 4, 5, 6, 7. Provide foot-rulers with inches divided to sixteenths, but do not draw lines true to sixteenths. Use measure to test remainders. Addition and subtraction of numbers of three orders, carrying and borrowing in the first column, as:

$$\begin{array}{r} 546 \\ + 347 \\ \hline \end{array} \qquad \begin{array}{r} 671 \\ - 257 \\ \hline \end{array}$$

Teach orders of numbers as units, tens and hundreds. Learn the addition and multiplication tables of 5's to 60. Show that multiplication is a short process of making several additions to the same number.

Ninth Month. Review the 45 combinations. Give thorough drills. Apply in numbers from 10 to 20.

THIRD YEAR

First Month. Most of the work should be oral and given by the teacher, but pupils should have a book in this grade.

Review combinations in short columns of three-place numbers.

Count by hundreds to 1,000; by thousands to 10,000. Add and test columns of three numbers, three figures each. Problems from text and from daily life at home and at school. Review multiplication and division of second grade and apply in practical problems.

Use 2 as a multiplier and a divisor in any number of two orders, no carrying, and similarly with any number of three orders. In division let the dividend be some multiple of the divisor.

Second Month. NOTATION AND NUMERATION to 1,200.

SUBTRACTION.—Count backward by 2's, 3's, 4's, and 5's from 22, 33, 44 and 55, respectively. Subtract from numbers of four figures or orders. (Explain meaning of units, tens, hundreds, thousands.)

ROMAN NUMERALS.—Read and write to 18.

TABLES.—Memorize tables up to the 5's. Use 3 as a multiplier of numbers of two and three orders.

Third Month. NOTATION AND NUMERATION to 1,500.

DIVISION.—Find quotients and remainders in numerous problems, as:

$$2) 11 ; \quad 3) 13 ; \quad 4) 33 ; \quad 5) 16 , \text{ etc.}$$

Show that these divisions are the same as taking $1/2$, $1/3$, $1/4$ and $1/5$ of the respective numbers.

MULTIPLICATION.—Count by 6's to 72 and back from 30. Memorize table of 6's. Use 4 as a multiplier in small problems, finding the cost of *many* articles when the cost of *one* is given.

Ex.—If 1 horse costs \$215, what will 4 horses cost?

Fourth Month. NOTATION AND NUMERATION to 2,000.

VOLUME.—Cube; cubic inch; cubic foot. Ex.—There are 2×4 blocks in a layer, and two times 2×4 blocks or ——— blocks in the pile. Illustrate with blocks. Find volumes in given exercises. Make comparison of measures in problems.

ADDITION AND SUBTRACTION.—Ex.—Find the sum of 1420, 315, and 57.

$$1420 = 1 \text{ thousands} + 4 \text{ hundreds} + 2 \text{ tens} + 0 \text{ ones}$$

$$315 = 0 \text{ thousands} + 3 \text{ hundreds} + 1 \text{ tens} + 5 \text{ ones}$$

$$57 = 0 \text{ thousands} + 0 \text{ hundreds} + 5 \text{ tens} + 7 \text{ ones}$$

$$1792 = 1 \text{ thousands} + 7 \text{ hundreds} + 8 \text{ tens} + 12 \text{ ones}$$

Show that 12 ones = 1 ten and 2 ones.

Ex.—

4 12	4	12
5 5 2	= 5 hundreds + 5 tens + 2 ones	
— 4 2 9	= 4 hundreds + 2 tens + 9 ones	
	<hr/>	
	1 hundreds + 2 tens + 3 ones	

MULTIPLICATION.—Count by 7's to 84 and back from 42. Memorize table of 7's. Use two-place multipliers from 10 to 16.

DIVISION.—Divide numbers of three and four orders by 4. Relate $\div 4$ to $1/4$ of.

Fifth Month. NOTATION AND NUMERATION to 4,000.

MULTIPLICATION.—Count by 8's to 96 and back from 48. Memorize table of 8's. Multiplication by 5, followed by division by 5, carrying and borrowing as in previous months. Continue drills in counting by 2's, 3's, 4's, 5's, etc., as the tables are based upon such drill.

DIVISION.—Take $1/2$, $1/3$, $1/4$ and $1/5$ of numbers that will leave remainders.

$$\text{Ex.—} 1/2 \text{ of } \$7 = \$3 + 1/2 = \$3 \text{ } 1/2$$

Sixth Month. NOTATION AND NUMERATION to 10,000.

UNITED STATES MONEY.—Read dollars and cents, using \$ sign and decimal point. Write columns of dollars and cents and add.

ADDITION.—Give speed drills.

MULTIPLICATION.—Review the 2's to 2×12 ; 3's to 3×12 ; 4's to 4×12 , and 5's to 5×12 .

FRACTIONS.—Draw lines or oblongs and divide to show that: $1/2 = 2/4$; $1/3 = 2/6$; $3/6 = 1/2$, etc. Begin addition and subtraction of halves, fourths and sixths. Use whole numbers with these fractions.

Ex.—

$$\begin{array}{r} 47 \frac{3}{4} \\ + 30 \frac{1}{4} \\ \hline \end{array} \qquad \begin{array}{r} 47 \frac{3}{4} \\ - 30 \frac{1}{4} \\ \hline \end{array}$$

Seventh Month. NOTATION AND NUMERATION to 25,000.

MULTIPLICATION.—Count by 9's and 10's to 108 and 120, respectively, and back from 45 and from 120. Memorize tables of 9's and 10's. Multiply four-place numbers by 6, carrying. Similarly in division, carrying, borrowing.

FRACTIONS.—Add and subtract sixths, halves and fourths, halves and sixths, thirds and sixths.

Ex.—

$$\begin{array}{r} 42 \frac{5}{6} \\ + \text{or } - 28 \frac{1}{2} \\ \hline \end{array} \qquad \begin{array}{r} 36 \frac{1}{2} \\ + \text{or } - 14 \\ \hline \end{array}$$

Find parts of numbers.

Ex.— $1/3$ of 12; $2/3$ of 12

Eighth Month. NOTATION AND NUMERATION to 50,000.

ADDITION AND SUBTRACTION.—Problems.

MULTIPLICATION.—Count by 11's to 132 and back from 99. Memorize table of 11's. Multiplication and division of four-place numbers by 7 and 8, carrying and borrowing, and by small mixed numbers.

DIVISION.—Dividends of four-place numbers; divisors from 3 to 9. Begin long division. Teach long division first, if you prefer. Observe steps in dividing:

$$\begin{array}{r} 11 \overline{) 245} \\ \hline \end{array} \qquad \begin{array}{r} 11 \overline{) 7988} \\ \hline \end{array}$$

Ninth Month. NOTATION AND NUMERATION to 100,000.

MULTIPLICATION.—Count by 12's to 144 and back from 72. Memorize table. Drills on tables should be continued in fourth year and in the fifth, if necessary.

General review and test.

FOURTH YEAR

First Month. REVIEW fundamental operations of third year, especially tables and rapid combinations.

TEXT-BOOK.—Encourage the child to master the book and hold him responsible for what it contains. Supplement and develop the subject-matter in the book as time will permit.

Review on Roman numerals to L.

Give exercises in making change with toy money.

Teach minuend, subtrahend and remainder.

Second Month. NOTATION AND NUMERATION.—Drill in reading five- and six-place numbers. Review multiplication tables of 9's and 12's. Count by 6's and 7's to 72 and 84. Review tables of 6's and 7's.

FRACTIONS.—Add and subtract eighths; use circles to illustrate. Mixed numbers containing halves and thirds; thirds and fourths. Do this work to prepare the way for more difficult applications of fractions to follow.

Numerals to LXX.

Third Month. MULTIPLICATION.—By any two-place multiplier. Also use such multipliers as $4\frac{1}{3}$, $23\frac{1}{4}$, etc. Problems.

DIVISION.—Use the divisors 9, 11, 12. Show by divided lines that $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$. Note that each numerator and denominator has been multiplied by the same number.

DRY MEASURE.—Pint, quart, peck and bushel. Learn table.

MEASURES OF LENGTH.—Inch, foot, yard, rod, mile. Learn table. Measure school yard with ten-foot pole or line; doors, windows and room with yardstick.

MEASURES OF AREA.—Square inch, square foot, square yard. Calculate area of desk top, door and window space and walks. Develop by giving dimensions to rectangles, using small figures.

Fourth Month. MULTIPLICATION.—Give table of 2's to 25×2 ; 3's to 16×3 . Make sure of tables used in the preceding year. Teach multiplicand, multiplier, product, using three-place multipliers and any number of thousands as multiplicands.

DIVISION.—Long and short division. Use divisors from 2 to 12. Also take $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$, $\frac{1}{12}$ of numbers. Teach form of long division, using divisors up to 12. Write quotient over dividend thus:

$$\begin{array}{r} 367 \\ 8 \overline{)2936} \\ \underline{24} \\ 53 \\ \underline{48} \\ 56 \\ \underline{56} \\ \hline \end{array}$$

MEASURES OF VOLUME.—Cubic inch, cubic foot, cubic yard. Learn table. Measure rooms, boxes, bookcases, bins, etc. Problems.

Fifth Month. DIVISION.—Teach short methods of dividing by 100, 1,000, 9,000, 1,600, 10,000, 500,000. Exercises in giving quotients at sight. Solve problems with two- and three-figure divisors. Find quotients, using divisors from 13 to 19, and test by multiplication. Show how to find averages—average age and weight of pupils in the room, and average noon temperature for the week.

MEASURES.—Review measures learned in third and fourth month.

REVIEW by giving rapid drill in addition, subtraction, multiplication and division. Make the exercises easy at first.

Sixth Month. ADDITION AND SUBTRACTION.—Count by 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's, 10's, 11's, 12's, to 100. Count backward, using same numbers. Rapid subtraction in United States money, using time limit. Give special attention to placing the decimal point.

MULTIPLICATION.—Keep up the reviews of the tables by thoroughly memorizing and applying them. Give easy problems which will require some analysis on the part of the pupil.

Ex.—A boy works 8 hours a day. How many hours does he work in 28 days?

MEASURES OF TIME.—Second, minute, hour, day, week, year. Learn table.

Seventh Month. FRACTIONS.—Term of the fraction. Illustrate with easy fractions. Reduction to lowest terms; to an improper fraction; to integers or mixed numbers. Find a part of numbers. Multiply by a mixed number, thus:

$$\begin{array}{r} 32 \\ 6\frac{1}{2} \\ \hline 16 = \frac{1}{2} \text{ of } 32 \\ 192 = 6 \text{ times } 32 \\ \hline 208 = 6\frac{1}{2} \text{ times } 32 \end{array}$$

FACTORING.—Name the prime and composite numbers to 100. Teach prime numbers in groups, as:

$$\begin{array}{l} 1 \text{ to } 10 = 2, 3, 5, 7 \\ 10 \text{ to } 20 = 11, 13, 17, 19 \\ 20 \text{ to } 30 = 23, 29 \\ 30 \text{ to } 40 = 31, 37, \text{ etc.} \end{array}$$

Give thorough drill in recognizing at sight.

MEASURES OF WEIGHT.—Ounce, pound, hundredweight, ton, long ton. Learn table.

MEASURES OF LAND.—Square rod, acre. Find area of lots, blocks, fields.

Eighth Month. DIVISION.—Practice in long division. Divide by 30, 40, 50, 60, 31, 41, 51, 61, at first; then use any divisor of two places until the process as well as the result is accurately known.

ADDITION.—Give speed drills in adding columns of six and seven numbers.

PROBLEMS.—Price expressed as easy fraction of a dollar, find cost of many articles.

DECIMAL FRACTIONS.—Teach decimal tenths and hundredths. Compare constantly with United States money. Read, write and add decimals in tenths, hundredths and thousandths. Write Roman numerals to MM.

Ninth Month. REVIEW fundamental operations for the year, emphasizing accuracy and rapidity. Multiplication tables through 12×12 must be thoroughly learned.

FIFTH YEAR

First Month. FUNDAMENTAL OPERATIONS.—Rapid review of fourth year's work.

NOTATION AND NUMERATION.—Teach how to read and write large integral numbers.

RAPID ADDITION.—Fix time limit for units' columns of ten numbers each. Add columns in United States money.

COMMON FRACTIONS.—Develop the idea of a fraction. Give plenty of drill work on writing and reading fractions. Add and subtract mixed numbers where the common denominator can easily be determined by inspection.

DECIMALS.—Relate the decimal fraction to the common fraction by showing that it is another form for the common fraction. Give practice in writing tenths from the common fraction. Writing, adding and subtracting decimal thousandths.

LONG DIVISION.—Three-place divisors.

Second Month. ADDITION.—Add columns rapidly by grouping.

SUBTRACTION.—Given money paid and purchase, make change. Problems.

MULTIPLICATION.—Make sure of tables. Problems in excavation at customary price per yard. Compute the capacity of boxes, bins and rooms in cubic feet or cubic inches.

DIVISION.—Drill in finding quotients, using six-place dividends and three- and four-place divisors.

“PER CENT.”—Teach that “per cent” means hundredths of anything: $1/2$ of it is 50% of it; $1/3$ is $33\frac{1}{3}\%$; $1/4$ is 25%; $1/5$ is 20%; $1/8$ is $12\frac{1}{2}\%$; and $1/10$ is 10% of it. Express 50% as .50; $33\frac{1}{3}\%$ as $.33\frac{1}{3}$; etc. Apply in easy problems. Fix in the memory like the multiplication table the aliquot parts of 100.

Third Month. FACTORING.—Classify and define numbers. Review the prime and composite numbers to 100. Factor the composite numbers to 100. Make tests of divisibility, using 2, 3, 4, 5, 9 and 10 as divisors. Drill thoroughly on this subject.

CANCELLATION.—Show that factors common to both the dividend and the divisor can be canceled.

FRACTIONS.—Read and write in words. Teach reduction. Do not forget the reasons. Follow text-book in teaching common multiple, L. C. M., common denominator, L. C. D., common divisor, G. C. D. Pupils should be able to find the L. C. D. and the G. C. D. of numbers readily resolved into factors.

Fourth Month. FRACTIONS.—Up to this time you have handled simple addition and subtraction of fractions whose denominators can be determined by inspection through the comparison of parts of objects, rectangles, circles, etc. Now you are ready for such forms as $3/4 + 1/2$, $3/4 - 1/2$ by using the process of finding their least common denominators learned in the third month. More difficult fractions should be used, as: $4/5 + 3/8 + 1/10$; $4\frac{2}{3} + 9\frac{7}{8} + 23\frac{5}{12}$; $20\frac{3}{10} - 7\frac{5}{6}$; making the steps more complicated as you proceed. Master problems given in the book.

MULTIPLICATION.—Multiply fractions by fractions, integers by fractions, and fractions by integers.

DIVISION.—Develop:

$$\begin{array}{r} \underline{6} \\ 2)6, 2, 6 \div 2; \end{array} \quad \begin{array}{r} \underline{1} \\ 2)1, 2, 1 \div 2; \end{array} \quad \begin{array}{l} 2 \div 2 = 1, \quad 2 \div 1 = 2, \\ 2 \div \frac{1}{2} = 4 \end{array}$$

Make no attempt in this year's work to explain why the divisor is inverted. It is not necessary for the pupil to know at this stage of his advancement, as such explanations are invariably confusing.

In the review of fractions give many problems requiring analysis, as: If a yard of cloth cost \$3/4, what will 5/8 yards cost?

Fifth Month. DECIMAL FRACTIONS.—Relate decimal fractions to common by reducing decimal fractions to common and common fractions to decimals. Before giving practice in reading and writing, explain meaning of decimals.

ADDITION AND SUBTRACTION.—Make units the basic place and not the decimal point.

MULTIPLICATION AND DIVISION.—Give problems in multiplication of common fractions in which the denominator of the multiplier and multiplicand is 10 or some power of 10. Then have product written as a decimal. Ex.—

$$2/10 \times 4/100 = 8/1000 = .008$$

Note that there are as many places pointed off in the decimal, .008 as there are ciphers in the denominator of the common fraction, 8/1000. Tenths \times hundredths = thousandths, etc. Develop rule for "pointing off" in this way. Give special attention to pointing off in division of decimals. Frequent drills of this kind can be given:

$$1/10 \div 1/10 = ? \quad .1 \div .1 = ? \\ 10 \div .01 = ? \quad .01 \div 10 = ? \quad 1000 \div .001 = ? \quad .001 \div 1000 = ?$$

Commit to memory table showing decimal parts of \$1.00 that can be changed readily to a fraction.

Sixth Month. MEASUREMENTS.—Memorize counting table, as: pair, score, dozen, gross, great gross.

BILLS AND ACCOUNTS.—Form of bill and account. Debtor, creditor, footing, balance, paid. Make out and receipt bills. Give problems in which local prices are given. Keep the child measuring and thinking in a business way. Give problems including United States money to eight addends. Review tables of 6's, 7's, 8's, 9's.

PURCHASE AND SALE.—Articles—quantity and cost—selling price. Many practical problems.

DECIMALS.—Review with special reference to accuracy and speed.

Seventh Month. MEASUREMENTS OF SURFACES.—Rectangles, parallelograms, triangles, rectangular solids. Teach relation of one to the other by diagrams logically formed. Problems should be given in finding areas of floors, walls, ceilings, sidewalks, and the cubic contents of boxes, bins, etc. Relate irregular figures to regular figures.

COMMON FRACTIONS.—Review addition, subtraction, multiplication and division, giving reasons where practicable. Illustrate freely. Simplify complex fractions.

DECIMAL FRACTIONS.—Give practice in reading and writing decimals and in reducing common fractions to decimals.

Eighth Month. **DECIMAL FRACTIONS.**—Add and subtract quickly. Apply multiplication and division in many problems written on the blackboard, so that each child will penetrate the meaning of each problem, independently of the book. Write quantities with the numerator larger than the denominator, then vice versa, as: 16 is what part of 4; 4 is what part of 16? 1 part of 16 is $1/16$, 4 parts are $4/16 = 1/4 = 25\%$, therefore 4 is 25% of 16.

FINDING PER CENTS.—Find per cents of numbers in abstract numbers, then in problems. Express 25%, 75%, etc., thus: .25, .75, before solving such problems: If a boy spells 25 words in a spelling test and is marked 88%, how many words did he spell correctly?

Ninth Month. Test the year's work by holding pupils for the ability to read, write, add, subtract, multiply and divide simple fractional, decimal and integral numbers. Review 11's and 12's, and principles of year's work.

SIXTH YEAR

First Month. Some advanced text-book should be used now, if written in a two-book series.

Less attention need be given to the mechanical operations with numbers, if the previous work has been thoroughly done, but increasing emphasis should be placed upon the solution of problems which require close and careful thinking. While the use of objects and drawings in making clear a new process is always desirable, there should be less dependence upon them as the pupils come to acquire greater power of generalization.

REVIEW FUNDAMENTAL PROCESSES used in previous years.

DENOMINATE NUMBERS.—Easy reductions, as:

- Change 8 gallons 1 pint to pints.
- How many inches are there in 14 feet 10 inches?
- How many feet and inches are there in 1,020 inches?

Follow these with more difficult reductions. Solve enough problems from text in addition, subtraction, multiplication and division of denominate numbers to make sure of principles and accurate results. Emphasize division in order to prepare the

way for the process involved in solving problems in longitude, which will follow in the seventh year.

Practice adding long columns. Teach proof of subtraction.

Second Month. FRACTIONS.—Give special attention to adding mixed numbers. The average pupil finds some difficulty in handling such fractions. The form following is found convenient:

Add $12 \frac{3}{4}$, $6 \frac{3}{5}$ and $10 \frac{7}{8}$.

$$\begin{array}{r} 40 \quad = \text{l. c. d.} \\ \hline 12 \frac{3}{4} = 12 \frac{30}{40} \\ 6 \frac{3}{5} = 6 \frac{24}{40} \\ 10 \frac{7}{8} = 10 \frac{35}{40} \\ \hline \end{array}$$

$$12 \frac{3}{4} + 6 \frac{3}{5} + 10 \frac{7}{8} = 28 \frac{89}{40} = 30 \frac{9}{40}$$

Note that the l. c. d. of 4, 5 and 8 is 40. Each new numerator is found by taking $\frac{3}{4}$, $\frac{3}{5}$ and $\frac{7}{8}$ of 40, respectively.

Master many practical problems of the text-book that will apply to the different forms and operations of common fractions.

DECIMALS.—Review notation and numeration. Observe that decimals are only so many 10ths, 100ths, 1000ths, etc., of a unit, expressed by placing a period before the numerator and omitting the denominator. Apply multiplication in such problems as: A merchant sold 75 yards of muslin at \$.125 per yard. How much did he receive for it?

Give special attention to division of decimals. Successful teachers have used the caret \wedge in marking off. Mark off by a *caret* the same number of decimal places from the right of the decimal point in the dividend as there are decimal places in the divisor, thus:

a. Divide 5.88 by .7. b. Divide 96.8 by .004. c. Divide 1.2864 by .032.

$$\begin{array}{r} 8.4 \\ \hline .7) 5.8 \wedge 8 \\ 56 \\ \hline 28 \\ 28 \\ \hline \end{array} \qquad \begin{array}{r} 24200 \\ \hline .004) 96.800 \wedge \\ 2400 \\ \hline 8000 \\ 8000 \\ \hline 0000 \\ 0000 \\ \hline \end{array} \qquad \begin{array}{r} 40.2 \\ \hline .032) 1.286 \wedge 4 \\ 128 \\ \hline 64 \\ 64 \\ \hline \end{array}$$

Third Month. PERCENTAGE.—Teach percentage as the process of computing by hundredths and by showing its close relation to what has already been learned about fractions. Use fractions having 100 for a denominator; also fractions representing the most common per cents, such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{2}{5}$,

$3/5$, $1/8$, $3/8$, $5/8$ and $7/8$. Change to decimals, then to per cents. Drill in finding per cents of numbers. Memorize table of equivalents. Exercises in finding what part one number is of another.

Ex.—What part of 10 is 5? $1 = 1/10$ of 10; $5 = 5/10 = 1/2$ of 10. $1/2$ of 100 % = 50 %.

From such exercises develop until pupil sees clearly what PER CENT (part) one number is of another. In the same way find a number when a *per cent* of it is given.

Ex.—6 % of a number is 18. Find 1 %, then 100 %, or express 6 % decimally and divide.

Review on *parts* in percentage by encouraging the pupil in oral drills to make many problems from the experiences of everyday life in the shop, store, or on the farm, to precede those given in the text-book.

SHORT PROCESSES.—Give practice in short processes of multiplying by 17 or 71, using the multiplicand as a partial product. Multiply by 98 by subtracting twice the multiplicand from 100 times the multiplicand. Use other multipliers.

Fourth Month. ANALYSIS.—The work of the text-book should be supplemented freely by the teacher. Insist upon much of the work being done mentally. The use of the pencil should be required only so far as it may be necessary. Encourage pupils to reason correctly in problems following:

a. If $2/3$ of a bolt of cloth is worth \$3.20, what are 13 such bolts worth? If the pupil fails to see the conditions and the place to begin in "a," give easy similar problems until he has found the clew. Ex.—

b. If 2 oranges cost 12 cents, what will 6 cost? After finding out what 1 orange costs, substitute $2/3$ in "a" for 2 in "b" and solve. Use such methods rather than so much outright telling.

c. If $7/8$ of Mr. Brown's capital is \$700, how much is $11/16$ of it? Require clear-cut statements and accurate results. Encourage pupils to compose similar problems and bring them to class for solution, for the purpose of stimulating originality and awakening mind.

Review and give special sight drills to last not longer than five or ten minutes.

Fifth Month. LUMBER MEASURE.—In computing, put two dimensions in feet and one in inches, then multiply together for number of board feet.

Ex.—Find the number of board feet in 250 joists 2 in. × 8 in. × 24 ft.

$$1 \text{ bd. ft.} \times \frac{2}{1} \times \frac{2}{3} \times \frac{24}{1} \times 250 = 8000 \text{ bd. ft.}$$

PRACTICAL MEASUREMENTS.—Plastering, papering, painting and carpeting. Solve enough illustrative problems from text-book and the resources of pupils to give them a clear understanding of these measurements. Make this work practical by actually measuring rooms. Review on areas of rectangles, including the square and rectangle proper. Have pupils draw the diagrams to a scale to represent the object measured.

Sixth Month. PERCENTAGE.—Give exercises in finding base, rate and percentage by the following comparison:

In Multiplication

1. Multiplicand × multiplier = product
2. Product ÷ multiplier = multiplicand
3. Product ÷ multiplicand = multiplier

In Percentage

$$\text{Base} \times \text{rate} = \text{percentage}$$

$$\text{Percentage} \div \text{rate} = \text{base}$$

$$\text{Percentage} \div \text{base} = \text{rate}$$

\$300 Multiplicand	\$300 Base
6 Multiplier	.06 (Rate)
\$1800 Product	\$18.00 Percentage

Erase one term and show how it can be found again.

Show that the operations of percentage may be classified as follows:

1. Problems in which we are to find a certain per cent of a number.
2. To find the number of which a certain per cent is given.
3. To find what per cent one number is of another.

Solve many simple problems.

PROFIT AND LOSS.—Applications.

COMMISSION.—Agent, collector, commission merchant or broker, buying and selling. Problems from text-book.

Seventh Month. COMMERCIAL DISCOUNT.—Explain how such discounts are allowed. Problems.

DISCOUNTING BILLS.—Gross and net amounts. Marking goods.

INTEREST.—For years, months, days. Interest, principal and amount.

Write out promissory notes given and held by pupils to the amount of \$500, with interest as far as 10 %. Compute the interest. Make these problems practical by getting or making blanks for them. Be sure that pupils know at least one good method of computing simple interest.

Rapid addition of eight addends as far as seven orders of integers and United States money.

Eighth Month. Review tables of denominate numbers. Study a good list of miscellaneous and industrial problems involving fractions, decimals and denominate numbers.

DECIMAL FRACTIONS.—Rapid review :

1. Notation and numeration ; give thorough drill.
2. Change a decimal fraction to a common fraction.
3. Change a common fraction to a decimal.
4. Write decimal equivalents.
5. Addition and subtraction of decimals.
6. Multiplication and division of decimals.

RATIO AND PROPORTION.—Give special attention to statement of terms in simple proportion, reasoning from the third term. Solve numerous problems.

Ninth Month. Speed work in factoring small numbers.

Réview on Roman numerals.

Drills in the four operations, tables and reading of seven order numbers.

Draw bills in note book and receipt same.

Review year's work and test.

SEVENTH YEAR

First Month. Give less attention to mechanical forms for the solution of problems, but insist upon solutions which set forth in neat and correct form the logical steps leading to results. When a pupil finds a problem so difficult that it needs to be explained by the teacher, the difficulties should be approached by giving an easier problem involving the same conditions in a modified form. To illustrate :

a. B. & O. 4's are quoted at 96. How many such bonds can be bought with an investment of \$4800? The pupil is confused here with the new terms and phraseology. He will see the relations by the teacher's asking for a solution of this simple problem :

b. Oranges are quoted at 5 cents each. How many oranges can be bought for 30 cents?

In this year pupils should acquire more skill in the art of computation. The development of mathematical principles should be inductive in method and deductive in their application. Hold pupils for clear and concise statement of principles, definitions and rules derived from processes.

Review the fundamental processes of the fifth and sixth years. Learn the practical short methods of addition, subtraction, multiplication and division.

Second Month. RATIO AND PROPORTION.—Review ratio and simple proportion, and solve problems in compound proportion, partnership and average. Review factors, divisors, multiples and tests of divisibility. Drill on accounts, bills and cost of things bought by the 100, 1000 and ton. Teach pupils that the multiplier must always be an abstract number (unless used otherwise for convenience) and that the divisor may be abstract or concrete. At least one of the terms in multiplication and division must be abstract. Do not allow such incorrect forms to be used as: $16 \text{ in.} \times 5 \text{ in.} = 80 \text{ sq. in.}$ It should be $1 \text{ sq. in.} \times 16 \times 5 = 80 \text{ sq. in.}$, or $16 \text{ sq. in.} \times 5 = 80 \text{ sq. in.}$

Third Month. Finish compound denominate numbers. Review tables and various equivalents.

LONGITUDE AND TIME.—Meridian, prime meridian of Greenwich, England. East and West longitude, earlier time, later time, sun time. The day, where it begins. International Date Line—course. Standard or Railroad Time and the five standards of railroad time in the United States and Canada.

Problems:

1. Given the longitudes of two places and the time at one of them, to find the time at the other.
2. Given the times at two places and the longitude of one, to find the longitude at the other.

REVIEW FRACTIONS.—Common and decimal. Reduction, addition and subtraction.

Fourth Month. GOVERNMENT REVENUE (Percentage).

a. Taxes—real and personal. Use familiar examples, both in showing the purpose of taxation and meaning of the various terms used. From recent assessor's reports give actual facts of the valuation and rate of taxation of the town or city in which or near which the pupils live. Secure from your county assessor a summary of assessment of the county, giving valuation and tax

of county, cities and towns. If the pupil has applied the terms—base, rate and percentage—lead him to see that the assessed valuation of property represents the base, and taxes the percentage. Solve problems in text-book.

b. Duties or customs—ad valorem and specific problems. Insurance. Review commission and brokerage, noting different forms of compensation. Define terms—agent, broker, commission merchant, principal, commission, net proceeds. Solve problems involving a remittance to cover a purchase and a commission, for the purpose of illustrating an important principle, even though such problems are not regarded as being very practical.

Fifth Month. ANALYSIS BY EQUATIONS.—One or two weeks may be given here, if teacher prefers, to teaching the algebraic equation. It will serve to break the monotony of things and may stimulate an ambition for higher education. Teach known and unknown numbers, equation. Solving the equation. First member, second member. Solution of equations in x . Spend the remaining time in oral review, using some good mental arithmetic as a reference, for solving practical industrial problems, pertaining to the farm, the store, the shop, and the markets. Do not attempt any problems requiring mental gymnastics. Work for quick and accurate results without the use of pencil and paper.

Sixth Month. PRACTICAL MEASUREMENTS.—Bins, tanks, cisterns, the cylinder, concrete, stone and brick work. Estimate the capacity of bins in bushels; tanks and cisterns in gallons or barrels. Find the convex and the entire surface of cylinders. Illustrate the convex surface by taking a piece of paper fitted to cover the cylinder, then unroll it. The pupil will observe that its form is that of a rectangle. For entire surface add area of bases. In estimating contract work or cost of labor, talk with a contractor, stone mason, brick-layer or concrete builder, and compare his methods of measuring and estimating material with what your text-book may have to say about the subject. Study measures of temperature. Review lumber measure. Figure bills for lumber for floors, porches, sheds, etc. Get a lumberman's table at the yard. Ask questions about it. Measure different piles of lumber and determine cost at so much per M.

Speed drills—addition, columns of nine addends.

Seventh Month. REVIEW.—Roofing and flooring, plastering and painting, papering and carpeting. Have pupils find number of yards and cost of carpet in rooms of the home, giving attention to the number of strips, turning under, etc.

Review square and other measures. Teach from map how public lands are laid out; townships; ranges; sections; principal meridian; base line. Show meaning of such descriptions as: the S. W. $1/4$ of N. W. $1/4$ Sec. 21, T. 2 N., R. 3 W. Locate land described on section map. Read tax receipts for various descriptions and find areas in square feet, square rods or acres. Give oral exercises covering topics taught this year. Reviews aid the understanding and strengthen memory.

Eighth Month. METRIC SYSTEM.—Teach that the metric system, which is used in nearly all the countries of continental Europe, is based upon the meter, 39.37 inches. Note that its subdivisions are denoted by the Latin prefixes: milli ($1/1,000$), centi ($1/100$), deci ($1/10$). For the multiples the Greek prefixes are used: deka (10), hecto (100), kilo (1,000) and myria (10,000). Solve only enough problems to illustrate principles in measures of length, surface, volume, capacity. Do not give much time to this subject.

LONGITUDE AND TIME—REVIEW.—Make clear how to find difference of longitude when one place is east and the other is west of the prime meridian; when both places are east or west. Draw diagrams, thus:



Suppose that the meridian passed through the school yard, from north to south, and one place, A, or town, was ten miles west of you, and the other place, B, was four miles east. How many miles apart are they? What did you do to find the difference, 14 miles, add or subtract? What is the difference of longitude if one place is 10° west and the other 4° east? Draw a different diagram to show in the same way the difference when both places are east or west. Review percentage in which time is not an element. Use oral drill.

Ninth Month. Study a good list of miscellaneous problems involving the year's work.

EIGHTH YEAR

The student should have a knowledge of business forms in common use, and should acquire such knowledge by dealing with the facts of his experience, drawn from his environment. The various processes should therefore be taught objectively, supple-

menting the text-book with industrial problems relating to the business of the country and to the common occupations of our people.

Pupils should be made to feel the importance of becoming acquainted with business customs, preparatory to entering the business world. Encourage order and thrift by leading them to keep simple accounts of daily life in the home, in the shop and on the farm. Pupils should keep a neat notebook in which they may record important truths and principles during the year.

First Month. PERCENTAGE.—Next to fractions, percentage and its applications are most used. Lead pupils to see that the subject involves no new principles, but is simply a repetition of principles which they should already know. For the sake of the reasoning process, solve a few problems under each operation of percentage by pure percentage. Follow text-book.

INSURANCE.—(a) Property—fire and marine. (b) Personal—life and accident. Read a fire-insurance policy and study meaning of terms—premium, rate, term. Why should the full amount of the policy not be paid? What determines the difference in rates on different buildings?

Read carefully a life-insurance policy. Meaning of ordinary life, endowment policy, twenty-year settlement and mutual life. Study insurance tables.

Continue throughout the year addition columns, multiplication and division, noting accuracy and rapidity in combinations of figures.

Second Month. SIMPLE INTEREST.—Require at least one good method of computing interest. The 12% method is found convenient, as is the 6% method. The final test is accuracy of manipulation. Five quantities are involved in the general problems of interest: principal, rate, time, interest, amount.

TRADE DISCOUNT.—Explain list price, compound discounts, etc. Write an order for goods, using correct form. Problems. Teach meaning of present worth and true discount, and solve problems from text. Note the additional steps necessary for determining annual interest.

Third Month. COMPOUND INTEREST.—Compound interest is no longer allowed on notes. Compare the process of computing with simple interest. Its only practical application for elementary schools is found in computing interest on savings accounts.

PROMISSORY NOTES.—Learn important facts about promissory notes: (a) If a note is made payable at a particular place.

(b) When no place of payment is designated in a note. (c) When no rate is mentioned in an interest-bearing note. (d) A condition stated in interest-bearing notes which applies if not paid when due. (e) A note payable on demand. Essentials of a note: maker, payee, face, time, place, legal rate "with interest," "value received." Note terms: negotiable, indorsement, holder, etc. Discuss and write the various forms of notes, indorsements, and investigate some legal provisions in regard to them. Usury—by whom used? Why unjust? Partial payments—United States rule; mercantile rule.

BANKING.—Organization of commercial, national, state and private banks and trust companies. Economic advantages of banks to a community. Receiving deposits, lending money, transmitting money by means of drafts, issuing paper money, are the four chief functions of banks. Define bank discount, proceeds, term of discount. Show how banks differ from individuals in lending money. Solve problems in text-book.

Fourth Month. EXCHANGE.—Explain how a debtor may pay a bill in a distant city without the actual transfer of cash. How a creditor may collect bills at a distant city without the actual transfer of cash. Name the ways of doing so in current use. Trace the history of some draft issued by your local bank through the clearing-house, until it returns to the bank again. Explain why premium and discount are used. Consult banker.

STOCKS AND BONDS.—Give reasons for the existence of corporations. Tell how railroads, large factories, and reservoir projects are financed; how mines are developed. Organize a stock company in school and become familiar with the terms: shares, stockholders, certificates of stock, dividends, assessments, stocks—common and preferred, market value, government bonds, etc. Explain stock quotations given in daily papers. Solve problems of various types.

Fifth Month. RATIO AND PROPORTION.—Review with special reference to proportional parts. Ex.—

a. A and B together invest \$1,500, and A's investment is to B's as 2 is to 3. How much does each invest?

b. Divide 10 lbs. into parts in the ratio of $\frac{2}{3}$ to $\frac{3}{5}$.

PARTNERSHIP.—Define partnership, capital stock, assets, liabilities, firm or house. Explain that when shares of the partners are invested for equal times, gains and losses are distributed among the partners in proportion to their respective shares and times. And when shares are invested for unequal times, gains

and losses are distributed among the partners in proportion to their respective shares and times, except when otherwise agreed upon. Solve problems illustrating types.

POWERS AND ROOTS.—Exponent, power, root, square. Raise to powers indicated.

EXTRACTING ROOTS.—Square and cube by factoring. Study processes. Problems. Abstract numbers, right-angled triangles, hypotenuse.

Sixth Month. MENSURATION.—Surface, and solid contents of prisms, pyramids, cylinders, cones and spheres. Develop formula for area of rectangle, rhomboid, triangle, circle, trapezoid, hexagon, octagon, etc., solving many problems to illustrate. Think of rectangular solids as being made up of layers, composed of equal rows of cubes. Have pupils make prisms and cylinders of stiff paper and develop the method of calculating their areas. Construct pyramids and cones, and determine their surfaces and solid contents. Make or procure a semi-circular protractor and use it in the measurement of angles.

Seventh Month. SIMILAR SURFACES AND SOLIDS.—Observe that similar figures are plane surfaces that have exactly the same shape, but differ in size. Point out similar figures. Note principles which apply to corresponding lines; areas proportional to the squares of their corresponding lines. Note principles applying to similar solids. Solve problems. Review mensuration. Study reference tables of measures with the view of retaining many important facts worth remembering.

Eighth Month. REVIEW involution and evolution.—Square root and its applications. Select practical problems for oral drill. Study and solve a good list of miscellaneous problems.

Ninth Month. REVIEW year's work, emphasizing the needs of the class.

TEXT-BOOKS

Hamilton's Arithmetics—Primary, Intermediate and School; American Book Company.

Watson and White's Arithmetics—Primary, Intermediate and Grammar School; D. C. Heath & Co.

Wentworth's Arithmetics—New Elementary and Complete; Ginn & Co.

"First Year in Number," Houghton, Mifflin & Co.

AGRICULTURE

The following course has been arranged for the seventh and eighth grades. The second year is intended, in a measure, to be an application of the first. It will be well in the first year to teach only general principles, and during the second to extend the studies to investigations of local conditions.

It ought not to be necessary to insert an argument for the study of agriculture here, but it may be well to state some advantages that this study seems to possess:

1. It creates an interest in and respect for the occupation of farming.
2. It brings the school in closer contact with the everyday life and experiences of the child.
3. It stimulates the creative instincts in combination with those of acquisition.
4. It teaches lessons of success and failure in the conduct of everyday affairs.

HELPS IN TEACHING

No teacher should attempt to teach agriculture from this outline alone. One or more books will be needed for reference and guidance. The following list has been classified as to the way in which they may be found of use. It might be well for the teacher to select one from each group as a starting-point.

BOOKS SUITABLE AS ELEMENTARY

- “Agriculture for Beginners,” Ginn & Co.
- “First Principles of Agriculture,” American Book Company.
- “Beginnings in Agriculture,” The Macmillan Company.
- “Elementary Principles of Agriculture,” Ferguson Publishing Company.

BOOKS SUGGESTIVE IN THE ABUNDANCE OF EXPERIMENTS OFFERED

- “One Hundred Lessons in Agriculture,” Acme Publishing Company.
- “First Book of Farming,” Doubleday, Page & Co.
- “Agriculture Through the Laboratory and School Gardens,” Orange Judd Company.

BOOKS FOR ADVANCED CLASSES

- “Elements of Agriculture,” The Macmillan Company.
- “Practical Agriculture,” American Book Company.

- “Fundamentals of Agriculture,” D. C. Heath & Co.
 “Rural School Agriculture,” Orange Judd Company.

BOOKS ON SPECIAL TOPICS

- “Examining and Grading Grains,” Ginn & Co.
 “Soils,” The Macmillan Company.
 “Diseases of Horses and Cattle,” Donohue & Co.
 “Arid Agriculture,” B. C. Buffum, Worland, Wyo.
 “Fruit Growing in Arid Regions,” The Macmillan Company.
 “Alfalfa in America,” Sanders Publishing Company.
 “Elements of Botany” (Rocky Mountain Edition), Ginn & Co.
 “The Cereals in America,” Orange Judd Company.

FREE LITERATURE

Government Bulletins.—The United States government publishes much desirable literature free of cost. Begin by requesting Circular 94 of the Office of Experiment Stations. This gives a list of free publications classified especially for the use of teachers. Select those desired, and this will lead into other fields. Address the Secretary of Agriculture, Washington, D. C.

Colorado Experiment Station.—The Committee on Rural Education of the State Agriculture College sends a selected list of bulletins to teachers requesting them. Every school should have a set. Address S. Arthur Johnson, State Agricultural College, Fort Collins, Colorado.

FIRST YEAR

First Month. SEEDS.—Study the structure of some common large seeds.

The bean: Soak a sufficient number of beans in water twenty-four hours, so that all the class may have specimens. Compare the soaked specimens with unsoaked. Examine some that have been soaked only two or three hours. At what part of the seed does the water seem to enter? Examine the structure of the bean. Note the seed-coat. Texture. Use. Observe the large seed-leaves (cotyledons). Why are they so thick? What do they contain? If iodine can be obtained, make the starch test. Find the plantlet between the seed-leaves. Note the little leaves at one end, and rootlet at the other. Make sketches.

The corn: Make a similar study of corn. Note differences. Where is the nourishment stored?

Four-o'clock: These seeds are excellent for showing how starch may be stored up outside of the seed-leaves. The seed-

leaves are wrapped about a ball of starch in a life-and-death grip. For dissection soak them thoroughly, and carefully remove the tough outer covering. Start a large number to germinating, and dissect a few each day. Note how the starch is gradually absorbed before the seed-leaves forsake the shell to come to the surface of the ground. Compare with other seeds.

SEED PURITY.—Freedom from foreign seeds and other material.

Some impurities: Weed and other kind of seeds, chaff, pieces of stem, sand, etc.

Seeds most likely to be impure are grass and other small seeds; those that resemble some weed seed; those that are difficult to clean.

PURITY TEST.—Illustrative material. Named samples of commercial and weed seeds, such as corn, oats, barley, sorghum, dandelion, wild barley, etc. Names of unknown seed can be obtained by sending a small sample to the Agricultural College at Fort Collins.

A small lens is useful in identifying smaller seeds.

HOW TO MAKE THE TEST.—Mix thoroughly each lot of seeds to be tested. Place a small amount on a sheet of white paper. Separate and place in different piles all the kinds of seeds, etc.

Make a form like the following and fill in the proper places:

REPORT ON PURITY OF SEED

Name of student.....
Date
Name of seed tested.....

Names of Weed Seeds and Other Impurities Found	No. Found	Per Cent Found
.....
.....
.....
Total weeds.....
Other impurities.....
Total impurities.....

Estimate the percentage of impurities by weight, if possible, but if no scales are at hand, estimate it by number. Put down any seeds which cannot be identified as "unknown."

SEED GERMINATION

Second Month. CONDITIONS FOR GERMINATION.—1. *Moisture.*
—Select a dozen seeds each of corn, beans, wheat and squash or other seeds. Divide each into three lots. Soak the first lot over night, the second lot two hours; leave the third lot unsoaked. Plant these seeds in a shallow box of sand. Use cardboard labels to indicate where each group of seed is planted. Cover the box to keep in moisture, and put in a warm place, being careful to have the heat applied as nearly equal to all parts of the box as possible. Watch to see which seeds come above the sand first. Did the soaking have any influence on the time of germination? Were any seeds injured by soaking? What has soil moisture to do with seed “coming up”?

2. *Temperature.*—Plant beans or other seeds in three boxes of equal size. Make the conditions as nearly equal as possible. Place one box near the stove, one in a cool corner of the room, and the third in the coolest place to be found where it will not freeze. Which seeds germinate first, which last? What is the effect of heat on germination?

Plant a variety of seeds—oats, wheat, lettuce, tomatoes, etc.—in the boxes and place in the same positions as before. Make lists of seeds which will germinate at low temperature, those which require high temperatures, and those which will germinate at moderate temperature. Of what value are these facts when we come to garden and crop-planting?

3. *Air.*—Soak a double handful of peas in plenty of water for twenty-four hours. Take two fruit-jars, fill one two-thirds full and put the cover on. In the other put a few soaked peas on moist cotton in the bottom. The next day put a burning match down into the open jar, and note that it burns. Remove the cover very carefully from the other jar, and immediately insert a burning match. Note that it is extinguished. The seeds have absorbed the oxygen and given off carbon dioxide. With lime water the usual tests for carbon dioxide may be made. Replace the cover on the jar and watch for the germination of the seeds. What effect has air on seed germination?

SEED TESTING.—Proper testing of seed is one of the most important operations in successful farming. The following outline by Mr. Frear is readily understood and easily followed:

EXERCISE—SEED VITALITY

Seed for planting must possess two characters: (1) vitality, (2) purity. (See above for purity test.)

Vitality—ability to germinate or sprout.

Two factors are important in germination:

(a) *Germinating energy*, or rapidity of germination. Those seeds that germinate quickest are the best for planting, other things being equal.

(b) *Germinating capacity*, or the percentage of germination. The higher the percentage, the better the seed. Both of these qualities should be present to a high degree.

Vitality is expressed by percentage. Vitality decreases with increased age of the seed.

Some factors which aid in decreasing the vitality of seeds:

1. Harvesting before ripe.
2. Improper curing.
3. Slow curing.
4. Piling up green and allowing to heat.
5. Storing when wet.
6. Injury in threshing.
7. Freezing before dry.
8. Injury by disease and insects.
9. Overheating.
10. Lack of ventilation.
11. Treatment with strong chemicals or water too hot for diseases or insects.
12. Old age.

GERMINATION TEST.—Material needed: two plates, one piece of cloth as large as a plate and one piece twice as large, some water, and a small amount of seed of each kind.

Dip the cloths in water, and squeeze until they are moist. Place the larger cloth on a plate, and by a series of ridges across the cloth divide the area of the plate into as many parts as there are kinds of seeds to test. Mix each lot of seed well, count out 100 and distribute evenly in a division of the plate. Write the name of the seed on a strip of paper and lay on top of the seed. When all of the seed is in the plate, cover with the small moistened cloth, and invert the other plate over all. Set in a temperature of 70 to 90 degrees F. Examine daily. Sprinkle the cloths when they become dry.

best depth to plant beans? How deep should seed be planted? Fill a box with good soil. Put a few seeds of corn, oats, and beans in one corner one inch deep. In another corner plant an equal number three inches deep; in another six inches deep, and in another ten inches deep. Record the time of coming up of each kind of seed and from different depths of planting.

SOILS

Fourth Month. ORIGIN OF SOIL.—Attention should be given to the ways in which soil originates. Some of the more recent geographers go into this subject in a very adequate manner, and should be consulted and followed. It will not be sufficient to cover the mere text-book work, but the pupils' knowledge should be drawn upon to illustrate the processes actually at work. Almost every district furnishes most of the conditions necessary for a fairly good study.

In the wide range of Colorado we have every possible condition, and actual observations of these in the field should be made. This may be done by short excursions.

1. *The Work of the Sun.*—What is the effect of the hot sun on the rocks during the day? What parts of the rocks are heated during the day? What becomes of the heat during the night? What effect does the unequal heating of the rocks have on their texture?

2. *The Work of the Air.*—What effects do the movements of the air have upon the soil? What is the effect of the sands blowing against the rock? If you do not live in a locality where all the effects are to be found, tell about the other conditions.

3. *The Work of Water.*—What happens to water that falls on the surface of the rocks? Does any of it soak in? What happens to the rock when this water freezes? Water has the power to dissolve out certain portions of the rock. In what condition does this leave them? Why are rivers and creeks muddy after a rain? What becomes of the mud in the water? Compare the nature of the soils with the rocky country near them. Tell about the work of ice, glaciers and snow-slides.

4. *The Work of Plants.*—Try to dig or pull up some plants which are growing in the rocks. Note where their roots go. Pry loose some pieces of rock and find the roots of plants in between. What is the effect of this upon the rocks?

5. *The Work of Animals.*—Find the burrows of animals. What effect does their work have upon the soil?

THE PARTS OF SOIL.

1. *Sand*.—Collect samples and note the sizes of the particles in the different lots. Grade them into coarse, fine and medium. Save samples of the different kinds in bottles. What will be the comparative amounts of air in the different samples? Do air and water move through sand readily? In what localities is sand found in nature?

2. *Clay*.—Secure samples of clay. Compare with sand as to the qualities. Lime is often used on clay soils. Why?

3. *Lime*.—If possible, obtain samples of lime soils and tell the class from what they are formed.

4. *Humus*.—Collect rich soils and note the decaying animal and vegetable parts of it. Examine the soils along the creek where vegetation is growing. How does this soil differ from other kinds in texture? Color?

Preserve in bottles samples of these different constituents of soils.

Fifth Month. EXAMINATION OF SOILS.—Collect samples of different kinds of soils. Put each separately in a bottle of water and shake thoroughly. Allow to settle. Notice the different layers formed at the bottom of the bottle. Estimate from the layers the amounts of the different constituents in the soil. Which of these samples were considered to be good soil? Which poor? Which heavy? Which light?

DEPTH OF SOIL.—Make an excursion to railroad cuts or banks where the soil has been exposed vertically, and measure the different depths. Which is the most valuable for farming purposes? What constituent of soil helps you to tell the depth? What value has this part in crop-raising?

Sixth Month. WATER IN SOIL.—Illustrative material: three cylindrical lamp chimneys (student chimneys) and a frame for holding them perpendicular, with the larger end up and the smaller end high enough from the table to allow a cup or glass to be placed under each; enough sand, loam and clay to fill one chimney of each; some pieces of cloth to place over the lower ends of the chimneys to hold the soil in, and some rubber bands to hold the cloths onto the chimneys; three cups to place under the chimneys; a shallow, narrow dish to place under the three chimneys; a small cloth sack, a large paper bag and a sieve (one can be made by tacking a piece of screen over the bottom of a small box).

1. *Capillary Water*.—The water which moves through the soil, due to attraction between the water and the soil particles. Its movement may be in any direction, but is usually upward and sideways. Where this kind of water is present in the soil without any gravitational water, as soil particles, the smaller spaces are filled with it, but the larger spaces are filled with air. This is the only form of water which is commonly available to plants.

Rise of capillary water: Fill one chimney with sand, one with loam, and one with clay. Place in the frame. Under the three chimneys place a shallow dish, so that the edge of the dish comes about an inch above the bottom of the chimneys. Pour water into the dish, replenishing the supply from time to time as it is taken up by the soil. Observe the rise of the water in the soils. Keep a record of the time which is required for it to reach the top of each kind of soil.

What kind of water is rising in the soil? Can you see it? In which kind of soil does it rise the most rapidly? The least rapidly? Can you give any reason for this? In which soil will the water rise highest? In which lowest? (The water will rise highest in the clay and lowest in the sand.) Can you give any reason for this?

2. *Gravitational Water*.—When water flows under the influence of gravitation, it percolates down into or flows through the soil. After a rain, water flows down through the soil in a sheet and is called sheet water. The level at which water stands in the soil is called the water table. The roots of most plants will not live in water, hence cannot penetrate below the water table.

Fill the chimneys as for the previous exercise, but place a separate dish under each one. Measure out into three separate dishes the same amount of water. Gradually pour the water from a dish into each chimney. Keep a record of the time which is required for the water to pass through the soil and begin to drip into the dishes below. Cease adding water as soon as it begins to drip freely. When all dripping has ceased, pour the drippings into the original dish and measure all of the water left.

What kind of water dripped from the ends of the chimneys? What kind of water remained in the soil? In which soil did the dripping begin first? In which last? How long did it take for the water to pass through each kind of soil? What effect would this time have on the value of short hard rains and long slow rains? Why? On the length of time required to irrigate? Why?

3. *Hygroscopic Water*.—A very thin layer of water is present on the surface of particles which appear to be “dry.” Plants cannot use this form of soil water.

4. *Retention of Water in the Soil*.—Nearly fill two large buckets with thoroughly moistened garden soil. In one pack down the soil firmly, leaving the top smooth. In the second leave the surface, to the depth of three inches, loose and open, and each morning stir it gently. Weigh at the beginning of the experiment and each day for a week. Which loses water through evaporation more rapidly? Why does the farmer cultivate the ground after each storm?

Seventh Month. PLANTS AND WATER.

1. *Methods of Absorbing Water*.—Plant some seeds in the seed-tester, and after the roots have grown an inch or more examine the root-hairs. Note that they are quickly destroyed by dry air. Their office is to absorb moisture. Germinate some seeds in moist sand, carefully lift the plants, and observe how the root-hairs cling about the grains of sand.

2. *Use of Water to the Plant*.—Collect some plants. Put some with their roots in water and leave the others to dry. Note the effect of water.

3. *Plant Food*.—Pure water is not sufficient for the life of plants. Soil water is never pure, though it may look clear. Before the water is taken up by plants, many things are dissolved in it. Illustrate by dissolving sugar and salt in water. May soil water carry different amounts of plant food? Different kinds? What effect will “rich” soil have on soil water? “Poor soil”?

4. *Transpiration*.—Take two vials. Select two twigs as nearly alike as possible. From one trim away nearly all the leaves. Fill the vials equally full of water and insert a twig in each. The next day observe which twig has taken up and given off the more water. Plants give out water to the air in somewhat the same way that we give off water from our lungs.

Eighth Month. SOIL TILLAGE.—This is a good month to study soil tillage. The process is everywhere being carried on. Examine the different methods and find the reasons for each.

1. *Tillage Tools*.—Examine the methods of plowing and the reasons for each. Get definite data, and find how much it costs per acre for each method. What difference do you find in the plows and the cost per acre? What kinds of plows do the best work? Which are the most expensive as tools? Do the value

and nature of the crop have anything to do with the methods of plowing?

2. *Objects of Tillage.*

- a. Makes the soil deeper and firmer. Of what use is this to the plant?
- b. Prepares a good seed bed.
- c. Permits the soil to hold more moisture.
- d. Permits the air to enter the soil.
- e. Puts plant food at the place where the roots can most readily get it.
- f. Prevents evaporation.

SECOND YEAR

First Month. FARM CROPS.—Make a study of the farm crops of the neighborhood. What is regarded as a good average yield per acre of the principal farm crops? Find a prosperous farmer, and gather data to compute the cost of raising and harvesting each of the principal crops per acre. Compare with the market value. What crops does the farmer raise other than those intended for market? What are his reasons for doing this?

THE POTATO

Second Month. The following study of the potato was outlined by Mr. Frear:

EXTERNAL PARTS

Illustrative material: Some good Irish potatoes.

Place a number of potatoes in the light and some in the dark, in a warm, rather moist atmosphere, and leave until they have produced sprouts of considerable size.

Examine a potato and observe the following parts:

1. Eyes—the more or less oval depressions. What are the eyes?

2. The seed or “rose” end—the end which contains the greater number of eyes, one of which seems to be more prominent than the others.

3. The base or stem end contains a rather deep depression, in the center of which was attached the small stem which connected the potato to the plant. Find a potato with the small stem still attached.

Observe that the eyes are arranged around the potato more or less spirally, and gradually decrease in numbers from the seed end to the base.

Draw a potato showing all of these characteristics.

INTERNAL PARTS

Cut two potatoes into halves, one lengthwise, the other crosswise. Cut off a thin slice and hold up to the light. Note the areas. Examine the cut surfaces and observe the following characteristics:

1. The skin around the outside.
2. The whiteness of the inside. To what is it due? Starch.
3. Within half an inch of the skin of the potato a faint dark line, which follows in general the outline of the surface. When this occurs, where does it end? This line is the place where the potato makes its growth. It is called the cambium ring. If you have cut the potato through the stem end, you will find that the ring runs clear to the end. It continues through the small connecting stem and through the entire potato plant into the leaves.
4. Between the cambium ring and the skin a rather dark, dense area, the cortex—the most valuable part of the potato, because it contains the best food material. The larger this area, the better the potatoes. Thick peeling of potatoes wastes a large amount of this part, hence the reason for peeling thinly.
5. At the center a more or less star-shaped area of clear watery appearance; seen best when a thin slice is held to the light. The poorest part of the potato, because it is largely water, with little of the more valuable food materials. The smaller this area, the more valuable the potatoes for food. It is called the internal medulla.
6. Between the internal medulla and the cambium ring a more or less irregular area, dense and starchy in appearance. It is called the external medulla. Comes second in food value. Contains less water than the internal medulla, and more starch and other food materials.
7. Occasionally a hollow will be found at the center of a potato. Large ones are more likely to be hollow than smaller ones, because the large size is partly the cause of their being hollow. On this account medium-sized potatoes are usually to be preferred to large ones.

Draw the inside view of a potato showing all of the parts.

Is the potato a stem or root?

Illustrative material: Potatoes which have produced sprouts in the light and in the dark.

Observe the following points:

Potatoes:

Color: Those exposed to the light, greenish tinge; those kept in the dark, natural dark color.

Sprouts:

Color: Those in the light, greenish; those in the dark, white.

Branches: Those in light, small green leaves; those in dark, no leaves.

Length and thickness: Those in light, shorter and thicker.

From these facts, would you conclude that there is any relation between the light and the green coloring of plants?

Explanation: The action of sunlight on living plant tissue, which naturally grows above ground, or which is constructed like parts which grow above ground, results in the production of a green coloring matter in the surface tissue. This is known as chlorophyll.

Roots do not produce chlorophyll, because they grow under ground out of the sunlight, have never had a chance to learn how, and do not need it to do their work.

Buds: In the sprouting potatoes we find that the parts which are called "eyes" have produced the sprouts. We know that on trees the branches and leaves are produced from the buds. The sprouts are branches with leaves, consequently the "eyes" must be buds. Roots do not produce buds, as a rule.

Purpose of: From the size of the potatoes, what would you suppose their natural purpose to be? (To serve as a storeroom for food material for the young plants which grow from them when they are planted.) Are they able to gather any food directly from the soil? (No.) All roots are able to gather food directly from the soil. Considering all of the points of the potato, is it a stem or a root? Why?

Stems which grow under the ground and store up food material, as the potato does, are called tubers. (A tuber is a short, thick, fleshy underground stem bearing a number of buds or "eyes," from which new plants may be grown.)

What happens to the potatoes as the sprouts increase in size? Explain. Each eye of a potato is capable of producing a plant, and will do so if planted with some of the fleshy part of the potato attached to it.

Plant some pieces of potatoes in a box of soil and watch their development.

Third Month. SOIL FERTILITY.—This may be studied under the following outline:

1. We have seen that plants must have food. What kinds of food do they need? Phosphoric acid, potash, nitrogen. Do certain crops need them in definite proportions? If one or more elements are not present in sufficient proportions needed, what must happen?

2. Plant foods must be available; i. e., they must be capable of being dissolved by the water. Why? If they cannot be dissolved by the water, one of two things must be done:

a. The soil must be treated in such a way as to make them dissolvable or

b. The elements must be supplied in available form.

3. Method of making plant food available.

4. Maintenance of fertility.

a. Uses of fertilizers.

Barnyard manure.

Commercial fertilizers.

Green manures.

b. Nitrifying the soil by leguminous plants, alfalfa, clover, etc.

5. Crop rotation. What crop rotations are practiced in your district? What are the reasons for this? Do different soils require different rotations? What different effects do crops have on soils with regard to

a. Tillage?

b. Use of soil elements?

Fourth Month. PLANT PROPAGATION.

1. *Reproduction by Flowers and Seeds.*

a. Study of the flower. Learn the parts, especially those related to fertilization. Explain pollination of corn, wheat and other farm crops. Explain use of parts of flowers. Work of insects in pollination.

b. Review the work on germination and seed-testing of last year.

2. *Grafting and Budding.*—Children can learn these processes. If possible, get an experienced person to give advice.

3. *Runners.*—Strawberries.

4. *Underground Stems.*

5. *Dividing the Clumps of Plants.*

Fifth Month. FARM ANIMALS (from the Minnesota Course of Study).—Knowledge of qualities of farm animals can be gained by cultivating the power of observation.

1. Call the attention of pupils to pictures and written descriptions of the different breeds and types of farm animals.

2. Study carefully the correct type form, and have the pupils compare the animals found on the nearest farms with these pictures and descriptions.

3. The pictures may be clipped from farm bulletins and papers. Mount them on cardboard and keep for further reference.

4. Teach the characteristics, types, and special uses of each breed of animals.

5. In this way a study should be made of the different breeds of cattle, sheep, hogs, horses and other farm animals.

DAIRYING.—Milk:

1. Composition:

- a. Fat—How to determine amount—Babcock test.
- b. Casein—Use.
- c. Sugar—Use.

2. Bacteria in Milk:

- a. Friendly and unfriendly.
- b. Pasteurization.

3. Machines for separating cream from milk.

4. The silo as a means of providing cows with succulent food in winter.

Sixth Month. FARM POULTRY.

1. *Different Classes of Chickens.*

- a. What breeds are found in the district? To what classes do they belong?
- b. Characteristics and habits of each breed.

2. *Food of Chickens.*

- a. Kinds of feed needed by chickens.
- b. Varieties of available food and food substitutions.
- c. Changes of food in different seasons.

3. *Housing Chickens.*—Children will be much interested in constructing models of houses, feed-boxes, nests, watering devices, etc. Consult government bulletins and farm papers for suggestions.

4. *Life-History of Chickens.*

- a. Time of hatching. Methods of hatching. Care of young chicks.
- b. Compare breeds as to rapidity of growth.

5. *Products of Poultry.*—Collecting and marketing eggs and poultry. Keep accurate records of the cost of feeding and returns from pens of chickens for one year. This carefully carried out

for a year will be among the most valuable lessons that the children can have for life. Few farmers know accurately what their crops cost, or where their profits and losses are.

Seventh Month. BEAUTIFYING HOUSE AND SCHOOL GROUNDS.—Study the elements of landscape gardening and carefully plan ways to improve the school grounds. This problem is more difficult in Colorado than in states where rainfall is abundant. Much may be done, however, by creating an interest and neighborhood pride. Select hardy trees and shrubs—natives preferred—and plan for future growth and beauty. Native material is often the best. Pupils will be glad to assist in collecting and planting. In many cases water may be had from neighboring fields at intervals during the summer. This is one of the most valuable fields that the teacher can undertake for the improvement of rural conditions.

Eighth Month. IRRIGATION AND DRAINAGE.—A course of study in agriculture for Colorado which did not mention irrigation would be sadly lacking; yet the subject is so much modified by local conditions in each case that it is rather difficult to give an outline which will be satisfactory. The following subjects should be investigated and taught:

1. Measurement of water.
2. Division boxes, types and methods of using.
3. Times and methods of watering different crops.
4. Seepage water. Its use and methods of avoiding it.
5. Drainage.

CIVICS

From the first day of their school life to the last day, the children learn lessons in civics, and it depends upon the teachers whether or not the knowledge gained is such as will aid in training for true citizenship. Before the pupils have been in school many weeks, they know that they have tasks to perform; that certain rights and privileges belong to them as long as they do not infringe upon the rights and privileges of others, and that they must obey the teacher.

The capable teacher will present to the childish minds clear ideas of why obedience to authority, respect for the rights of others, and prompt performance of every duty are necessities in a well-organized school. Teach idea of leadership and service through games and plays; rights and privileges of children on playgrounds.

Since the object of our schools is to train children to become intelligent, good citizens when grown up, an ideal of school citizenship should be developed.

When a pupil's desk is untidy, the floor under his seat littered with paper, bits of crayon, mud from his shoes, etc., and his desk attracts flies on account of crumbs from his luncheon, he should be told that, as a school citizen, it is his duty to make clean and tidy his desk and floor space, because said desk and floor space, when in such a condition, are a nuisance to the school community.

When a pupil insists on whispering, the teacher may point out to him that, by disturbing the peace of the school community and preventing the citizens from doing their work (getting their lessons), he is on a par with the man who walks along the village street annoying the people by shouting or by trying to draw other pedestrians into quarrels with him. Hence the rights of the other pupils demand that the proper authority, the teacher, compel him to cease being disorderly, just as the town officer forces the noisy man to be quiet, or else takes him into custody.

The idea of teaching children to be good citizens should be carried into the games on the playground.

Good Citizens' Clubs may be organized as a means of teaching children to elect officers, conduct meetings, pass judgment upon the conduct of members disobeying the laws of the club, get up entertainments under the auspices of the club, and invite the parents to be present.

If the teacher and the children once get the true spirit of citizenship, the government of the school is an easy matter.

In the fifth and sixth grades the child should realize that each political unit—precinct, city, county, state and nation—is a group of people organized in such a manner as to do for the members of each group that kind of work which all need to have done.

SEVENTH YEAR

In nine-month schools, begin the text-book early in the eighth month; in seven-month schools, early in the sixth month.

Before taking up the formal text, by correlation with history and geography, develop the following: meaning and necessity of laws; necessity of learning obedience to authority, as every person is under some kind of authority all his life; government of self is the first requisite to governing others.

Eighth Month. Use current political events constantly.

KINDS OF GOVERNMENT.—Patriarchal or parental, monarchical, aristocratic, republican.

PARTS OF GOVERNMENT.—Legislative, executive, judicial. In which kinds of government are these three in one?

SCHOOL DISTRICT.—Directors elected when and by whom? Term of office, powers, duties, compensation. Powers and duties of teachers. How expenses of school are paid. General fund, special fund, and uses to which each may be applied. Compare family government and school government.

COUNTY GOVERNMENT.—Map your township, locating your home and your schoolhouse. How many townships in your county? What is the class of your county?

Make a study of the work done by the storekeeper, the baker, the policeman, the fireman, the street railway.

How mail is carried. The telegraph, the telephone.

Ninth Month. Have pupils know the names of their county officers. Name duties of these officers, length of term, salaries, manner of election, and duties.

Precincts, justices' courts, notaries public. Describe a trial in a justice's court, and explain the jurisdiction of said court.

EIGHTH YEAR

(Two or three recitations per week are sufficient, if the study be kept up throughout the term; and, if not, the first four months, with a recitation each day, will complete the work.)

First Month. **TOWN AND CITY GOVERNMENT.**—Officers, courts, charters, different classes of cities, ordinances.

STATE GOVERNMENT.—Definition of state, state institution, citizen, elector, constitution.

Qualification of senators and representatives, terms, salaries, privileges, presiding officers. Special powers of House and of Senate.

Sessions of legislature held when and where? Length of time allowed to hold. Names of senator and representative from your district.

Second Month. EXECUTIVE OFFICERS.—Duties, length of term, salaries, names.

Veto power, pardoning power. Necessity of placing officers under bond. Officers appointed by the governor.

State boards and their duties.

State inspectors.

COLORADO NATIONAL GUARD.—How supported? Who is eligible to membership? Duties of members.

Third Month. DECLARATION OF INDEPENDENCE.

ARTICLES OF CONFEDERATION.—Weak points, showing necessity for making a constitution creating the three departments of government.

Preamble to the constitution. Explain meaning fully. How constitution may be amended.

Fourth Month. BILL OF RIGHTS.—The constitution a compromise between the large states and the small ones.

LEGISLATIVE DEPARTMENT.—Qualifications of senators and representatives. Manner of election, length of term, special privileges; how vacancies in either house are filled; number of representatives, how determined; powers and forbidden powers; special powers of the Senate; special powers of the House.

Fifth Month. OFFICERS OF HOUSE AND SENATE.—Appointment of committees; power of speaker; speaker's right to vote; president of the Senate and his right to vote.

How a bill becomes a law.

Length of sessions.

Impeachment.

If the state legislature is in session, have children know names and something of the life and work of the governor, lieutenant governor, speaker of the house, members from their own section of the county. Create such interest that the part of the newspaper giving the workings of the legislature will be of interest to the pupils. Teach the great opportunity that members of the legislature have for helping their state. Lead them to see that

it is each boy's and girl's duty to vote when he is old enough, and that one reason why they are studying civics is to prepare them to vote intelligently. Instill the fact that it is cowardly not to vote.

Eighth Month. JUDICIAL DEPARTMENT.—Supreme Court, how constituted; its jurisdiction; session held when and where; chief justice, associate justices; salary and tenure of office of judges. Circuit court, district court, court of appeals, court of claims, territorial courts. Court officers. Appeals from lower to higher courts.

Ninth Month. Comparison of our government with that of foreign countries. General review and careful comparison of moral, social, political and industrial rights.

TEXT AND REFERENCE BOOKS

Hill's "Lessons for Junior Citizens;" Ginn & Co.

Dunn's "The Community and the Citizen;" Heath & Co.

Forman's "Civil Government;" American Book Company.

Hatch's "Civil Government of Colorado;" Herricks Book Company.

COOKING

Cooking in the rural or village school, where there is no equipment and but little time for the work, should be confined to instruction and practice in the ordinary line of cooking, and to such work as can be carried out successfully at the homes of the pupils with the provisions and equipment which are found in the ordinary home.

Each locality, with its individual conditions, will call for modification of any specific set of lessons. It is not necessary that the teacher should know a great deal about cooking in order to interest her pupils. If she has a desire to learn and a desire to teach, she can be successful.

Each girl on leaving the eighth grade should know how to make good, wholesome bread; to cook vegetables, meats and cereals so as to get the largest amount of food value from each; to make coffee and tea; to take care of milk; to make butter; to preserve and take care of, for winter use, fruit grown in her particular section of the state.

Great interest can be added to the work by setting apart certain afternoons in which the girls bring to school samples of cooking, and invite their parents and friends. Prizes could be offered for the best loaf of bread or cake, or the best butter. An afternoon tea could be served by the girls. On this same afternoon samples of the work in sewing could be shown; also the work done by the boys in manual training.

In the sewing class have the girls make a simple uniform, consisting of cap, apron and sleevelets, to be worn when cooking. Aprons should be made as long as the dress, with a bib. Sleevelets should come above the elbow.

THINGS TO BE REMEMBERED

Have a place for everything, and keep everything in its place.

Always wash your hands and clean your nails before beginning the work of cooking.

One of the most important things to learn is that "we must be clean."

It is best to wear for kitchen work a plain cotton dress, short enough to clear the floor. It is a good plan to have a hand towel buttoned on the apron band while at work in the kitchen.

Economize in the use of materials and fuel.

Keep all cooking utensils clean.

The following receipts will be found helpful, and should be supplemented by other good receipts procured in the community:

TABLE OF MEASUREMENTS

3 teaspoonfuls equal	1 tablespoon
16 tablespoonfuls equal	1 cup
4 cups equal	1 quart

SCHOOL LUNCHES

Teach the putting-up of lunches in a neat and attractive form. Teach that the cost of a neatly prepared lunch is no greater than the unattractive and poorly prepared one so often brought to school.

The pupils should realize the nutritive value of fruits cooked and uncooked. Bread is usually in every lunch, but it is not always as tempting as it might be. It should be cut in thin slices and evenly buttered. Sandwiches of thin slices of bread, filled with boiled eggs, chopped or sliced meat, lettuce or jam, or cheese, are an addition.

FRUITS AND CEREALS

Table for Cooking Cereals

Kind	Quantity	Water	Time
Steam cooked and rolled			
oats	1 cup	1 $\frac{3}{4}$ cup	20 minutes
Quaker rolled oats.....	1 cup	1 $\frac{3}{4}$ cup	20 minutes
Rolled oats.....	1 cup	1 $\frac{3}{4}$ cup	20 minutes
Steam-cooked and rolled-			
wheat	1 cup	1 $\frac{1}{4}$ cup	30 minutes
Rice (steamed)	1 cup	2 $\frac{1}{4}$ -2 $\frac{3}{4}$ cups	45-60 minutes
Indian meal.....	1 cup	3 $\frac{1}{2}$ cups	3 hours
Wheatena	1 cup	3 $\frac{3}{4}$ cups	30 minutes
Hominy (fine).....	1 cup	4 cups	1 hour

The minimum time of cooking is given in this table. Cereals are much improved by long cooking in a double boiler. Where a fire is kept at night it is an advantage to leave the cereals on the back of the stove all night. See that the double boiler contains the necessary amount of water.

Oatmeal Mush with Apples

Core apples, leaving large cavities; pare and cook until soft in syrup made by boiling sugar and water together; fill cavities with oatmeal mush. Serve with sugar and cream.

Dates stoned and cut in pieces, or bananas sliced, may be served with breakfast foods.

A double boiler may be made at home by setting one kettle within another. Partly fill the outer kettle with boiling water. A few nails in the outer kettle prevents the inner kettle resting directly on the bottom.

BEVERAGES

Tea

Scald teapot, put in tea, and add boiling water; let stand 3 to 5 minutes. One teaspoonful of tea for every three persons.

Coffee

1 cup of coffee	$\frac{1}{2}$ cup of cold water
Part of white of egg and shell	6 cups of boiling water

Scald the coffee-pot; put in ground coffee, egg, and cold water; mix thoroughly with fork; add boiling water; bring gradually to a boil; settle with 2 tablespoonfuls of cold water. One tablespoonful of coffee to cup of water and 1 for the pot. Putting coffee in cheese-cloth bag insures clear coffee; add small part of egg and shell.

Cocoa

1 teaspoonful of cocoa	$\frac{1}{2}$ cup of boiling water
1 teaspoonful of sugar	$\frac{1}{2}$ cup of scalded milk

Few grains of salt and drop of vanilla

Mix cocoa and sugar; add gradually, stirring, to boiling liquid; boil 1 minute; flavor; beat with Dover egg-beater 2 minutes, preventing scum.

Chocolate

$1\frac{1}{2}$ squares of Baker's chocolate	3 cups of milk
1 tablespoonfuls of sugar	1 cup of boiling water

Few grains of salt

Scald milk; melt chocolate in small saucepan placed over hot water; add sugar, salt and gradually boiling water; when smooth, boil 1 minute; add to scalded milk, and serve with whipped cream.

WHITE BREAD

Quick Process

$\frac{1}{2}$ cup of hot water	1 teaspoonful of shortening
$\frac{1}{2}$ cup of scalded milk	$\frac{1}{2}$ yeast-cake dissolved in about
$\frac{1}{2}$ teaspoonful of salt	$\frac{1}{4}$ of cup luke-warm water
1 teaspoonful of sugar	3 cups of bread flour

Put salt, sugar and shortening into a large bowl; pour on hot liquid. When the mixture is lukewarm, add the dissolved yeast. Stir in flour to make a batter; beat well; then add more flour, a little at a time, to make a stiff dough, mixing with a knife. Turn it upon a floured board; knead until it is smooth, elastic and does not stick to the board. Put into a greased bowl, cover closely, and let it stand in a warm place until double in bulk. This will take between 2 and 3 hours. Knead again until fine-grained, shape into a loaf or biscuits, and place in a warm, greased pan. Cover and put in a warm place. When double in bulk, bake in a hot oven. Bake a loaf 50 to 60 minutes; biscuits, 15 to 20 minutes.

Slow Process

Use one-half as much yeast. Allow the bread to rise over night.

Knead the second time in the morning. Proceed the same as in the quick bread.

CORN BREAD

2 cups of meal	$\frac{1}{2}$ teaspoonful of soda
1 cup of flour	1 egg
1 cup of sour milk	1 tablespoonful of melted butter,
$\frac{3}{4}$ cup of boiling water	lard or drippings
1 teaspoonful of salt	

Sift meal, and scald with boiling water. Allow to cool. Sift flour, salt and soda together, and add to cornmeal and egg slightly beaten. Add milk, and, lastly, melted butter. Pour into hot, greased pan. Bake in a moderate oven 20 minutes, or until brown.

EGGS

Eggs form another complete food, like milk, but are so highly concentrated that it is necessary to use them with food rich in starch (bread, potatoes, etc.).

Selecting and Testing Eggs

- a. Fresh eggs should have a thick, rough shell and feel heavy.
- b. Hold egg between your eye and the light. If clear, it is fresh.
- c. Drop the egg into cold water. If it sinks, it is fresh.
- d. Shake the egg, holding it near your ear. If the contents rattle, it is somewhat stale.

Poached Eggs

Prepare a slice of buttered toast for each egg, and keep it hot. Have ready a shallow pan containing enough boiling, salted water to cover the eggs, allowing one teaspoonful of salt to one pint of water. Break egg into saucer, and slip it carefully into the water. Cook until the white is firm, and a film forms over the top of the yolk. Pour water over the yolk with a spoon, if necessary. Remove eggs from water with a skimmer, drain, trim off rough edges, and place each egg on a slice of toast. Add salt, pepper and butter to taste. Muffin rings or egg-poachers are often used to keep eggs in shape.

Scrambled Eggs

5 eggs	1/2 teaspoonful of salt
1/2 cup of milk	1/8 teaspoonful pepper
2 tablespoonfuls of butter	

Beat eggs quickly; add salt, pepper and milk. Heat pan, put in butter, and when melted turn in mixture. Stir constantly until mixture is fluffy.

Stuffed Eggs

6 eggs	1/8 teaspoonful of pepper
1 teaspoonful of butter	1/4 teaspoonful of salt and
1/4 teaspoonful of mustard	a few drops of vinegar

Cook 6 eggs 30 minutes. Remove the shell and cut lengthwise. Remove the yolks; mash the yolks. Add butter, salt, pepper and mustard. When smooth, add a few drops of vinegar. Fill the whites with the mixture. Smooth the top. Arrange each half on a bed of fine parsley or lettuce. If liked, add half the quantity of potted or deviled ham or tongue.

Plain Omelet

4 eggs	4 tablespoonfuls of milk or
1/2 teaspoonful of salt	water
1/8 teaspoonful of pepper	1 tablespoonful of butter

Separate yolks from whites. Beat the yolks until thick; add salt, pepper and milk. Beat the whites until dry; cut and fold them into first mixture. Butter sides and bottom of a hot omelet pan; turn in the mixture; spread evenly. Cook slowly until well puffed up and a delicate brown underneath; place the pan on the grate of the oven to cook the top. The omelet is cooked if firm and dry when touched by the finger. Fold over, turn onto a hot

platter, and serve immediately. If desired, pour one cup thin white sauce around the omelet.

EGGS AND MILK

Cup Custard

1 quart of scalded milk 1/2 cup of sugar
 4 to 6 eggs 1/4 teaspoonful of salt
 Nutmeg

Mix eggs slightly, and stir in the sugar and salt, then slowly the hot milk. When the sugar has dissolved, pour into cups (about 6), and grate a little nutmeg over each custard. Set the cups in a pan of hot water, and bake in a moderate oven till a pointed knife inserted in custard comes out clean. Do not let the water in the pan boil. Serve plain or with caramel sauce.

Soft Custard

2 cups of milk 1/4 cup of sugar
 3 egg yolks 1/8 teaspoonful of salt
 1/2 teaspoonful of vanilla

Heat milk in a double boiler. Mix egg yolks with sugar and salt. Pour hot milk over this mixture till the egg is all removed from the side of the bowl. Return to double boiler, and cook until custard coats the spoon, stirring constantly. Strain, and, when cool, flavor. If the custard curdles, pour into a cold dish and beat vigorously with a Dover egg-beater. If desired, the whites of eggs may be beaten stiff, poached on hot water, and served on top of custard.

Tapioca Cream

4 tablespoonfuls of pearl tapioca, or 2 eggs
 2 tablespoonfuls of minute tapioca 1/3 cup of sugar
 1 pint of milk 1/4 teaspoonful of salt
 1 teaspoonful of vanilla

Soak tapioca in enough water to cover, in double boiler. When the water is absorbed, add the milk and cook until transparent. Beat sugar and salt into the yolks of eggs, and pour the hot tapioca over the mixture, stirring well. Return to double boiler quickly, and cook 2 or 3 minutes. Remove from fire, add vanilla, and fold in the stiffly beaten whites of eggs. Serve cold.

DUMPLINGS

2 cups of flour 3/4 cup of milk
 4 teaspoonfuls of baking powder 1/2 teaspoonful of salt
 2 teaspoonfuls of butter

Mix and sift dry ingredients. Work in butter with tips of fingers, add milk gradually, using a knife for mixing. Toss on a floured board, pat, and roll out to one-half inch in thickness. Shape with biscuit cutter, first dipped in flour. Place closely together in a buttered steamer, put over a kettle of boiling water, cover closely, and steam 12 minutes. A perforated tin pie plate may be used in place of a steamer.

CAKES AND PUDDINGS

The work in this should be confined to the simple white and chocolate cakes, bread puddings, and other simple dishes.

Pastry

To be healthful, pastry must be carefully prepared according to specific directions furnished by the teacher or other persons qualified to give directions. The heavy, underdone variety of pastry should be abandoned.

Pie Crust

1 1/2 cups of flour	1/2 cup of lard
1/2 teaspoonful of salt	Cold water to make stiff dough

Mix flour, salt and lard in with tips of fingers. Moisten sufficiently to roll out. Leave crust a little larger than pie-tin to allow for shrinkage. Perforate top crust to allow escape of steam. Bake in quick oven, unless filling demands slow cooking.

PRESERVATION OF FOOD

Including canning, pickling and preserving vegetables and fruits common in the home. Great care should be taken to thoroughly scald the vegetables or fruit, to scald the jar or can, to avoid using old rubbers which will not prevent the escape of air, and to invert the can over night, that any air remaining in the can may be detected and its contents reheated.

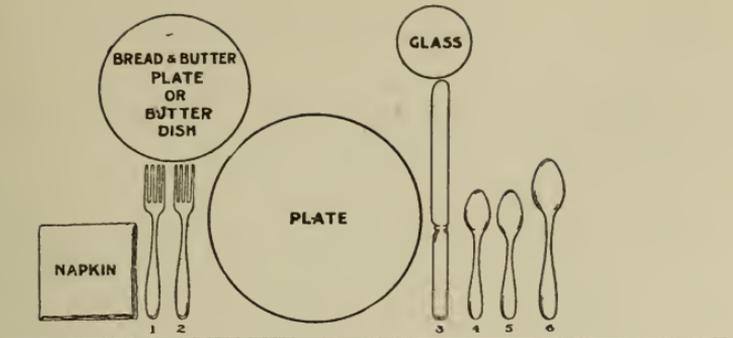
INSTRUCTION IN THE ART OF TABLE-SETTING

Emphasize cleanliness and neatness of the cook, kitchen, table linen and dishes.

Silver

- | | |
|------------------|-------------------|
| 1. Salad fork | 4. Dessert spoon. |
| 2. Dinner fork. | 5. Coffee spoon. |
| 3. Dinner knife. | 6. Soup spoon. |

In using silver, use from the outside.



Edge of table.

VEGETABLES

(1) Wash thoroughly. (2) Pare, peel or scrape, if skins must be removed. (3) Soak in cold water until ready to cook (to keep crisp or to freshen if wilted, or to prevent discoloration). (4) Cook in freshly boiling (water that has just reached boiling point), salted water until tender. (5) Drain off the water; shake over fire to dry off water that may not have drained off. Serve hot with seasonings.

To 1 cup of cooked vegetables, add 2 teaspoonfuls of butter, $\frac{1}{2}$ teaspoon of salt and $\frac{1}{16}$ teaspoon of pepper. Vegetables may be reheated over hot water in a double boiler.

NOTES: Allow 1 teaspoon of salt to 1 quart of water. Use enough boiling water to cover vegetables. Salt may be added when vegetables are put in, except in the case of delicate green vegetables, as peas, spinach, etc., when it should not be added until the vegetables are nearly done.

Vegetables are valuable chiefly for the pure water and mineral matter which they contain.

Time Table for Cooking Vegetables

Potatoes	.....25-30 m.	Onions	.....45-60 m.
Carrots	.....35-45 m.	Cabbage	.....46-60 m.
Turnips	..... 45 m.	Cauliflower	.....20-30 m.
Beets (young)	..... 45 m.	Asparagus	.....20-40 m.
Beets (old)	.....3-4 hrs.	Spinach	.....30-45 m.
Tomatoes	.....1-4 hrs.	Celery	.....20-30 m.
Parsnips	.....35-40 m.	Green peas	.....30-45 m.
String beans	.....1-3 hrs.	Lima beans	.....1 hr. or more
Green corn	.....12-20 m.	Rice	.....20-45 m.

Pare potatoes thin. The nutritive value lies close to the skin.

Cabbage cut in quarters, dropped into boiling water, and let to boil hard 20 minutes uncovered, will be mealy and more digestible than if boiled longer.

Corn on the cob dropped into boiling water, and let to boil hard 10 minutes, will not discolor or lose flavor.

SOUPS

Furnish receipts for the preparation of vegetable soups, including corn, peas, beans, lentils, celery, etc., with the addition of white sauce and seasonings.

Soups without stocks have for their basis white sauces, the smoothness of the soup depending upon the white sauce.

I. Plain White Sauce

- 1 cup of milk
- 1 tablespoonful of butter
- 1 tablespoonful of flour

II. Medium White Sauce

- 1 cup of milk
- 2 tablespoonfuls of butter
- 2 tablespoonfuls of flour

III. Thick White Sauce

- 1 cup of milk
- 3 tablespoonfuls of butter
- 3 tablespoonfuls of flour

Rub flour and butter to smooth paste. Beat gradually into scalding milk. Season to taste.

MEATS

A brief discussion of meats and their relative values as food.

Beef is the most nutritious meat; mutton ranks next; pork is nutritious, but difficult to digest; lamb is tender, but not as valuable as mutton; veal is the least nutritious.

This should include the question of value of long and slow cooking of inexpensive cuts of meats; for example, soup bones and pot roasts. Discuss the best methods of boiling, roasting, and frying, with a comparison of the healthfulness of the meat as prepared by each method.

GRAVIES

Learn the best ways of making gravies in connection with different meats.

For soups and stews, cook meat in a large amount of cold water. For roasts, sear by putting in hot water. Cook in a very

small amount of water. Season thoroughly. Basting once or twice with salt water improves roast.

SUGAR

Sugar is made for common use from sugar cane, sugar beets and maple sap. Honey is the purest natural form of sugar.

Glucose, or grape sugar, is found in honey, fresh fruits, and on the skins of dried fruits, such as raisins, dates, etc. It is also made for commercial use from the starch of corn.

The sugar of milk is called lactose.

Sugar made from sugar cane and sugar beets is the kind most commonly used. The products of sugar cane are molasses, brown sugar, granulated, cut-loaf, powdered and confectioners' sugar.

Only white sugar is made from beets.

Sugar is very easily digested, as it dissolves so rapidly. It is a very necessary food when taken in small quantities. It produces heat and energy in the body; children, being more active than grown people, naturally crave more sweets.

Evil Effects of Too Much Sugar

If sugar in any form is left on the teeth, it will ferment, and cause them to decay.

If too much is eaten at one time, part of it will ferment in the stomach and interfere with the digestion of other foods.

Fudge

2 cups of sugar	1 teaspoonful of vanilla
1 cup of milk	$\frac{1}{4}$ of 2-oz. cake of bitter chocolate, or
2 tablespoonfuls of butter	4 tablespoonfuls of cocoa

Boil sugar, chocolate (or cocoa) and milk together till it reaches the soft ball stage. Remove from fire, and add butter and flavoring. Beat till creamy and thickened. Pour quickly into a greased tin. When firm, cut in squares.

Penoche

2 cups of brown sugar	1 teaspoonful of vanilla
$\frac{3}{4}$ cup of milk	1 cup of chopped nuts
2 tablespoonfuls of butter	

Boil sugar and milk to the soft ball stage. Remove from the fire; add butter, flavoring and nuts. Beat till creamy and thickened; pour into a greased tin. When firm, cut into squares.

Peanut Brittle

2 cups of sugar	$\frac{1}{2}$ to 1 cup of shelled peanuts
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Break peanuts in pieces, or chop them. Line a greased pan with peanuts. Put sugar in saucepan, and heat until it becomes a thin, lightbrown syrup, stirring constantly. Pour over peanuts and mark in squares. When cool, break in pieces.

Puffed wheat or puffed rice may be used in place of the nuts.

Molasses Candy

2 cups of molasses	1 tablespoonful of vinegar
1 cup of sugar	1 tablespoonful of butter

Boil till it is brittle when tried in cold water. Pour in a buttered pan. When cool, pull until light colored.

Cooked Fondant

2 cups of sugar (fine granulated)
$\frac{2}{3}$ cup of cold water
$\frac{1}{8}$ teaspoonful cream of tartar

Boil all together until it makes a soft ball when tried in cold water. Turn out on large platter, and when cool, work it till creamy. Divide into portions and flavor to taste. Shape into chocolate creams, cream dates, nut creams and bonbons.

RULES FOR SERVING

Cold food should be served on cold dishes, hot food on hot dishes.

When passing a dish, hold it so that the thumb will not rest upon the upper surface.

In passing dishes from which a person is to help himself, pass always to the left side, so that the food may be taken with the right hand.

In passing individual dishes, such as coffee, etc., set them down carefully from the right side.

When the dishes are being served by a person at the table, the waitress should stand to the left, hold the tray low and near the table. Take on the tray one plate at a time, and place before the person for whom it is intended, setting it down from the right side.

When one course is finished, take the tray in the left hand, stand on the left side of the person, and remove with the right hand the soiled dishes, never piling them on top of each other.

Soiled dishes should be first removed, then food, then clean dishes, then crumbs.

Fill the glasses before every course.

Never fill glasses or cups more than three-fourths full.

Before the dessert is served, remove crumbs from the cloth either with a brush, crumb-knife or napkin.

Do not let the table become disorderly during the meal.

The hostess should serve the soup, salad, dessert, coffee, and, at a family dinner, the vegetables and entrees.

The host serves the fish and meat.

TO CLEAN ROOM AND TABLE AFTER A MEAL

Brush up the crumbs from the floor. Arrange the chairs in their places. Collect and remove knives, forks and spoons. Empty and remove cups.

Never set any food away on dishes used for serving.

Pile all dishes of one kind together.

Brush the crumbs from the cloth and fold it carefully in the creases.

If the napkins are to be used again, place them, neatly folded, in their individual rings.

"The National System of Industrial Education," Plano, Illinois, gives a very valuable and definite course in cooking.

DRAWING

This outline is intended merely to give a few suggestions concerning the character of the work that may be attempted by elementary schools. It must be remembered that in elementary schools, especially in rural schools, the chief aim of drawing should be to cultivate taste and to develop power of observation. To this end, all work should be of the simplest character, but correct in principle.

FIRST, SECOND AND THIRD GRADES

1. Pleasing combinations of colored papers; forms cut from paper of one color and arranged as designs on paper of another color.

Colors and forms may be appropriate to the season; as, Thanksgiving, Christmas, Washington's Birthday, etc.

2. The construction of very simple articles, such as blotter covers, pen-wipers and boxes; Christmas gifts consisting of calendar pads, with appropriate pictures or verses, mounted on soft colored paper.

3. Model in clay: large familiar fruits and vegetables.

4. Draw the same in color without pencil outline.

5. Draw the same with pencil in outline.

6. Draw toys, such as wagons, trains, animals, etc.

7. Draw on blackboard with free arm movement, vertical, horizontal and oblique lines; also circles, ovals and ellipses.

8. Illustrate games, parades, the circus, kite-flying and daily experiences.

FOURTH, FIFTH AND SIXTH GRADES

1. Draw vegetables, and simple sprays of leaves and flowers, in outline, accenting the near edges.

Draw butterflies and birds, making from them color-notes to be used in design.

2. From these drawings select flowers and leaves from which simple, conventional units of design can be easily evolved. Apply these units as designs for notebook covers, doilies, and similar objects. Make working drawings of envelopes, boxes, card-receivers. Construct these articles, using colored paper where possible, and decorate with the units described above.

3. Model in clay: familiar fruits, vegetables and birds.

MAGAZINE COVERS

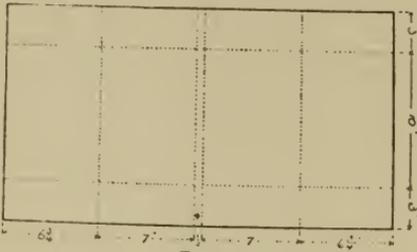


Fig. 1.

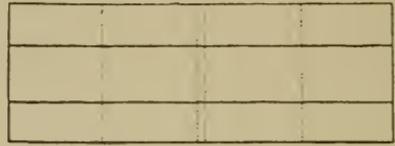


Fig. 2.

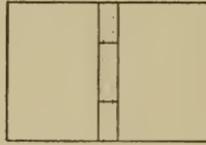


Fig. 3.



Fig. 4.

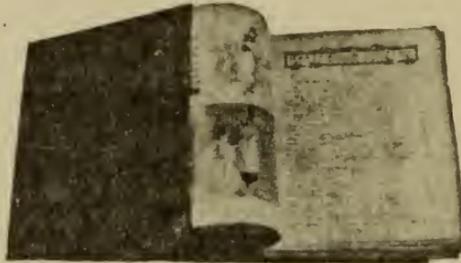


Fig. 5.



Fig. 6.

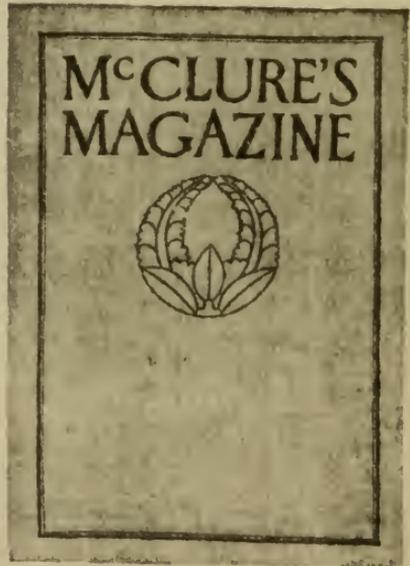
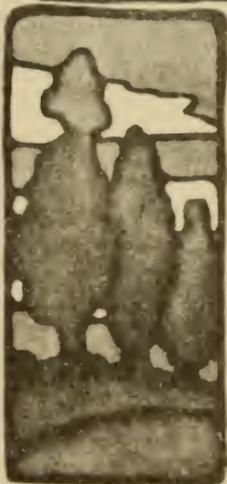


Fig. 7.



4. Draw in color, without pencil outline, flowers, fruits and vegetables.

5. Draw familiar articles of any kind, such as kitchen utensils, books, lunch-boxes, caps and hats, in outline first, then in simple light and shade.

6. Illustrate stories, tales from history, and daily experiences.

7. Free-hand lettering.

Present a simple Roman alphabet, having all strokes of the same thickness. Make pleasing arrangements of lettering for Christmas cards, program covers, notebook covers, etc.

SEVENTH AND EIGHTH GRADES

1. Draw fruits, vegetables, and sprays of leaves and flowers, in pencil outline. Make color studies of the same.

2. Use these forms as suggestions for units of design. Make designs for stenciling table runners, mats and borders for curtains. Pay special attention to designs intended to fit definite spaces.

3. Draw groups including such objects as vases, bowls, jugs, boxes and books, in light and shade. Teach as much perspective as is necessary for the correct drawing of these studies. Avoid scientific perspective.

Pencil drawing from life may be attempted.

4. Draw plan of schoolroom; scale, $1/4$ in. = 1 ft.

5. If illustrative drawing be attempted in these grades, attention should be given to composition as well as to free expression.

GENERAL SUGGESTIONS FOR ALL GRADES

1. Study as much as possible the printed reproductions of masterpieces in painting, sculpture and architecture. Bring to the attention of pupils the excellent current magazine articles on these subjects. Lead the pupils to understand the artist's point of view, the principles of composition, beauty of line and mass. Teach them to find beautiful subjects for pictures in their own neighborhood. Encourage them to make very simple sketches in color.

2. Suit the character of the work to the season.

3. Attempt only that which can be accomplished with success.

4. Posters should be of the simplest character, such as beautiful arrangements of lettering on soft colored paper, with no decoration or illustration.

5. Remember that training in taste is the purpose; nothing can be gained by aiming to produce showy or startling effects.

MATERIALS

Loose sheets of good, white drawing paper 9 x 12.

Box of water-colors (Milton Bradley or other standard make).

Colored crayon (such as Milton Bradley's Manual Arts Crayon).

Dixon's S. M. pencil.

An assortment of good colored papers for primary work.

Ten pounds of clay. (Keep moist in wooden box.)

COLOR

Teach primary, secondary, tertiary and complementary colors by means of color scale.

Teach the laying of a flat wash.

Work much with secondary and tertiary colors, and their tints and shades.

Avoid the harsh effects obtained by combining primary and complementary colors.

LIGHT AND SHADE

Establish first the lightest and the darkest tones; then find three tones between these extremes. Draw five $\frac{1}{2}$ -inch squares, placing these tones in the squares to form a scale of values. Make constant use of this scale.

Too much care cannot be given to the proper handling of pencil and brush.

REFERENCE BOOKS

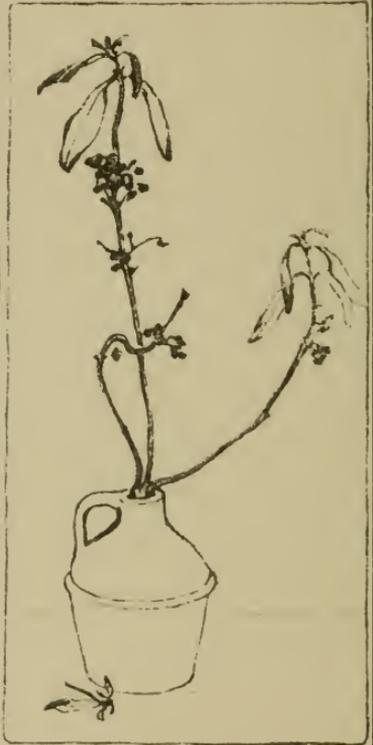
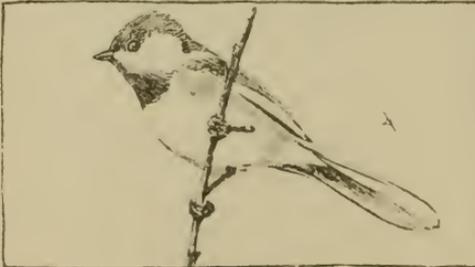
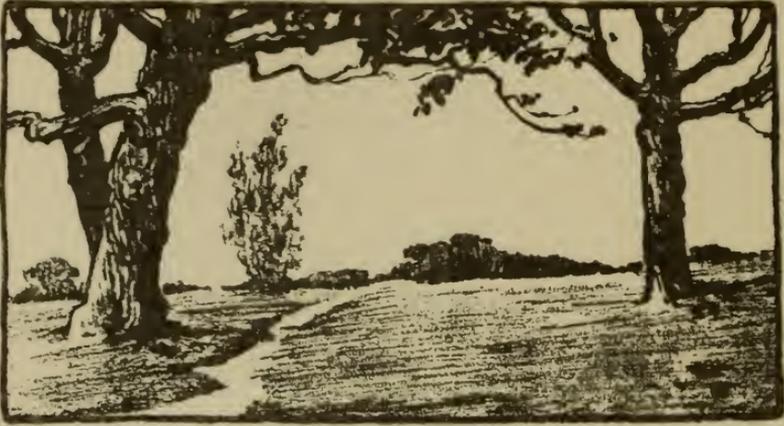
"Applied Arts Drawing Books," Atkinson, Mentzer & Grover.

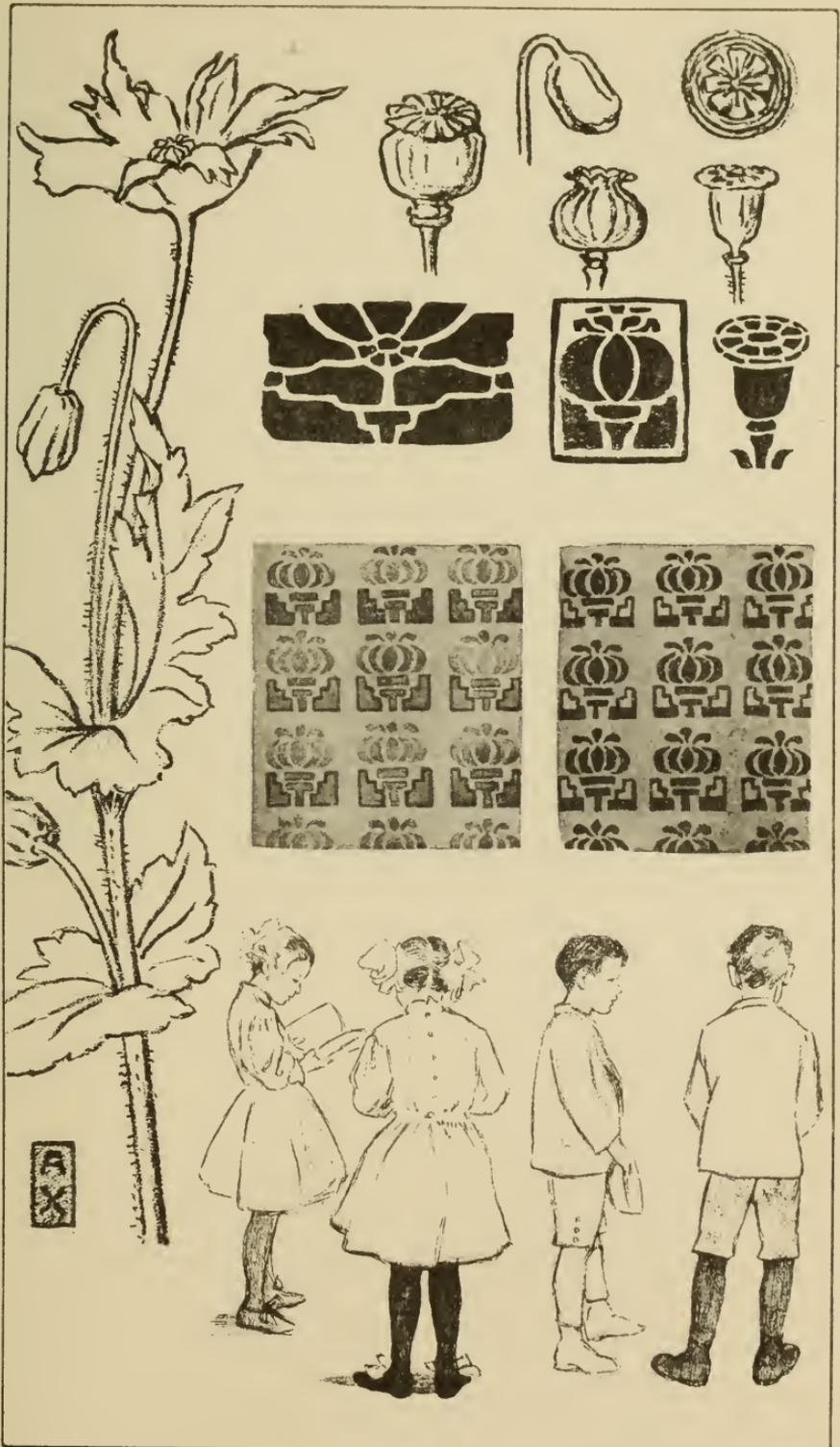
"Text-books of Art Education," I, II, III, IV, V, VI, VII, The Prang Educational Company.

"The Manual Arts for Elementary Schools," The Prang Company.

"Light and Shade" and "Color Study," by A. K. Cross.

"Pictures by the Great Masters, with Literature;" Horace K. Turner.





Courtesy of ATKINSON-MENTZER & GROVER.

GEOGRAPHY

Having in mind this thought expressed by McMurray, "The study of the earth *as related to man* is geography," this outline has been prepared.

The study of geography should give the child a true appreciation of his position in life as related to his surroundings, and acquaint him with the interdependence of mankind. Emphasize the relation between themselves and the great world outside.

Magazines and books of travel furnish excellent supplementary material to the text-book and keep the class in close touch with the people of the world. *The Natural Geographic Magazine* is valuable for its excellent illustrative matter. *The World's Work* and *The World To-Day* are magazines containing an abundance of excellent material. Good pictures can be procured at little cost. A scrapbook, made up of pictures clipped from magazines and postcards, adds much to the interest of the subject. A school museum is possible for any school. For instance, when the class is studying cotton, let some pupil get in correspondence with a school in the South. The southern boy or girl would be proud to send his northern cousin samples of cotton, from the raw to the finished state, in exchange for rocks containing certain minerals so easily found in Colorado. Children never lose their interest in the Philippines after receiving a letter from some dark-skinned child. Everything connected with the islands has an added interest to them, and they are eager to learn of the home life of their new friend. The collection thus acquired should be educative, and not a mere collection of things of no geographic interest.

FIRST AND SECOND YEARS

In the first and second grades work in geography is carried on entirely by stories and short excursions. The child may be led to become intensely interested in the boys and girls of other countries, their games, what these far-away children wear and eat, etc. Tell the stories of the "Seven Little Sisters" and "Each and All" to these grades. Let children personate each of the seven little sisters and tell what she eats, what she wears, the home she lives in, and the animals and plants she sees. Create desire for a knowledge of the country surrounding the child's home by going on short excursions.

THIRD YEAR

By the beginning of the third year the child has learned to read a little, although not usually well enough to be independent. For this reason the work of the third year is chiefly oral. It is devoted to what is ordinarily called "home geography."

Geography work in this grade may be done in the language class in schools where the program is crowded. Geographical and historical stories make the best possible basis for language work.

First Month. LOCATION AND DIRECTION.—Beginning in September with the autumnal equinox, a series of bi-weekly or monthly observations should be started and carried on throughout the year, with the purpose of determining:

1. Time of sunrise and sunset, with the consequent varying lengths of day and night.
2. Direction in which the sun rises, its path through the sky and direction in which it sets.
3. Noon attitude of the sun, or angle of the sun's rays as shown by the length of shadow cast by a vertical post.

A record should be kept of these observations, especial care being taken to make accurate observation on the vernal and autumnal equinoxes (March 21 and September 22), and the winter and summer solstices (December 21 and June 21).

In connection with, and while making, these observations, the directions north, south, east and west should be taught. Avoid the expressions "up" for north and "down" for south. Do not teach that east is where the sun rises and west is where it sets. As the observations proceed, the pupil will see that the sun rises in the east and sets in the west only at the time of the equinoxes. Let him think of north as the direction in which the shadow of a vertical pole falls at noon. Toward a point directly under the pole star may also be taught as north in connection with the observation on the stars.

Second Month. FOOD-GETTING, CLOTHING, STUDY OF BUILDING MATERIALS.—Imagine journeys from the home of the pupil to various parts of the county and state. Draw attention to the action of water upon soil, rocks, valley, etc. Make a map of the schoolroom; study land and water forms near the school. The tools on the farms: what they are used for; what they are made of; how brought to us. The things raised on the farms: what they are useful for; how used; where they are sold; how they are taken to the people who need them; what they give in ex-

change for them; where wheat is changed to flour; corn into meal; the hogs and cattle and sheep into pork and beef and mutton; the foods made from flour; the forms of meat foods; how preserved, etc.

Third Month. LEADING INDUSTRIES OF THE LOCALITY.—Their location and importance. The sources of raw material, and some stories concerning the collecting and handling of this raw material. The study of the manufacturing of this raw material. Local industries should be studied and, if possible, visited.

The animals found on the farms: for what are they useful; what they eat; how they are clothed; how protected in winter; things they must have to keep them well and useful. The little wild animals found on the farms: how they live; what harm they do; in what ways they are useful; the homes they make for themselves; how they are protected from the cold; how they protect themselves from their enemies; where they go in the winter.

Fourth Month. MEANS AND METHODS OF TRANSPORTATION.—Trade, stories of the methods of transportation in other countries.

Fifth Month. SEASONS OF THE YEAR.—What the winter brings; what the plants do in the winter; where the birds go; how they find their food; what the cold does to the water of the springs, streams and ponds; how the ice is useful; why boys and girls like the winter; how the snow keeps things warm; what happens to the snow and ice when the spring comes; where the water goes; what it carries with it; how some soaks into the ground and what becomes of it; how some passes into the air and what becomes of it; etc. Imaginary journeys to other lands always awaken interest. Children enjoy finding pictures to illustrate these stories.

The Remainder of the Year should be devoted to the study of the "world as a whole," as to its larger divisions and in its simple relations. Here both the text-book and the globe are of service. Through them the children learn:

1. That the land upon which they live stretches away for many miles in every direction, and that it is surrounded by water.

2. That the earth itself is round like a ball or an orange, and that people may travel around it. (Imaginary journeys around the earth may be helpful in teaching this.)

3. That the earth is so large that it takes a long time to travel around it, even when fast trains and steamers are used.

4. That there are a number of large bodies of land and water; the first called "continents" and the second "oceans."

5. That continents and oceans have special characteristics and names. These characteristics and names should be drilled upon until the children are able to recognize and name each continent and ocean, and give their chief characteristic, and define their positions in relation to each other.

6. That the earth rotates upon its axis, which causes day and night.

7. That it is warmed and lighted by the sun.

8. That some parts of the earth are warmer than others.

9. That it is divided into zones and hemispheres, and represented as a whole by the globe, and in its parts by maps.

Great pains should be taken to teach the children the nature and use of maps, as in all of the later study they will need to refer to them constantly. They are to be taught that maps are not pictures. The facts represented are usually shown by a system of arbitrary symbols bearing but little, if any, resemblance to the features themselves. Simple map-work should begin very early in the third grade and be carried systematically throughout the entire geography course. The first maps will, of course, be very simple. The schoolroom with the teacher's desk, the rows of children's desks, the aisle, windows and doors, is difficult enough at first. Next the outline of the school building may be drawn, and later the school yard with nearby streets or roads.

In map-study the following points should be emphasized:

1. *The Map Idea.*—The fact that people have agreed to represent land and water by means of "maps."

2. *The Fixed Position of Maps.*—This refers to the fact that maps are generally printed in books and hung on walls so that the northern part of the country is toward the top of the map, the southern part toward the bottom of the map, the eastern part at the right, and the western part at the left. In certain kinds of maps, and in maps representing large areas, this is not always possible, and therefore no map should be without symbols of some kind to indicate direction and position.

3. Scale maps are small and the areas mapped are often very large, and in order that they may be properly constructed, they must be drawn in proportion or to scale. Very simple scales should be employed at first: 1 inch to a foot, 1 inch to a yard, 1 inch to a rod, etc., depending upon the size of the area to be mapped.

4. *Symbolism.*—In the construction of maps a large variety of symbols is employed. These refer chiefly to topographic, hydrographic and cultural features. There is but little need of map

symbols in the third grade, but, as without a knowledge of their meaning when they are used the map would be of little service, it is worth while to call attention to them early. All new symbols should be explained as soon as used.

During the entire third year, if the work is not provided for in the nature-study course, simple weather observations should be made and records kept by the children.

Tell the children about the plants, industries, people and cities. If these stories are simple enough, they may be read by the children. It is believed that after the children have observed these things in their own home locality, they will take keen delight in learning about them from books.

The work here outlined correlates closely with the other work of the grade. The study of industries furnishes an abundance of material for the best sort of modern arithmetic, and the story of industry, people and products, when retold by the children, furnishes excellent drill in the use of correct English.

FOURTH YEAR

North America, the United States and the Remaining Continents in Outline

When the children enter upon the work of this year, they already know about the world as a whole, its continents and great oceans; and it seems natural, therefore, that the year's work should begin with a more detailed study of some one of the continents. This will, of course, be the one in which they live.

For this work the children should have a text-book, and they should be held to a careful preparation of these lessons. The text-book should be descriptive in character, and the use of the same sort of text should be continued until the first study of the several continents and countries of the world has been completed. In later years the text-book should be of an entirely different character.

The elementary text-book in geography is usually the first book placed in the hands of the children which they are expected to study for the purpose of obtaining information, and for that reason it is extremely important that its use should be carefully taught. This is best done by discussing each day in class the lesson for the next day, and at the close of the oral work, assigning the same lesson for study. Later the children should be called upon to recite upon the text. After a little it will be sufficient to point out during the assignment of the lesson the items of greatest importance, adding thereto "search questions," the an-

swers to which may be found in the text. While this makes the teacher's work more difficult at first, it pays in the end because of the added clearness and interest.

North America

I. POSITION.—In zones; in hemispheres; in relation to bordering waters; in relation to other continents.

II. FORM.—General, roughly triangular; actual, determined by its more important indentations: Hudson Bay, Baffin Bay, Davis Strait, Gulf of St. Lawrence, Gulf of Mexico, Caribbean Sea, Gulf of California, Bering Sea, Bering Strait.

Its more important prolongations: peninsula of Nova Scotia, peninsula of Florida, peninsula of Yucatan, peninsula of Lower California.

Chief islands adjacent: Many unnamed islands at the north, Greenland, Newfoundland, the West Indies; many islands along the western coast, of which Vancouver and the Aleutian are the most important.

These islands will not be thought to have much to do with the "form" of the continent unless the existence of a partially submerged continental shelf is explained in some simple way.

III. SIZE.—As compared with other continents. This should be done in a rough way only. No area in square miles is to be given.

As shown by the fact that it stretches entirely across the north temperate zone and reaches into the arctic on the north and the torrid on the south.

IV. RELIEF.—Highlands: Rocky Mountain highlands, Appalachian highlands.

Lowlands: Plains—really long and gentle slopes made up of a complex of much smaller slopes. There is, however, no need of pointing out their complexity at this time.

The great central plain, the Atlantic coast plain, the Gulf coast plain.

V. DRAINAGE.—Gulf drainage, Atlantic drainage, Pacific drainage.

VI. DISTRIBUTION OF POPULATION.—This should be an extremely simple division into dense, less dense, and sparsely settled districts, as determined by the occupations of the people.

VII. POLITICAL DIVISIONS.—United States and Alaska, Dominion of Canada, Mexico, Central America.

The order of topics used in the study of North America is followed in the study of the United States. Some of these require little or no amplification and are in the nature of review, while others—as, IV Relief, VI Climate, and VII Possibilities of Occupation—are to be treated with greater fulness because of their greater importance. The teacher should keep constantly in mind that it is the large general truths of relief, climate, natural resources and industry which are wanted; not isolated evidences of geographical relationships, however interesting.

I. POSITION.—In the continent; in relation to the bordering water bodies; in relation to other countries with which trade is carried on.

II. FORM.—As determined by the

Chief indentations: New York Bay, Delaware Bay, Chesapeake Bay, Mobile Bay, Galveston Bay, San Francisco Bay.

Chief prolongations: Cape Cod, Cape May, Cape Hatteras, Cape Fear, Cape Canaveral, Cape Sable, Cape Mendocino, Cape Flattery.

III. SIZE.—Shown by the length of time that it takes to journey across it from east to west and from north to south.

IV. RELIEF.—This includes a study in the differences in character, elevation and extent between the two great highland masses. In this connection the chief ranges should also be named, located and characterized.

Notice the main slopes, the great plains which they form, and the character and use of these plains.

V. DRAINAGE.—Study the chief drainage lines and their relation to the relief forms. Compare some of the larger streams as to size and commercial importance. The children should be able to locate and characterize the Mississippi system, the St. Lawrence-Great Lake system, the other important streams of the Atlantic drainage, the Columbia-Snake, the Sacramento-San Joaquin, and the Colorado River of the West. Drill most persistently upon the streams which are commercially important.

VI. CLIMATE.—Show the position of the United States on the globe. Point out that the northern part is near the arctic zone. Locate the home state, and the city or village nearest to the school. The children may be asked to describe the usual weather conditions during the summer and winter in their own home region. Show pictures of southern scenes, and have the children tell how the northern and southern seasons differ. If the children are not already familiar with these processes, through

their nature-study, give some simple lessons on evaporation and condensation of moisture. Explain how moisture, evaporated over the surface of the sea, is borne into the interior to be condensed and fall as rain over the land.

Show upon maps the distribution of rainfall in the United States. Have children locate on wall maps regions of:

Abundant rainfall. Where the rain is well distributed and where the temperature is warm enough to produce abundant vegetation, and

Where the rain is abundant in amount, and in a warm region, but not well distributed, resulting in arid or semi-arid wastes; and where the rain is abundant in amount, but in cold regions, resulting in snow.

Medium rainfall—enough so that crops will grow.

Slight or no rainfall—resulting in deserts.

VII. POSSIBILITIES OF OCCUPATION.—As a result of the relief, temperature and rainfall, it will be found that certain parts of the United States are suited to certain industries; i. e., they furnish certain possibilities of occupation. These regions are so sharply differentiated that it is possible to divide the states into groups in which substantially the same industries are carried on. In this way we find: the chief agricultural and grazing sections and their chief productions, the mining regions and the most important minerals, the lumbering regions and the most important trees, the manufacturing regions and manufactures, the fishing grounds and the chief catches.

VIII. STATES.—Give the children an idea of what is meant by a state; recall to their minds the nature of a political boundary line; point out physical regions and state groups, and have them identify these groups by their leading industries.

Only a few of the leading industrial and commercial cities should be studied, and they should be closely identified with the industrial region in which they are located and with their leading productions. Alaska should be considered with the United States.

The remaining countries of North America should be learned by name, and their relation to the general continental structure, drainage and climate briefly pointed out. The work thus far outlined will occupy the first half of the year. The second half should be devoted to a very rapid survey of the other continents, with but little reference to individual countries except in the case

of Europe. There the leading countries are to be located and characterized.

The text in the fourth year should be descriptive in character. Only the more important physical and political features need receive emphasis.

The following order is acceptable: South America and the South American countries, Europe and the European countries, Asia and the Asiatic countries, Africa and the African countries, Australia and the Australian countries.

The chief points to be covered are: position, form, size, relief, drainage, climate, occupations and industrial regions, centers of population, and chief cities.

Be simple; confine the children to the study of geography, and do not go into details.

FIFTH YEAR

Colorado and a Continental Review

COLORADO.—Position, relief, drainage, climate, soil, vegetation, animal life, mineral wealth, manufacturing, distribution of population, history. (See page 115.)

The study of the state should be thorough. The distance from the child's home to the principal cities; the time it would take and direction in which he would travel to reach Denver, Colorado Springs, Pueblo, Cripple Creek, Leadville, etc. Why these cities have grown; how supported. The industries of the surrounding country.

PRINCIPAL CITIES.—Denver, Pueblo, Colorado Springs, Leadville, Cripple Creek, Boulder, Telluride, Trinidad, Durango, Greeley, Canon City, Grand Junction, Fort Collins, Aspen, Central City, Salida, Longmont, Rocky Ford, La Junta, Buena Vista, Ouray, Montrose, Glenwood Springs, Alamosa, Sterling, Golden, Las Animas, Fort Morgan, Walsenburg, Gunnison, Loveland, Delta.

AGRICULTURE.—Colorado has approximately sixty-six million acres of land.

Some two million acres are under cultivation.

There are some twenty-one million acres in eastern Colorado used for grazing purposes.

In an altitude of not more than six or seven thousand feet the ordinary products of the temperate zone are raised. At high altitudes the chief crop is hay.

Where water can be secured, the soil proves rich and tillable and the crops are large.

The available water supply is limited, and a large portion of agricultural Colorado is given over to "dry-farming."

Colorado is the leading irrigation state in the Union. The total number of farms that were under irrigation in 1910 was 25,926. The total acreage was 2,792,032.

The total acreage under irrigation is estimated at about two million acres.

Scientific dry-farming is the storing in the soil of natural moisture.

The semi-arid condition in Colorado is due to rapid evaporation, not alone to insufficient rainfall.

With the proper soil culture good crops can be raised on semi-arid land.

To accomplish this, some two or three inches of the surface soil must be kept finely pulverized.

From spring until fall the soil must not be allowed to pack or bake.

Deep plowing and persistent harrowing are the chief features of dry-farming.

There are 3,000,000 acres of rich irrigated lands.

Colorado produces yearly \$10,000,000 in agricultural and horticultural products.

AGRICULTURAL PRODUCTS.—Potatoes, sugar beets, celery, fruit and alfalfa.

Weld County is noted for potatoes; shipping annually some fourteen thousand carloads.

With irrigation, land produces three, sometimes four, crops of alfalfa a season.

Alfalfa enriches the soil. It is therefore, in some respects, the most valuable crop.

Oats, corn, barley and rye are raised; also wheat, the quality of which is excellent.

The wheat crop averages about thirty-two bushels to the acre.

In the Arkansas valley watermelons and cantaloupes are raised.

The Rocky Ford melons are far-famed.

The sugar beet has become one of the most important agricultural products.

Northeastern Colorado, the Arkansas valley, and the valley of the Grand River are the most important sections for the production of sugar beets.

One hundred thousand acres are now planted in fruit.

The government estimated the value of Colorado grains, hay and potatoes for 1911 as \$33,207,830.

Colorado raised \$18,806,200 worth of hay in 1911, according to government estimates.

Colorado marketed \$3,847,536 worth of apples in 1911.

Colorado's peach crop for 1911 amounted to nearly \$1,000,000.

DAIRY PRODUCTS.—In 1911 the dairy products were estimated at over \$10,000,000.

The annual output of butter is in the neighborhood of 10,000,000 pounds.

Cheese, over 2,000,000 pounds annually.

Millions of cans of condensed milk are prepared annually.

LIVE STOCK.—In many parts of the state stock-raising is still the most important occupation.

Colorado live-stock sales in 1911 were \$2,000,000 more than in 1910.

MINERALS.—Colorado is the leading gold-producing state in the Union.

Of the metals found gold and silver are the most important.

Gold, silver, copper and lead are found.

In addition to the more important minerals, tungsten, bismuth and manganese are found.

Large bodies of zinc are found in many mining districts.

Thirty-eight million dollars is produced yearly in gold, silver and other metals.

PRECIOUS STONES.—Topaz, garnets, sapphire and aquamarine, with other less valuable stones, are found.

IRON, COAL AND PETROLEUM.—Immense beds of iron ore are found.

The largest deposit being mined at present is found in Saguache County.

Large deposits are also found in Gunnison County.

Petroleum has been found in many sections of the state.

The producing fields are found in Fremont and Boulder Counties.

Coal is found in all sections of the state.

The coal-bearing area is estimated from 18,100 to 40,000 square miles.

All varieties of coal are found.

Lignite coal is found near Denver, and bituminous and coking coal in the southern part of the state.

Anthracite coal is found in Gunnison and Routt Counties.

The coal fields of Routt County are the largest and richest.

Las Animas County now produces nearly one-half the coal mined in the state.

According to the Geological Survey at Washington, Colorado has within her borders 371,000,000 tons of coal—sufficient to supply the world, at the present rate of consumption, for 300 years.

BUILDING STONE.—There are solid mountains of the finest white marble in Colorado, which can supply the world's demand for a hundred years.

Gunnison County is the principal quarry and shipping-point for marble.

Onyx is found in large quantities in Routt County.

Sandstone of many colors, granite, lava rock and gypsum abound.

The material for the manufacture of Portland cement is found in large quantities in the Arkansas valley.

CLIMATE.—Is healthful, dry and invigorating.

In an average year there are three hundred clear and partly clear days, few days being without sunshine, one day a month without sunshine being an average.

Due to the difference in altitude, there is a great variety of climatic conditions.

Killing frosts occur every month of the year in the high altitudes.

In the agricultural districts there is a great difference as to the date of the first and last killing frost.

PLANT LIFE.—The eastern plains are treeless, except along the streams. Cottonwood and box elder follow these streams.

The plains are covered with buffalo grass and sage-brush. Near the mountains gramma grass and bunch grass are found.

Grasses are converted into natural hay by the dryness of the summers.

Sage-brush is a prominent native plant.

COLORADO WILD FLOWERS.—In the mountains a brilliant array of the daintiest wild flowers carpets the rugged hillsides: columbines, anemones, mariposa lilies, gentians, wild roses, Indian's paint-brush, spring beauties, and scores of others; an ever-changing sea of color offset by a somber background of dark pines or the dainty foliage of the aspens.

Flowers are found on the plains as well as in the mountains.

STATE FLOWER AND TREE.—By act of the legislature, March 22, 1889, the third Friday in April of each year was designated as Arbor Day in Colorado, and the occasion has been faithfully ob-

served by the schools of the state. The naming of a state flower by vote of the children taking part in its first celebration, April, 1890, gave zest to the occasion, and poems and essays on the flowers of the state afforded a pleasing program for the literary part of the several entertainments in honor of the day. Fifty native flowers were entered in the contest, and the columbine was selected by a large plurality. Number of votes cast, 22,316. Of these the columbine received 14,472; its nearest competitor being the lily mariposa, with 1,157 votes; the cactus following, with 1,027 votes.

In like manner, on Arbor Day, 1892, the blue spruce was chosen as the state tree, pronounced by botanists to be the most beautiful conifer in the world—very rare and found only in the Rocky Mountains.

FORESTS.—The mountain slopes are covered with forests of pine, spruce, fir and scrub oak.

Aspen trees are found through the entire mountain region.

Scrub oak is the only hard-wood native to Colorado.

The growth of timber ceases at about 11,500 feet, which is timber line.

At timber line range pine, spruce and arctic willow are found, but stunted in growth.

At 10,000 feet white pine and alpine fir are found.

Below are the red spruce and balsam fir.

Below 9,000 feet the yellow pine grows on the sunny slope.

The silver spruce, the most beautiful native tree, grows abundantly at 8,000 feet.

Many miles on the eastern slope of the lower ranges are covered with lodge-pole pine.

There are few large trees in the forests of Colorado.

Evergreen trees grow slowly.

The Englemann spruce requires ten years to make one inch in girth.

The mountain forest of today is but a small portion of the 36,000 square miles of wooded land which the pioneers found.

Twenty-five thousand square miles have been burned. Much has been used.

About 5,000 square miles of the original forest remain.

One-third of the remaining is practically barren.

For the protection of the headwaters of the streams, the government has large tracts called forest or timber reserves.

Much timberless land has been resown by the Forestry Service, some by nature.

The most active forester is the Douglas squirrel. This little animal plants, each year, the cones from which thousands of trees spring.

Colorado forests are largely upon land at an altitude of from 7,000 to 11,000 feet above sea-level.

Next to protecting the forests from fires, one of the most important problems confronting the United States Forest Service in its administration of the national forests is the reforestation of the burned-over areas within the forests. Definite plans have been made for this work, extending over a period of years, and the increased interest in reforestation is shown by comparing the acreage reforested during the past three years. In 1909 there were some 240 acres; in 1910, 2,050 acres; and in 1911, a total of 6,000 acres. Present plans call for the reforesting of 6,000 acres during the coming year; no increase over the year 1911, since the amount that can be reforested depends upon the quantity of tree seed that is available.

NATIVE PLANTS OF COLORADO.—Of the thousands of varieties of Colorado's native trees and shrubs the following are considered the best:

TREES

Acer glabra (mountain maple); likes association and moisture, but will grow in the open.

Alnus tennifolia (mountain alder); likes damp places.

Amalanchier alnifolia (juneberry, serviceberry); will grow in exposed positions.

Betula fontinellia (water birch); likes moist places.

Cratagus coloradensis (Rocky Mountain thorn); white flowers, red berries; exposed positions.

Corylus rostrata (Rocky Mountain hazel); open places.

Prunus americana (wild plum); open places.

Prunus virginica (choke cherry); open places.

Prunus demissa (wild cherry); erect and slender.

Populus angustifolia (narrow-leafed cottonwood).

Robina neo-mexicana (pink-flowering locust).

SHRUBS—TALL TO MEDIUM

Cornus stolonifera (dogwood); white fruit; prefers moist places; will grow anywhere.

Cornus canadensis (red-fruited dogwood); likes moisture, but will grow anywhere.

Cercocarpus discolor (mountain spirea); white, plume-formed flowers; likes exposure.

Jamacia americana; white flowers with orange fragrance; prefers humidity and shade.

Physocarpus Ramaleyi (nine-bark); white flowers; likes partial shade.

Rubus deliciosus (thimbleberry); purple, raspberry-like fruit.

Ribes aurea (yellow currant); grows anywhere.

Ribes cereum (pink currant); red fruit.

Aster adsendus; violet-blue; midsummer.

Aster Posterii; small, white; found everywhere.

Campanula rotundifolia (mountain harebell).

Calochortas gunnisonia (Mariposa lily).

Castilleja linarifolia (tall painter's brush); pale-red flowers.

Castilleja integra (dwarf painter's brush); rich orange-red; numerous in foothills.

Clematis Fremontii; erect-growing tuft form; thick purple sepals.

Clematis alpina; both trailing and climbing; purplish-blue flowers.

Chrysopsis villosa (golden-yellow aster).

Coriopsis tinctori (yellow ticksaw).

Delphenium Nelsoni (mountain larkspur); dwarf; dark blue.

Epilobeum coloratum (mountain willow herb).

Gaillardia aristata (blanket flower); orange and maroon color.

Geranium Fremontii (cranebill); lavender.

Iris missouriensis (lavender fleur de lis).

Lepachys columnaris (fairy torch); yellow.

Lepachys pulcherrima (fairy torch); bronze, purple ray.

Linum perenne (flax); lavender-blue.

Lupinus decumbens (lupine); tall, purple.

Lupinus argentea (lupine); silver foliage, blue flower.

Pusinus plattensis (prairie lupine); lavender.

Mentzelia ornata (evening star); white.

Mertensia ciliata (prairie bluebell).

Mertensia lanceolata (mountain bluebell).

Pentstemon barbatus (bear tongue) ; tall, orange-red.

Pentstemon glabra (bear tongue) ; lavender-blue.

Pentstemon caerulea (bear tongue) ; dwarf, pale blue.

Rosa Woodsii (tall wild rose) ; grows anywhere.

Plus glabra (medium-growing sumac) ; exposed, well-drained positions.

Sambucus canadensis (elder) ; dark-purple fruit, maturing to black.

Sambucus melanocarpa (black-fruited elder).

Shepherdia argentea (buffalo berry) ; a silver-foliaged, spiny shrub, with red fruit.

DWARF SHRUBS

Berberis repens (trailing barberry) ; exposed positions.

Physocarpus Torreyi (nine-bark) ; partial shade.

Potentilla fraticosa (shrubby cinquefoil, or five-finger) ; yellow flower ; moist places.

Ribes saxosum (mountain gooseberry).

Rosa Arkansas (wild rose) ; red fruit.

Rosa blanda ; medium-growing ; red fruit.

Symphoricarpus occidentalis ; this is the winter form of the snowberry, but best known out here as wolfberry.

Symphoricarpus panicifolia ; another form of the snowberry, commonly called buck rush.

HERBACEOUS FLOWERING PLANTS

Abronia fragrans ; white, fragrant flowers ; trailing habits.

Achillea millefolium (white yarrow).

Anemone patens (early pasqueflower) ; purple.

Anemone cylindrica (windflower) ; white.

Anemone Richardsonii (windflower) ; light purple.

Aqualegia caerulea (columbine, state flower) ; lavender and white.

Aqualegia chrysantha (golden-spur columbine).

Aster laevis (Michaelmas daisy, or starwort) ; lavender-blue flowers in fall.

Polemonium confertum (Jacob's ladder) ; blue flowers.

Rudbeckia kirta (cornflower, or black-eyed Susan).

Solidago spectabilis (tall golden-rod).

Solidago himilis (dwarf mountain golden-rod).

Thermopsis rhombifolia (buffalo pea) ; yellow.

Veronica alpina spicata (speedwell) ; light blue.

MOUNTAIN PEAKS OF COLORADO.—

	Feet		Feet
Mount Massive	14,424	Mount Maroon	14,003
Mount Elbert	14,421	Mount Capitol	13,997
Sierra Blanca	14,390	Snowmass Mountain	13,970
Mount Harvard	14,375	Pigeon Mountain	13,961
La Plata Mountain	14,342	Mount Ouray	13,956
Gray's Peak	14,341	Mount Grizzly	13,956
Mount Torrey	14,336	Horseshoe Mountain	13,912
Mount Evans	14,330	Mount Blanc	13,905
Mount Lincoln	14,297	Mount Frustum	13,893
Mount Buckskin	14,296	Pyramid Mountain	13,885
Uncompahgre Peak	14,289	Silver Heels Mountain	13,855
Long's Peak	14,271	Mount Haynes	13,832
Quandary Peak	14,266	Mount Arkansas	13,807
Castle Mountain	14,259	Mount Hamilton	13,800
Mount Wilson	14,250	Mount R. G. Pyramid	13,773
Mount Antero	14,245	Mount Rowter	13,750
Mount Shavano	14,239	Mount Ptarmigan	13,746
Mount Crestone	14,233	Mount Gibson	13,729
Mount Princeton	14,196	Mount Silesia	13,699
Mount Yale	14,187	Mount Oso	13,640
Mount Bross	14,185	Spanish Peaks	13,620
Baldy Mountain	14,176	Mount Grayback	13,615
Mount of Holy Cross	14,170	Mount Rosalie	13,575
Mount Lizard Head	14,160	Mount Guyot	13,565
Mount Sneffles	14,158	Mount King Solomon	13,550
Goats Mountain	14,132	Trinchera Mountain	13,546
Pike's Peak	14,109	Mount Buffalo	13,541
San Luis Mountain	14,100	Mount White Rock	13,532
Mount Red Cloud	14,092	Mount Arapahoe	13,520
Mount Culebra	14,069	Mount Dunn	13,502
The Wetterhorn	14,069	Mount Dolores	13,502
Mount Simpson	14,055	Mount Kendall	13,480
Mount Aeolus	14,054	Sultan Mountain	13,336
Needle Mountain	14,051	James' Peak	13,283
Mount Sherman	14,048	Mount Homestake	13,227
Mount Humboldt	14,041	Mount Hunchback	13,133
Mount Stewart	14,032	Mount Sopris	12,823
Mount Handie	14,008		

Eight miles south of due west from Denver, and thirty-five miles distant, is Mount Evans; its summit 14,330 feet above sea-level. The first name given to the peak was "Mount Rosa." The name was later changed and the great peak named in honor of Governor John Evans.

Two miles southeast of Mount Evans is Mount Rosalie, the highest peak in a group of several as yet unnamed.

Due west from Denver, and next in height to Mount Rosalie, is James Peak, named for the botanist and historian of Long's Exploring Expedition.

Looking to the north, fifty-five miles from Denver is Long's Peak.

Sixteen miles south of Long's Peak is Arapahoe Peak.

Midway between Long's Peak and Arapahoe Peak is Audubon. From the lover of birds came the name.

North of Long's Peak is Mummy Mountain, so named from a fancied resemblance to a mummy.

Pike's Peak is due south from the State Capitol.

To the north is Mount Warren, named for Bishop Henry W. Warren. This mountain is still given as Platte Mountain or Devil's Head on the government maps.

At the entrance of Platte Canon are Turk's Head and Turkey Head, obstructing the view of Needle's Buttes.

To the north of Mount Evans are the Chief and Squaw. The Chief is the higher of the two.

The higher range, known in Colorado as the Continental Divide, is far above timber line, and always shows snow.

East of Denver are Gray's and Torrey's Peaks.

The celebrated Mount of the Holy Cross is near Red Cliff.

Mount Massive, near Leadville, is the highest mountain in the state.

The College Peaks—Harvard, Yale and Princeton—were named in honor of the universities.

Mount Elbert was named for the territorial governor of that name.

Sierra Blanca, seen from Alamosa and other southern points, drew its name from the white rocks that cap its summit.

Mount Antero and Mount Shavano were named for Ute Indian chiefs.

Mount Lincoln bears that name in honor of Abraham Lincoln.

Long's and Pike's Peaks bear the names of the intrepid explorers.

Uncompahgre, a peak not distant from Lake City, is an Indian word meaning "Hot-Water Spring."

The Spanish Sangre de Cristo is "The Blood of Christ," and La Plata, "Mountain of Silver."

The Mount of the Holy Cross bears the name because there is a perpetual cross of snow on its summit.

RIVERS AND LAKES.—The Platte, the Arkansas, the Colorado, the Uncompahgre, the Gunnison, the Rio Grande, the Yampa, Green River, and others.

The five rivers first named wind through canons of wonderful grandeur, with walls rising from 1,000 to 3,000 feet above the surface of the streams.

None of these rivers are navigable.

The rivers east of the Continental Divide reach the Atlantic through the Gulf of Mexico; those west of the Divide reach the Pacific through Colorado River and the Gulf of California.

The Arkansas is the principal river. It has a course of 500 miles and sixty tributaries.

The South Platte rises in the Front Range. It flows northeast and enters Nebraska.

The North Platte crosses the northern border of the state and enters Wyoming.

The Rio Grande flows southeast into New Mexico. It has many tributaries in San Luis Park.

The San Juan, Grand, White and Yampa drain the western division of the state.

WILD ANIMALS.—The wild horse and the buffalo are gone from the plains.

The deer have retreated to the mountains.

The gray wolf, the coyote, and the swift are still found on the plains.

Only a few small animals, such as the rabbit, gopher and prairie-dog, are found east of the foothills.

Big game is found principally in the northwestern part of the state.

In the mountains elk, deer, antelope, mountain sheep, bear, mountain lion, wild cat, lynx, wolf, coyote, fox, badger, beaver, rabbit, squirrel, wolverine, mink, marten and others are found.

The mountain streams abound in trout.

MANUFACTURING AND OTHER INDUSTRIES.—The power which can be generated by falling water in her mountain streams is

from 1,000,000 to 2,000,000 horse-power. Such advantages must make Colorado a great manufacturing state.

According to the United States census, Denver's manufacturing output is \$52,711,000 a year, or more than \$1,000,000 a week, and its factory pay-roll is more than \$1,000,000 a month.

The first experiments in the manufacture of beet sugar in Colorado were made in 1898. The Great Western Sugar Company now has factories at Eaton, Greeley, Windsor, Fort Collins, Loveland, Longmont, Sterling, Brush and Fort Morgan. In 1911 these factories handled 980,000 tons of beets, grown on 82,000 acres.

The smelting of gold, silver, copper, lead and other ore is carried on mainly at Pueblo and Denver.

To some extent smelting is carried on also in Leadville and Durango.

At Florence and at Colorado City there are chlorination and cyanide plants for the reduction of ores.

Pueblo is a center for the manufacture of iron and steel.

The manufacture of mining machinery is extensively carried on.

There are coke ovens at Trinidad and Crested Butte.

The output of the oil fields is about 2,000 barrels of crude petroleum per day. This is refined at Florence.

Stoves, cars and car wheels, carriages, brick and tile pottery, lead pipe, paint, leather, soap, pickles, canned goods, flour and crackers are manufactured products of Colorado.

Meat-packing is an industry of importance.

The annual value of manufactured products is estimated in excess of \$130,000,000.

THE PUBLIC-SCHOOL SYSTEM.—When established. How administered.

STATE INSTITUTIONS.—Where located.

The continents to be studied this year are: South America, Africa, Asia and Australia. This is for two reasons; the first reason being that the countries of these several continents, and their characteristic features and industries, were entirely neglected in the first rapid survey of the fourth year, and the second being that the sixth year will bring with it added maturity and a sure, thorough comprehension of the two important continents left for that year.

The elementary map-study begun in the third grade should be continued and made more definite.

From the globe and the maps used in connection with work of this grade, the children should have learned thoroughly and intelligently the locations and names of the most important geographic features of the world, both physical and political, and something of the life and industries of the countries they have studied.

Care should be taken to give the correct pronunciation of all geographic terms.

SIXTH YEAR

During this year the second survey of Europe and North America is completed. The important countries in each of these continents are taken up with special reference to their great industries, and the physical and social conditions influencing them. Colonies, no matter where located, if important enough to be noted at all, are studied in connection with the mother-country. Notice should be taken of the commercial relations existing between the home countries and their several colonies. It is advisable to study Europe and the European countries first, and to follow with North America and its several countries, with special emphasis upon the United States.

The outline given below will prove suggestive, but the teacher should remember that the emphasis is to be placed upon the topics from VII to XV, rather than upon those from I to VI.

- I. Position.
 1. Relative.
 2. Absolute.
- II. Form.
 1. Relative.
 2. Actual.
 - a. As shown by the map.
 - b. Indentations.
 - c. Prolongations.
 3. Continental Shelf.
- III. Size.
 1. Relative.
 - a. Compared with other continents.
 - b. In relation to oceans.
 - c. What part of the whole earth.
 2. Actual.
 - a. Extreme breadth.
 - b. Extreme length, and length of time it takes to make the journey.
 - c. Number of square miles.

IV. Relief.

1. Highlands, including plateaus.
 - a. Position.
 - b. Extent.
 - c. Average elevation.
 - d. General character.
 - (1) Broken — with numerous peaks and passes; or
 - (2) Continuous — with few peaks or passes.
 - (3) Structure — mountain folds or blocks.
 - (4) Chief passes.
 - e. Arrangement.
 - (1) Parallel ranges.
 - (2) Cross ranges.
2. Relation of the highlands to the great continental slopes, great drainage systems, interior basins, and the nature of coast lines.
3. Lowlands.
 - a. Position.
 - b. Extent.
 - c. Structure.
 - d. Kinds.
 - (1) Rolling plains.
 - (2) Coast plains.
 - (3) Flood plains.
 - (4) Delta plains.

V. Climate.

1. Temperature controlled by:
 - a. Position.
 - b. Relief.
2. Winds and rainfall.
 - a. Prevailing winds and calm belts to be expected from position.
 - b. Winds actually prevailing.
 - c. Influence of highlands upon winds and rainfall.
 - d. Influence of winds upon the ocean currents and of currents upon the winds which cross them.
 - e. Location of rainless areas and the reasons therefor.

VI. Drainage.

NOTE.—As a result of the present relief and the present climatic conditions, a certain drainage system has been established. Care should be taken, however, to fix clearly in the minds of the students the fact that a much more ancient relief, now vanished, established drainage conditions in the past, and that these in turn shaped the relief features of the present.

1. Chief rivers and their relations to the land forms which they have been instrumental in creating.
2. Lakes.
 - a. Fresh-water lakes.
 - b. Salt-water lakes.

VII. Soil.

1. That which has been formed in place.
2. That which has been transported.

VIII. Zones of vegetation as dependent upon :

1. Temperature as determined by latitude, altitude, proximity to large bodies of water, and influence of ocean currents.
2. Rainfall.
3. Character of the soil.

IX. Zones of waste as dependent upon :

1. Lack of moisture.
2. Altitude.
3. Latitude.
4. Too much moisture.
 - a. Swamp.
 - b. Jungle.
 - c. Bad lands.
5. Poor soil.

X. Distribution of animal life.

XI. Distribution of mineral resources.

XII. Distribution of population as dependent upon possibilities of occupation.

NOTE.—Here should be considered the division of labor resulting from the conditions outlined under VII, VIII, IX, X and XI above, and the great industrial regions which have grown up in consequence of these conditions. There should also be considered the relation of industry to:

1. Resources.
2. Supply and demand.
3. Commercial advantages.

- XIII. Development and location of centers of population as showing the needs of the people for:
1. Commercial centers.
 2. Manufacturing centers.
 3. Government centers.
- XIV. Development of commercial and trade routes resulting from the attempt of people to obtain the products and patronage of the other people of the world.
1. Natural conditions which aid commercial undertakings.
 - a. Extensive coast line and good harbors.
 - b. River systems.
 - c. Open country, with no barriers, so that canals or railways may be easily constructed.
 2. The routes which have been established and the chief commercial cities.
 3. The commodities that are transported.
 4. The influence of physical conditions upon 2 and 3 above.
- XV. Political divisions.
- XVI. The government.
The work of the sixth year includes Europe, North America, the United States.

COMMERCIAL AND INDUSTRIAL GEOGRAPHY

SEVENTH YEAR

The work of the seventh grade should have for its aim a study of the geographic influences which modify the food supply, clothing and shelter of man. In the study of these three fundamental needs, the following points should receive consideration: (1) raw materials and the chief sources of supply; (2) methods of manufacturing and the location of manufacturing centers; (3) methods and the chief routes of transportation.

The following course is merely suggestive of what may be done in industrial geography. It contains suggestions that can be used to advantage in the work of other grades.

- I. Man needs for his comfort and happiness:
 1. Food.
 2. Clothing.
 3. Shelter.

- II. These vary in character with differences in climate and with other conditions over which man has but little control.
1. Contrast by picture and description the lives of the Eskimos, Lapps and Finns, with the lives of the Arabs and Kirghiz.
- III. The specialization of labor and the development of commerce among civilized peoples have tended to remove the limitations imposed by the immediate environment.
1. In this connection point out the different parts of the world which are laid under tribute to furnish the raw material of a single meal, the clothing of a single family, or the construction and furnishing of a single building.
- IV. This specialization of labor has brought about the development of great industrial regions, as:
- | | |
|-------------------|-------------------------|
| 1. Agricultural. | 4. Fishing and hauling. |
| 2. Manufacturing. | 5. Lumbering. |
| 3. Grazing. | 6. Mining. |

Maps showing the division of the United States, the home state, and, perhaps, some of the leading countries of the world into their chief industrial regions, should be shown and worked over until the students are familiar with these regions and understand the reasons why they are so distributed.

- V. In the large industrial regions there is a further specialization of industry as shown below.
1. Agriculture in the United States.
 - a. Wheat-growing in the north central section.
 - b. Corn-growing in the middle central section.
 - c. Cotton-growing in the south central section.
 - d. Rice-growing in the southeast section.
 - e. Fruit-growing in favored localities.
 - f. Market gardening along the eastern coast and near large cities.
 2. Manufacturing in the United States. Chiefly concentrated in the northeastern section, the states ranking as to value of products as follows: New York, Pennsylvania, Illinois, Massachusetts, Ohio and New Jersey.
 - a. Food and food products.
 - (1) Slaughtering and meat-packing. Illinois is by far the most important state, although Kansas, Nebraska, Missouri and Indiana are also important.

- (2) Milling. Widely distributed, but developed most extensively in Minnesota, with New York second in importance.
- b. Textiles.
 - (1) Cotton manufacture. Distributed through the New England, middle and southern states. Developed chiefly in Massachusetts.
 - (2) Wool manufacture. Massachusetts, Pennsylvania and Rhode Island are the leading states.
 - (3) Silk manufacture. New Jersey, Pennsylvania, New York and Connecticut are the leading states.
 - (4) Combined textile manufacture. Distributed through the New England, middle and southern states.
 - (5) Clothing manufacture. New York state outranks all other states.
- c. Iron and steel. Chiefly located in Pennsylvania, with Ohio and Illinois next in importance.
- d. Lumber and manufactures employing lumber. These industries are naturally centered in regions now or but recently forested, and include most of the eastern United States and part of the extreme Northwest. These industries have reached their greatest importance in the following states: Wisconsin, Michigan, Washington.
- e. Boots and shoes. The leading state in this industry is Massachusetts, with New York second.
3. Grazing and the raising of cattle, sheep and swine in the United States.
 - a. On the great ranches and ranges of the West.
 - b. On the smaller farms in the East.
4. Fishing in the United States.
 - a. Cod-fishing on the banks of Newfoundland.
 - b. Oyster fisheries along the eastern coast.
 - c. Salmon fisheries, northwestern coast.
 - d. Seal fisheries among the Aleutian Islands.
5. Lumbering in the United States.
 - a. White pine in the northeastern, north central and northwestern sections.
 - b. Yellow pine in the southeastern section.
 - c. Hardwoods along the Appalachians.
 - d. Redwood in California.

6. Mining in the United States.

a. Iron.

- (1) Michigan, Minnesota and Wisconsin.
- (2) Alabama.
- (3) Pennsylvania.

b. Coal.

- (1) Soft or bituminous coal.
 - (a) Pennsylvania, western part; West Virginia and Ohio.
 - (b) Western Indiana, Illinois and eastern Iowa.
 - (c) Eastern Kentucky, Tennessee and Alabama.
- (2) Hard or anthracite coal.
 - (a) Eastern Pennsylvania.

c. Copper.

- (1) Michigan. (2) Arizona.
- (3) Montana.

d. Gold.

- (1) California. (2) Colorado.
- (3) Alaska.

e. Silver.

- (1) Colorado. (2) Montana.
- (3) Nevada.

1. Raw materials.

a. Sources of supply.

- (1) If manufactured, where and how?
- (2) If unmanufactured, how is material obtained?

b. Methods and routes of transportation.

- (1) Why chosen.

c. If imported.

- (1) Why?
- (2) Dutiable or not, and why?

d. If a home product.

- (1) Is it protected by duties upon similar imported goods, and why?
- (2) Is it unprotected by duties?

2. Manufacture.

a. Local industry. What influence upon its location have any or all of the following?

- (1) Sources of raw material.
- (2) Available power.
- (3) Market.
- (4) Transportation facilities.

- (5) Abundance of labor.
- (6) Climatic influence.
- b. Similar industries as developed elsewhere, especially in important industrial centers, and as influenced in their location and growth by (1) to (6) under a. above, or by other calculable influences.
- c. Processes.
 - (1) As used locally.
 - (2) As used elsewhere.
 - (3) As influenced by the nature of the raw material.
 - (4) As influenced by the nature of the product desired.
- d. Influence of legislation upon the industry.
 - (1) Through duties upon raw material.
 - (2) Through duties upon similar manufactured goods imported from foreign countries.
 - (3) Through bonuses or subsidies.
 - (4) Through child-labor laws.
 - (5) Through protection afforded to workmen.
 - (6) Cost and convenience of transportation.

VI. Distribution of food materials in the United States.

1. Grains and vegetables.

Wheat.	Potatoes.
Corn.	Fruits.
Rice.	Products of market gardens.

2. Meat, fish and poultry.

Cattle.	Salmon.
Sheep	Oysters.
Swine.	Hens and hens' eggs.
Cod fish.	Turkeys.
White fish.	Ducks.

3. Sweets and beverages.

Maple sugar.	Coffee.
Cane sugar.	Tea.
Beet sugar.	

NOTE.—The distribution of these should be shown upon a series of maps and should be studied, not alone as to their own distribution, but also as to the conditions which cause and limit their distribution. When other continents are mentioned, review quite thoroughly to keep the facts learned in other grades fresh in the mind.

VII. Distribution of food materials in other important countries.

VIII. The study of an individual grain (wheat).

1. Distribution of the world's great wheat-fields.
 - a. In the United States.
 - (1) North central section, including Indiana, Illinois, Minnesota, North and South Dakota, Wisconsin, Kansas and Nebraska.
 - (2) Western section, including California, Oregon and Washington.
 - (3) Eastern section, including the New England and North Atlantic states.
 - (4) Southern section. Texas.
 - b. In foreign countries.

(1) Russia.	(4) Austria-Hungary.
(2) India.	(5) Canada.
(3) France.	(6) Argentine Republic.
2. Conditions of cultivation.
 - a. Soils suited to its cultivation, and their influence upon the character and varieties of the grain.
 - b. Climatic conditions suited to its cultivation, and their influence upon the character and varieties of the grain.
 - (1) Temperature, range and length of growing period.
 - (2) Amount and distribution of rainfall.
 - c. Methods of cultivation suited to different soils, rain-falls, and varieties.
 - d. Economic conditions.
 - (1) In the United States, cheap land and scarcity of labor have led to the development of much machinery and large acreage, but have worked against intensive cultivation.
 - (2) In India, cheap labor.
 - (3) In Russia, poor methods of cultivation and limited output.
3. Conditions of harvesting.
 - a. Reaping (evolution of the process).

(1) The sickle.	(4) The reaper and binder
(2) The cradle.	(5) The header.
(3) The reaper.	

b. Threshing (evolution of the process).

- (1) Trodden out on threshing floors by animals.
- (2) The flail.
- (3) The threshing-machine.

4. From field to market.

a. Transportation.

- (1) From farms to railroad.
- (2) The grain elevator for storage.
- (3) By rail to points of concentration for transshipment or manufacture.
- (4) Methods of handling the grain in loading and unloading.
- (5) Shipment east and abroad.
 - (a) East in bulk by the Great Lakes in huge "whalebacks," or by trainload. Abroad in huge steamers.
 - (b) In its manufactured state, as flour.

b. Location of centers for concentrating and distributing the grain, and the reasons for their location.

- | | |
|------------------|--------------------|
| (1) Duluth. | (5) Buffalo. |
| (2) Minneapolis. | (6) New York. |
| (3) St. Louis. | (7) San Francisco. |
| (4) Chicago. | (8) Portland. |

c. Manufacture.

Process.

- (1) Purification of the grain.

(a) Winnowing	(b) Washing.
---------------	--------------
- (2) Grinding (evolution of the process).
 - (a) The mortar and pestle types (primitive).
 - (b) Grinding between rough surfaces, one of which is usually stationary.
 - (c) Crushing or mashing between rollers (the roller process).
- (3) Bolting.

(a) Bran.	(b) Middlings.
(c) Flour.	

(4) Bagging.

b. Types of mills.

- | | |
|-------------|---------------|
| (1) Custom. | (2) Merchant. |
|-------------|---------------|

c. States which lead in the manufacture of flour and the reasons therefor.

- | | |
|----------------|---------------|
| (1) Minnesota. | (4) Indiana. |
| (2) Ohio. | (5) New York. |
| (3) Illinois. | |

6. Marketing.

a. The home market.

- (1) From the mill to the home.
- (2) The local supply.

b. Great Britain and Ireland.

NOTE.—It is not expected that the outline for the study of wheat given above will be followed exactly as given, or that all of the details suggested or implied will be worked out. It ought, however, to prove suggestive and serve as a model for similar outlines for the study of the other important food materials.

Clothing

- I. All civilized people clothe themselves. The material used, the amount of clothing, and the nature of the garment, all show great variations among the different races, but only those who are very low in the scale of human progress are content to go unclothed even where the climate would permit.
- II. Among the more primitive peoples the garments are few in number, of very simple construction, of a practically universal pattern, and are generally made out of materials which the environment furnishes.
- III. The nature of the garments used is to a large extent determined by climatic conditions. A change from one season to another means usually a change in the nature and amount of clothing. A change from one latitude or altitude to another brings climatic changes and a corresponding change in clothing.
- IV. Since ancient times clothing has been used as a means of ornamenting the body, as well as a means of rendering it comfortable. For that reason the more civilized peoples manufacture and make use of a great variety of materials, of many colors and weaves, as well as of many ornaments used upon the head and hands, about the neck or fastened to the garments.
- V. Clothing has also come to have a religious and social significance, depending upon material, color or cut, or any two or all three of these.

VI. The materials used for the manufacture of clothing are of vegetable or animal origin and include the following as the most important:

1. Materials of vegetable origin.

- | | |
|------------|---------------------------------|
| a. Cotton. | d. Grasses in great variety. |
| b. Flax. | e. Caoutchouc, or India rubber. |
| c. Hemp. | |

2. Materials of animal origin.

a. Wool from the:

- | | |
|------------|-------------|
| (1) Sheep. | (3) Alpaca. |
| (2) Goat. | (4) Camel. |

b. Silk.

c. Leather made from the hides of a great variety of animals, the most important of which are:

- | | |
|-------------|-------------|
| (1) Cattle. | (4) Horses. |
| (2) Sheep. | (5) Swine. |
| (3) Goats. | |

d. Furs. The skins of a great variety of animals living almost exclusively in the temperate and cold parts of the world. As a general thing, it may be said that the finest furs are those which come from the colder regions.

VII. The preparation of clothing from these raw materials involves their collection or growth, their manufacture or preparation, and their marketing. It frequently happens that different kinds of raw material enter into the manufacture of a single fabric.

VIII. The study of an individual clothing material (cotton).

1. Distribution of the world's great cotton fields.

a. In the United States. The southeastern section, including Texas, Georgia, Mississippi, Alabama, Arkansas, the Carolinas and Louisiana. Of these the first-named state is the most important, often producing nearly one-third of the total crop.

b. In foreign countries.

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|------------|-------------|
| (1) India. | (3) Brazil. |
| (2) Egypt. | |

2. The nature of the plant.
 - a. Usually cultivated as an annual.
 - b. Plant varies in height, but is kept under cultivation as a low shrub.
 - c. Cotton itself consists of tufts of fibers around the seeds.
3. Cultivated varieties and their characteristics.
 - a. Uplands. Grown both in the Old World and in the New, but reaching its best development in the United States and commonly called American cotton.
 - (1) It has a fiber of medium length.
 - b. Sea island. This variety furnishes the finest, longest and strongest fibers, and is highly prized.
4. Conditions of cultivation.
 - a. Climatic conditions.
 - (1) Very sensitive to frost; needs a long growing season, with even, but not excessive, temperature.
 - (2) Bright sunshine.
 - (3) Should be abundant, but not excessive, supply of moisture during growing season.
 - b. Soil conditions.
 - (1) Cotton may grow upon a great variety of soils, depending somewhat upon the amount and distribution of the rainfall.
 - (2) Soils rich in lime have been proved by experience to be excellent cotton soils under proper climatic conditions.
 - c. The use of fertilizers necessary.
 - (1) Compare soil exhaustion by:

(a) Fiber.	(b) Seed.
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 - (2) Cotton-oil cake.
 - d. In India.
 - (1) Grown on the plateau back of the western ghats and in the northwest provinces and in the Punjab, by irrigation.
 - (2) High temperature during early growing period.
 - (3) The black cotton soil.
 - e. In Egypt.
 - (1) Chiefly grown in the irrigated districts of Middle Egypt and on the delta.
 - (2) Plants flooded by irrigation from time to time.
 - (3) Abundant sunshine.

5. Harvesting the crop.
 - a. Picked by hand.
 - b. Cleaned from the seeds by ginning.
 - c. Pressed into bales for shipment.
 - d. The by-products.
 - (1) Cotton-seed oil.
 - (2) Cotton-seed cake.
6. From field to market.
 - a. Transportation.
 - (1) When possible by boat. Hence, ginhouses are usually on banks of stream.
 - (2) Points of concentration of the crop, and why.
 - (3) Some of the crop retained in South for local manufacture.
 - (4) Much shipped to northern mills.
7. Manufacture.
 - a. Processes.
 - (1) Spinning (evolution of the process).
 - (a) Distaff and spindle.
 - (b) Spinning-wheel.
 - (c) Spinning-jenny.
 - (d) Throstle.
 - (e) Mule.
 - (2) Weaving.
 - (a) Ring frame spindles.
 - (b) Hand loom.
 - (c) Power loom.
 - (3) Mercerization.
 - (4) Dyeing and finishing.
 - b. States which lead in the manufacture of cotton and the reasons therefor.
 - (1) Northern district.

(a) Massachusetts.	(e) Connecticut.
(b) Rhode Island.	(f) Maine.
(c) Pennsylvania.	(g) New York.
(d) New Hampshire.	
 - (2) Southern district.

(a) South Carolina.	(c) Georgia.
(b) North Carolina.	

IX. The fabrics when woven are sold to the trade and through processes of distribution come ultimately:

1. Into stores, where they are sold for domestic manufacture.
2. Into great factories, where the so called "ready-made" garments are manufactured.

X. The development of the clothing-manufacturing industry has been along most interesting lines of specialization and localization, which are well worthy of critical study in all fields of clothing manufacture, including, among many others:

- | | |
|-------------------|-------------------------------|
| 1. Undergarments. | 4. Boots and shoes. |
| 2. Hosiery. | 5. Collars, cuffs and shirts. |
| 3. Hats. | 6. Ready-made clothing. |

Shelter

I. The homes which men build vary chiefly with:

1. Their civilization.
2. Climatic conditions.
3. Nature of the material which may or must be employed.

II. Civilized races have brought the art of building to a high pitch of perfection. Humble dwellings at the present day have conveniences which kings' palaces lacked not many generations ago. In this connection notice should be taken of the use of steel.

III. Among primitive peoples, who are out of touch with civilization and its vast system of manufacture and transportation, dwellings are most often simple in character and built out of materials easily obtained and manipulated.

1. Snow hut of the Eskimos.
2. Tepee of the Indians.
3. The more elaborate tent of the Kazaks.

IV. Dwellings in rural districts may now be, and many are, built to be heated by steam or hot water, lighted by gas, sewered into some septic tank removed from the house, supplied with running water, and brought into communication with the outside world by the telephone and rural free delivery.

V. 1. In the modern city, except upon remote streets in the suburbs, all the conveniences mentioned in IV above are nearly always found. In addition, systems of fire and police protection are provided, streets are kept clean, garbage is collected, and systems of rapid transit of

various sorts connect all parts. What are the local systems?

2. In the business parts of the city especially only such buildings may be erected as comply with the building code. This code is designed to guard against fire and other dangers, and it exerts a great influence upon the choice and use of building materials. The local building code should be obtained and studied briefly.

VI. Climatic influences are often seen in the style of architecture. Heavy rains frequently mean steep roofs. Light or no rains and abundant sunshine often mean flat roofs and open courts. Cold means heavy walls, tight-fitting and often double windows. Warmth means light construction; latticed and shuttered openings, every provision for free circulation of air, and abundant airy porches.

In concluding this work on dwellings, it would be well to study a typical small house or apartment such as would be occupied by an industrious workman in the locality where the student lives. Such study should include (1) the tracing of the materials which have entered into its composition from forests, field or mine to their incorporation in the building; and should consider (2) the convenience, safety and healthfulness of life and such surroundings when compared with life as it was lived but a few generations ago by the same class of workmen; as well as (3) show how all of the products of the world, in the way of food and clothing, have been made available by the co-operation of men. If time permits, this line of thought would lead up to a specialized study of transportation and a detailed examination of the world's great markets.

TEXT AND REFERENCE BOOKS

Natural School Geography, Colorado edition.

Carpenter's Geographical Readers:

Asia, African, Europe, North America.

South America, and Australia.

Carpenter's Industrial Readers:

How the World Is Fed.

How the World Is Clothed.

How the World Is Housed.

Van Bergen's Stories of China.

Van Bergen's Stories of Japan.

Van Bergen's Stories of Russia.—AMERICAN BOOK COMPANY.

Winslow's Geographic Readers.

Book 1—The Earth and Its People.

Book 2—The United States.

Book 3—Our American Neighbors.

Book 4—Europe.

Book 5—Distant Countries: Asia, Africa, Australia.

Strange People.—D. C. HEATH & CO.

Leading Facts in Geography, Colorado edition; two volumes.

Frye's Home Geography and Type Studies.

Youth's Companion Series.

Our American Neighbors.

Little Folks of Many Lands.

Footprints of Travel.

Jane Andrews' Series.

Allen's Industrial Studies.

Keller & Bishop's Commercial and Industrial Geography.

—GINN & CO.

Geography of Commerce and Industry.—EDUCATIONAL PUBLISHING COMPANY.

The Land of the Long Night.—SCRIBNER COMPANY.

All the Children of All the People.—MACMILLAN & CO.

Aids in Geography, especially that of Colorado.—HERRICK BOOK CO.

GOOD ROADS

Since the public roads so closely affect our commercial conditions, and our social and educational environment, there is every reason why the school boy and girl should be impressed with the importance of good roads, and be given an understanding of the elementary principles of road administration and construction.

A road is the means of internal communication and transportation between points in any country; a place where one may ride or drive; it is an open way appropriated for public passage and travel, for wagons or other vehicles, and is necessary to the good of every community.

Pupils in our public schools must be instructed in the elementary principles and practices of road-making, the beneficial effects of good roads to a community, and such other information on the subject of road construction and maintenance as will better fit them as men to help solve the perplexing road problem, now attracting the attention of our national, state and civic governments.

WHAT IS A ROAD?—The origin and extension of roads. Explain the “trail” or “foot-path” of the pioneers and how they were evolved, by demand of traffic, into the wagon earth-road, the corduroy road, the plank road, charcoal road, gravel road, rock road, and on to the brick and concrete roads of today. What are state roads, county roads, neighborhood roads?

VALUE OF GOOD ROADS.—What permanently improved roads, of whatever class, mean to a state, a county, a rural community. The spiritual, moral, social, commercial and educational benefits of good roads to the country neighborhood, and incidentally to the city. How it affects the rural mail delivery. How the purpose of good roads construction is to leave the imprint upon the child-mind—the man, contractor and road-builder of tomorrow—that good roads are an absolute necessity and must be built, as a church or schoolhouse must be provided for the public good.

WHAT MAKES A GOOD ROAD? The proper location. Explain location. Why a map of a road is made and recorded. The necessity of a profile, and how a profile is made; its necessity in intelligently estimating costs. Explain the grade percentage and how they are determined, and show by tables and charts the great loss in hauling over steep grades, and why and how steep grades should be reduced.

DRAINAGE.—The vital importance of drainage to any road—earth, wooden, or metal surface. What drainage means—the proper methods of diverting or carrying off surplus surface water with the least damage to a roadway. Explain sub-drainage, and what causes necessitate sub-drainage in certain places and under certain conditions. Waterways or outlets—how to estimate required sizes of culverts or bridge openings to carry off natural water-courses or rainfalls, etc. Drain ditches, side ditches, berm ditches. The importance of drainage to properly “crowned” road beds.

CROSS-SECTION.—Explain the cross-section of a roadway. Its relation to the profile of the length of the road. Explain the various terms used in referring to the cross-section of a roadway, such as crown, berm, side ditches, berm ditches. How the widths of road-beds are determined, etc., and why some states have laws governing the widths of road-beds for permanent improved roads.

ROAD CONSTRUCTION AND MAINTENANCE.—Explain methods of bidding on and letting road work by contract, etc. Why a bidder needs the map and profile of a road before bidding on same. How the cross-section helps a bidder. How let: by the whole or “lump,” or by the cubic yard. Specifications—map, profile and cross-section made a part thereof by reference thereto. Explain cubic yard and how to calculate it. Contract and bond. Why the contractor should be familiar with the terms and methods used for calculating earth, rock or other road work. Study the method of staking out road work; how lengths of roads are measured by “stations,” and why. Plus-stations, and why. The marking of center and side stakes. Draw diagrams of regular and irregular “cuts” and “fills.” Explain why and when “grade pegs” are driven. Explain various methods of road construction and study the secret of the successful contractor, and what causes “failures.” Necessity of rolling roadway, etc.

What is the meaning of road maintenance. The importance of prompt repairs, and why. What is meant by mechanical structures and the maintenance of same? The importance of opening drain ditches and other waterways. Mud holes and how treated. Necessity of keeping the crowned road-bed in shape. Explain the terms “tight roof” and “dry cellar” in road talk. The sub-grade and its importance. The “split-log” drag and its early origin and use; its universal use today; its solution of the earth-road problem. Explain the advantages and disadvantages of wide and narrow tires, and high and low wheels, on wagons.

IMPROVED ROADS.—Explain the meaning of the term “metal surface,” as used by road-builders. Tell of the several earth-roads—the wooden age in road-building—the corduroy, charcoal, plank road, pike road or “turnpike” road. Describe the “turnstile.” Tell of the old toll system, and for what the toll was used. Stone tramways, gravel roads, shale roads, shell roads, cobblestone roads; the macadam road; concrete roads. What is concrete, and how made? Proportions of cement, sand and rock, and why. Bituminous concrete; asphalt; how applied, etc. Binders and fillers in rock and brick roads, and what they affect. Oil as a preservative and dust-arrester in roads and streets.

Ravenel's “Road Primer,” McClurg & Co., will be helpful to teachers and is a good book for the school library.

AMERICAN HISTORY

The following outlines are offered for a course of history covering the fifth and sixth grades.

The purpose of history-teaching in these grades is to awaken interest, encourage supplementary reading, and present worthy ideals; it is not to prepare for any kind of examination. As the same characters will be presented in chronologic sequence in the seventh and eighth grades, no time in the fifth and sixth grades should be spent in general reviews. Text-books written from the biographic point of view may be used very sparingly in the fifth grade, more profitably in the sixth, but the great value of the work for these years will depend on the teacher's power of *story-telling*.

These stories should impress the fact that our civilization had its beginning far back in the history of another continent; that we are all emigrants to this country, and that the history of the country in which our forefathers lived is a part of our history; that England, Holland, Spain and France have a vital part in the story of our civilization. Tell of the ancient cities that still exist; how the ancients lived. Tell of Hercules and his labors, search for the Golden Fleece, siege of Troy, wanderings of Ulysses, etc.; how the Greeks lived; Greek colonies in Italy, Gaul and Spain; Roman conquest of Gaul, Spain and Britain; Viking voyages to Greenland and Vinland; Venetian trade with the East and Venetian voyages to London; Marco Polo's travels to China and the East; Portuguese voyages down the coast of Africa and about the Cape of Good Hope; and thus lead up to the discovery of America.

In the child-mind place precedes time; therefore it is proper to introduce map- or globe-work as a part of each lesson. Picture-study, whenever possible, should receive ample attention and should be skilfully directed by the teacher. Often a picture will prove the best introduction for the story.

These story-lessons should be reproduced by the pupils orally in the fifth grade, and written in the sixth grade; that is, if the children have acquired a vivid interest.

Ample time should be allowed to each life. One or two lessons may suffice for less important characters, but the greatest Americans should be presented in a series of biographic pictures. The moral value of history is so generally appreciated that a word of caution seems imperative. *History skilfully and truth*

fully told is its own preacher. It is advised that rural schools begin this work about October, and continue it to completion with two lessons a week.

FIFTH YEAR

The story of the life of the following persons should be told, not read, to the pupils:

LEIF THE LUCKY, 1000.—Map-work: Locate settlements made by the Northmen in Iceland, Greenland and America.

COLUMBUS.—1492.—Map-work: Locate on map or globe Genoa, Venice, Portugal, Spain, Palos, the Canaries, San Salvador, Cuba, Hayti, the Azores.

Trace on a map the routes of Cabot, Verrazano, Cartico, Hudson and Columbus.

DRAKE AND THE ARMADA, 1588.—Map-work: Trace the route of Drake on his voyage around the world.

RALEIGH.—Map-work: Locate Devonshire and Roanoke.

JOHN SMITH.—Jamestown, 1607.—Map-work: Locate Jamestown, Chickahominy River, Chesapeake Bay.

POCAHONTAS.—In this story bring in Indian life, dwelling, dress, food, work, weapons, etc.

MILES STANDISH AND THE PILGRIMS, 1620.—In this story bring in life of Pilgrims, corn, fish, free-trading, church-going, schools. Map-work: Locate Scrooby, Leyden, Delft, Haven, Plymouth in England, Cape Cod, Plymouth in New England.

GOVERNOR WINTHROP AND THE PURITANS.—Map-work: Locate Salem, Charlestown, Boston, Cambridge, Dorchester, Watertown.

ROGER WILLIAMS.—Map-work: Locate Providence and Newport.

HENRY HUDSON.—Hudson River, 1609. Map-work: Locate Holland, Norway, North Cape, Hudson River, Fort Orange (Albany), Hudson Bay.

CHAMPLAIN.—Bring in French missionaries and the great canoe voyage. Map-work: Locate Quebec, Richelieu River, Lake Champlain. Trace on a map the journey of La Salle, Fort Frontenac (Kingston) to the Gulf of Mexico. Locate the Chesapeake Bay, the Potomac River, St. Mary's.

BENJAMIN FRANKLIN.—Map-work: Trace Franklin's first journey from Boston to Philadelphia.

MONTCALM AND WOLFE.—Map-work: Locate on an outline map the line of French forts from Louisburg to Duquesne. Locate the English forts, Oswego, William, Henry and Edward.

LOCAL HISTORY.—Oldest house in your village or city. Are any of the relatives in school of the people who built these homes?

Industries in your immediate neighborhood. Schools. Who pays the teachers? Who pays for fuel and repairs? From what source do they get the money?

Who keeps order in the village or city? Who furnishes the money to pay the policeman or constable?

LOCAL TAXES.—Who says how much each shall pay?

SIXTH YEAR

Ample time must be taken to explain local government. In villages and rural districts the annual election of school boards may illustrate representative government. In all cases it should be clearly shown that the taxing power belongs either to the people or to those whom the people have chosen. Take weeks, if necessary, to get clear ideas. Then introduce the story of the Magna Charta and the execution of Charles I, emphasizing only the point that the quarrel between the kings and the people was in regard to the *right* to levy taxes.

PATRICK HENRY.—In this period bring in the fact that there was no president. Map-work: Locate Williamsburg and Richmond.

SAMUEL ADAMS.—Map-work: Locate Boston, Lexington, Concord, Charlestown.

GEORGE WASHINGTON.—Map-work: Locate Delaware River, Trenton, West Point, Valley Forge, Yorktown, New York.

PHILIP SCHUYLER AND SARATOGA, 1777.—Map-work: Locate Montreal, Lake Champlain, Lake George, Ticonderoga, Bennington, etc.

JOHN PAUL JONES AND OTHER NAVAL HEROES.—Map-work: Locate Nassau, Lake Erie, Plattsburg.

THOMAS JEFFERSON.—Map-work: Locate Charlottesville, Williamsburg; the approximate boundaries of the Louisiana Purchase.

ALEXANDER HAMILTON.

DANIEL BOONE.—Map-work: Locate North Carolina, Kentucky, Cumberland Gap, Boonesborough, the Kentucky River, Lexington.

ANDREW JACKSON.—Map-work: Locate Nashville, Pensacola, New Orleans.

HENRY CLAY.—Map-work: Locate Richmond; trace the Cumberland road.

DANIEL WEBSTER.

ELI WHITNEY AND ELIAS HOWE.—Fulton, Clinton and Stephenson. Map-work: Trace the route of the Erie Canal, and locate the prominent cities on it.

LINCOLN.—Map-work: Find places mentioned in your story on map.

GRANT.

LEE.

FARRAGUT.

CLARA BARTON.

CYRUS McCORMICK.—Map-work: Locate the states in which a reaper does its greatest work.

THE ELECTRIC AGE.—S. B. F. Morse, Cyrus Field, Alexander Graham Bell, Marconi, Franklin, Edison.

SEVENTH YEAR

The seventh and eighth years are devoted to a more careful study of the history of the United States than was possible in the sixth year. The teacher must assume that the students have a basis of knowledge of the larger facts and of the more important characters. In the first few weeks ample time should be taken to show the pupils how to study the assigned text.

It must be borne in mind that European history and American history have a necessary connection, and that European impulses controlled American colonization, customs and early wars. For instance, the atrocities of the English debtors' prison is a good story to lead up to the settlement of Georgia.

First Month. IMPROVEMENTS IN THE SERVICE OF NAVIGATION.—The eastern trade; means of travel; difficulties of the journey; the effect of the fall of Constantinople; the invention of printing; general geographical knowledge. Have the pupils trace on an outline map the old trade routes, and discuss with them the difficulties and expense of carrying on commerce. Make it clear that the great commercial and geographical problem then was the finding of a new trade route to the East. Have the class study and discuss with them the part the Portuguese had in trying to find an all-water route around Africa to India, and show how this prepared the way for Columbus. On a map of the world have the pupils show in colors: (1) the world as known by the Europeans at the time of the Crusades; (2) the part of the world made known or better known by Marco Polo; (3) the part made known by the Portuguese. Lead the pupils to see that the work of Columbus was but the continuation of the effort to

find out a new route to India, and that his plan was the natural one after the work of the Portuguese.

THE NORSEMAN.—Nature of the evidences of discovery.

AMERICAN INDIANS.—Algonquins, Iroquois and the Mashkoki; territory occupied by each; products, life, implements, religion, warfare; present Indian reservations.

Second Month. LIFE AND VOYAGES OF COLUMBUS.—Brief accounts of John Cabot, Amerigo Vespucci, Ponce De Leon, Balboa, Cortez, Pizarro, Cartier, Drake, De Soto, Hudson, Magellan; with the discoveries made by each.

Map-work: An outline map of the Western Hemisphere, showing in different colors the explorations of Columbus, John Cabot, Verrazani, Cartier and Hudson.

Third Month (as given in text-books used).—SETTLEMENTS.—Virginia, Maryland, New England.

Map-work: On an outline map locate all the New England settlements made before 1750 and mentioned in the text-book.

Fourth Month. NEW YORK.—Map showing location of the five important Indian tribes. Pennsylvania; the Carolinas; Georgia.

Map-work: An outline map of North America, showing in different colors important permanent settlements made by Spain, England, France and Holland.

Fifth Month. It should be carefully noted here that the two great European nations, France and England, are intensely jealous of the colonial development of each other and are anxious to possess the Hudson River, the key to all the possessions on the Atlantic coast.

STRUGGLE BETWEEN FRANCE AND ENGLAND FOR A CONTINENT.—Emphasize the following points: the inevitableness of the conflict; relation of each to Indians; attitude of the several colonies; reasons for English victory; effect of war upon the colonies.

Map-work: A map showing the principal French and English military stations; a map showing the division of North American territory according to the treaty of 1763.

Sixth Month. LIFE IN COLONIES BEFORE REVOLUTION.—Contrast with today.

Seventh and Eighth Months. REVOLUTION.—Remote Causes, immediate causes; the first Continental Congress; Lexington and Concord; the second Continental Congress; Bunker Hill; Declaration of Independence; Washington drives the British out of Boston; battle of Long Island; Washington's retreat; Lafayette

and Steuben; capture of Philadelphia by Howe; Burgoyne's campaign; Valley Forge; Arnold's treason; Green's campaigns in the South; Yorktown; treaty of peace; weakness of the government; biographies of Franklin, Washington and Robert Morris.

Study the Articles of Confederation. Show where the articles were weak.

THE CONSTITUTION.—(Good time to organize a club, and have the class draft a constitution.) Highest law of the land. Three departments, and principal duties assigned each department.

IMPORTANT DATES.—Discovery and exploration: 1492, 1497, 1534, 1588. Settlement: 1607, 1608, 1609, 1614, 1620, 1664, 1689, 1754, 1763. Revolution: 1765, 1774, 1775, 1776, 1777, 1781.

EIGHTH YEAR

ORGANIZING THE GOVERNMENT.—The inauguration of Washington; choosing a cabinet; duties of the cabinet officers; debts and revenues; formation of political parties; the United States Bank; the United States Mint; retirement of Washington, and his advice in regard to education, a national militia and European friendships; troubles with France; the liberty of the press and the unpopularity of John Adams; biographies of Hamilton and Jefferson.

1. GROWTH UNDER THE CONSTITUTION.

a. The purchase of Louisiana; the Lewis and Clark expedition. Map-work: Map of the United States in 1803, showing the original states, the states admitted between 1789 and 1803, and the Louisiana Purchase.

b. War of 1812: Causes; winning Lake Erie; defending New York; the burning of Washington; the defense of New Orleans; effects of the war on the settlements of the West and in increasing manufactures in the East. Map-work: Map of the United States and Canada, showing the principal battlefields of the War of 1812.

c. The purchase of Florida. Map-work: Map of the United States east of the Mississippi, showing outline of the Florida Purchase.

d. Opposing forces: Increase of cotton-growing, and resulting demand for more slave territory; increase of manufactures, and resulting protective tariff; balancing of free and slave states; Maine and Missouri; the Missouri Compromise. Map-work: Map showing in different colors the free and the slave states admitted from 1789 to 1821, with the date of the admission of each.

e. Improvements in transportation and travel; the steamboat; the Cumberland Road; the Erie Canal; railways. Map-work: Map showing two main lines of travel from the Atlantic to the Mississippi (1800-1850).

f. Jackson, Clay and Webster: The "spoils" system; nullification; the Oregon country.

g. The telegraph.

h. War with Mexico: Causes and results; the discovery of gold in California; how gold in California spoiled plans for the extension of slave territory; the compromise of 1850.

Map-work: Map of the United States, showing in different colors the following: (1) the original states; (2) the Northwest Territory; (3) the Louisiana purchase; (4) the Florida purchase; (5) Texas; (6) the Oregon country; (7) the Mexican cessions.

2. THE CIVIL WAR.

a. Causes of the ill-feeling between the North and the South: The Dred Scott decision; enforcing the fugitive-slave law of 1850; the war in Kansas; "Uncle Tom's Cabin;" John Brown's raid; election of Lincoln.

b. The war: Secession of states; Fort Sumter; arming of the North and of the South; the first battle of Bull Run and its lessons; the blockade; attempts to take Richmond; slicing off the territory of the Confederacy; Lee's invasions of northern territory; the final campaign. Map-work: Show by different colors on an outline map of the United States the free states, the slave states that remained in the Union, the states that seceded.

c. Great leaders: Lincoln, Grant, Lee, Sherman, Sheridan, Stonewall Jackson.

d. Results: Maximilian and the Alabama claims; the Emancipation Proclamation; the thirteenth, fourteenth and fifteenth amendments; ignorance and freedom; dangers in the southern states; how Lincoln and Johnson wished to deal with the South; how Congress dealt with the South; carpet-baggers, scalawags and Ku Klux; depriving the negro of his vote.

3. ONE NATION OF MANY STATES.

a. The purchase of Alaska; products.

b. Steps of progress: The Atlantic cable; the first transcontinental railway; growth of the West; the Homestead Act; cattle and sheep ranches; irrigation; manufacturing in the South; education of the negro; growth of cities; the telephone; electric traction.

c. The assassination of Garfield, and civil-service reform.

d. War with Spain and island possessions: Dewey at Manila; Sampson and Schley at Santiago; Roosevelt and the Rough Riders, the treaty of peace; territorial additions.

e. The Panama Canal; the Hague Tribunal.

Map-work: Map of island possessions, showing relative size.

4. LEADERS IN LITERATURE, SCIENCE, PHILANTHROPY.

a. Irving, Cooper, Hawthorne, Longfellow, Whittier, Bryant, Greeley.

b. Morse, Fulton, McCormick, Howe, Ericsson, Field, Eads, Bell, Edison.

c. Peter Cooper, Riis, Carnegie.

5. IMPORTANT DATES.—1789, 1803, 1812, 1819, 1820, 1825, 1846, 1850, 1861, 1865, 1898.

6. ACTUAL GOVERNMENT.

a. Colorado.

(1) The legislature: The two houses; how a law is made; the taxing power.

(2) The governor: Commands militia; summons and advises the legislature; sees that laws are enforced; directs business of the state; signs or vetoes bills.

(3) Justices: Try offenders against law; settle disputes; state the meaning of laws.

b. City governments.

c. County government: Supervisors; sheriff; county court.

d. National government.

(1) Legislative: National taxation; kinds of taxes and methods of collection.

(2) Executive: Finances; army and navy; foreign and home business; post-offices; agriculture. Illustrate by commonly known governmental activities, which vary with localities.

(3) Judicial: Determining the meaning and value of laws. Illustrate by Dred Scott decision and the decision in regard to income tax (1895).

7. GENERAL REVIEWS.—From 30 to 40 per cent of the lessons of the eighth grade may well be spent in a general review, preferably by topics, such as territorial accessions, wars, travel and transportation, great inventions, the slavery question, the civil service, tariff laws, business panics, postal facilities, and methods of communication.

HISTORY OF COLORADO

EARLY INHABITANTS—THE CLIFF-DWELLERS

NOTE.—The following facts are hard to obtain; few text-books contain them. The information given regarding the cliff-dwellers is from personal knowledge and research. No attempt has been made to give facts contained in the text-books in use.

The claim is often made that "America has no past;" but this is not true, for thickly scattered over the West are footprints of a vanished people, and southern Colorado is rich in ruins of laboriously built dwellings, which are of cut stone, with roofs, doors and windows. These ruins are found in groups in isolated and barren places, along ridges and knolls, and in the fertile valleys. A visit to these ruined homes tells a tale of Colorado in the prehistoric period, and no story is more interesting than that told by the bones of an extinct race, by their rude garments, tools and weapons. Hence we cannot truthfully say that "America has no past."

The Mesa Verde, the Montezuma and Mancos valleys, all located in southern Colorado—that Southwest that is said to be "beloved of the sun and bereft of rain"—are literally covered with bits of broken pottery, while all about are mounds, the sites of ancient villages and cemeteries. Ruins are also found in San Juan County, and as far north as the Shavano valley near Montrose. The area of the prehistoric ruins of the Southwest covers a tract of 6,000 square miles.

Visitors to the historic Southwest travel many miles without seeing a living thing, save a buzzard or coyote; and then in a land of tradition and perpetual sunshine, where broad acres dip away between towering cliffs, they find a city of a bygone time and people, and realize that American history did not begin in 1492; that there were people—who, we have reason to believe, were white—living in our country before the great explorer landed upon our shores.

Little is known of these early inhabitants of Colorado. They left no records, no literature, and the hieroglyphics found, though deciphered by archaeologists to the best of their ability, give little of their history. Indeed, the rude drawings of weapons, animals, and strange-looking men and women found can only be interpreted as stories of hunters, of journeys once made; and we are obliged to piece together, as we can, the story of a people who lived, loved and suffered when the cliffs echoed with human

voices; for infinite days and nights have passed, peopled only by the silence, and the first white inhabitants of Colorado passed away, leaving only their ruined homes, and a few rude weapons and tools, as the legacy of a semi-civilized people.

The Mesa Verde is a canon made by the waters of the Rio Mancos, which winds its intricate way through the mesa at a depth of from 600 to 1,500 feet. Its sides are barren cliffs, jagged rocks and perpendicular walls of sandstone; and on these cliffs, high up among the rocks, in seemingly inaccessible places, we find the ruined homes of the cliff-dwellers, as these early Coloradoans are now called. The Cliff Palace—so named by its discoverers, "the Wetherill boys," cowboys then living at Mancos—the most remarkable group of cliff houses found, is there. The palace consists of a group of houses, containing 127 rooms upon the ground floor, and 350 in all, with the remains of twenty round and square towers. It occupies 500 feet of space, and is built beneath a grand overhanging crag or cliff in Cliff Canon. The shelving cliffs, which are studded with the ruins of human habitations, resemble cells in a honeycomb, and prove that Colorado's early inhabitants were wonderfully skilful in turning to practical use the protection offered by the cliffs and rocks. The houses are built in rows, one above the other. Each compartment has one opening, either a door or window, which is some thirty inches in height, and two or three feet from the floor. Some of these windows have lintels of cedar, round and unhewn, while others are of stone. The rooms are small, some are plastered, and there are still signs of primitive frescoing in dull red and black. The outer walls, which are from twelve to sixteen inches thick, are of sandstone, with mortar of a grayish white, cunningly built to imitate the cliffs themselves, and it is possible to travel up and down the canon many times without detecting them. Upon the Mesa Verde, a green tableland principally located upon what was once the Ute Indian reservation, there are from 400 to 500 cliff houses, and these ruins, with those of Acowitz Canon, have yielded many wonderful relics, such as pottery of unique design, straw and rush matting, fragments of cotton cloth, feather cloth (the feathers are supposed to be those of the wild turkey), cord, mocassins, balls of salt carefully wrapped in corn husks and hung out of harm's way, and primitive implements of agriculture and warfare. The pottery found is earthenware of a rough gray, of which there is an endless variety, coiled ware, also gray, and the ware resembling wicker-ware. Water jugs are often found, and

little lamps, with sometimes a bit of wick that has defied the ages. These little lamps are the rarest bits remaining. Besides the pottery found, there are a great many utensils; but there is not a trace of any metal, all the implements and utensils of this lost people being fashioned of clay, rock, wood or bone. Pieces of turquoise have been picked up among the ruins, but it is evident that the great bodies of gold, silver and copper that abound in the West were a sealed book to the early inhabitants.

It is due to the fact that the sun shines perpetually, and that nature has little time for tears in the Southwest, that we find these precious relics in such a perfect state of preservation. Little wood was used in or about the cliff houses, as it is a comparatively woodless country; yet, notwithstanding that fact, there are timbers upon which the ruins still rest, which once were the floor supports, forty feet in length. These timbers must have been brought from the distant mountains by the people themselves, and at terrible cost; for there is not a suggestion of a pack animal or horse. These beams must have been felled with stone axes, the ends looking as if they had been worn through. Corn cobs are frequently found, even primitive corn cribs, on whose contents the tooth of time has not alone been busy; and there are other evidences that the lost race was given to agriculture and peaceful living.

In these cliff homes the dead were laid to rest in the rear of the dwellings, in a space made by the floor and roof coming together within some four feet. A stone wall is always found as the dividing line, and there, covered by the dust of ages, are the bones of this lost race. Well-preserved mummies are found with an outer wrapping of matting and an inner wrapping of feather cloth; but some have been found without such careful burial, and some in a position that speaks of sudden and possibly violent death.

Just why it has been taken for granted that these early settlers were a dark race it is hard to say, but even archaeologists were agreed upon that point until several mummies laughed their theory to scorn with their red hair.

Near by the cliffs are the valley ruins, and many graves are found there over which a stone slab rests, and upon that slab, when it is uncovered, are nearly always found the remains of charcoal and burnt corn—mute testimony that the dead were speeded on their way with refreshments. When these valley graves are opened, they are usually found to contain pottery, war

clubs and flint trinkets; for few members of this historic race went to their long rest without at least a single piece of choice pottery. As to the skeletons found, there is probably as great a variety as a cemetery of today would yield; but the skulls of these first Americans, though there are "long heads," "flat heads" and "short heads," tell no story. They are sightless and voiceless, and the question confronts us: Who were these people? Of what race? What was their relation to the Toltecs, the Aztecs, to Mokis or Zunis? It is generally held that the cliff-dwellers were related to the Aztecs, and it is a well-established fact that they were fire-worshippers; for there is always an immense inner room in a cliff village with a place that at one time contained the sacred fire, which, without doubt, was kept burning until their extinction. They also worshiped the sun as God, and on many cliffs rude pictures of sun-gods are found.

An inner chamber, which is usually circular in shape, and which is called by the Spaniards an *estufa*, is taken as evidence that this strange people had a place of worship, though it may have been merely a council chamber. However that may be, savages never built the stone houses in the cliffs. They never made pottery in so many shapes without the aid of a potter's wheel. They never wove cloth from wild cotton, flax and yucca, and they never made feather cloth from the down of birds, laid out roads of uniform grade, and made reservoirs for the storage of water. Yet all these things were done among the cliffs of southern Colorado, though "the memory of man runneth not back" to that time. How long ago was it? A great spruce tree, fully a hundred feet high and nearly, if not quite, ten feet in circumference, grows from one of the ruined homes and echoes the question: "How long ago?"

The mound-builders sleep in the valleys; the strong cities of the cliffs are leveled; the tribes are extinct and their language lost; but the dead and gone tribes of valley and cliff were the first settlers of Colorado. They lived centuries before Cortez beheld the snow-capped mountains, and the Southwest of Colorado was the cradle of primeval humanity.

There is a legend that tells us that the Toltecs, with a civilization older than the pyramids, came from a remote country to our own; that theirs was followed by an Aztec dynasty, which, in turn, was overthrown by a fairer, larger people, the overthrow occurring about A. D. 900, when a primitive civilization, extending from the lakes of the North to the Gulf, was wiped out, and

the stricken survivors fled to establish homes and defenses among the cliffs. This may be the story of the lost people who were making American history before the coming of the great explorer; but we cannot break the silence of the ages, and, year by year, sage-brush, pinon and scrub oak creep over the ruins, and spreading their green skirts try to hide the ruined homes from curious eyes.

The Indians who lived at one time in this section, and who still wander over their old hunting-ground, were never a menace to these ruins, as their superstition forbids them to molest the ruined homes of their remote predecessors. Ignacio, chief of the Utes, has always claimed these homes and graves as a legacy left by his ancestors, and urges that they be not disturbed by "the pale-face."

In the years since the discovery of these ruins there has been much exploring and digging in the cliff dwellings, but science has not animated the hand of the digger. Explorers have all been led on by the desire for relics, and scientific knowledge has been forgotten. Already treasures from these prehistoric homes have gone out to the world in large consignments; yet even the celebrated Swede, Nordenskiöld, who was first to arouse scientific interest in these ruins, and who carried away a priceless collection, failed to do any thorough or scientific work when digging and exploring, many relics being found later in the houses where he had excavated.

Appreciating that the slow-moving machinery of state and nation might eventually result in reserving a tract of land on which there was nothing to reserve, the club women of Colorado formed a society for the preservation of the ruins, and for a time were their custodian. But the ruins are now set apart as Mesa Verde National Park by act of Congress approved June 29, 1906. This park is placed under the control of the secretary of the interior, who is responsible for the care and management of it; also for the preservation from injury or spoliation of all ruins and relics within the limits of the reservation.—H. M. W.

THE COMING OF THE WHITE MAN—THE EARLY PIONEERS

Looking back into Colorado's early history, we see little save mountain ranges and stretches of desert. But a misty column of human beings is moving westward. They tread the dusty plains and wind through the mountains. From the south came brave, visionary Spanish pioneers, who blazed their way with fire and

blood, and raised their crosses and established their faith on Colorado soil under the Castilian flag.

Cautiously the French followed, and the native Americans kept tireless vigil as their territory was invaded.

Priests, savages and Christian knights! They are but phantoms to us, as they flit from mountain fastness to valley and plain, and are lost at last in the mighty shadow; yet they opened a trail across the western border that skirted the eastern base of the Rocky Mountains seventy-nine years before the Pilgrims landed on Plymouth Rock.

According to many authorities, the first white men to penetrate the wilds of Colorado were some 800 Spaniards and Mexicans under command of Francisco Vasquade Coronado. This was in 1540, and they sought the "Seven cities of Cibola." These men were sent northward from Mexico by the Spanish viceroy in search of gold, and, failing to find it, returned, leaving Colorado again in undisputed possession of buffaloes and red men.

France, with little idea of the magnitude of her claim, once claimed the western region as far west as the Pacific Ocean, calling it the "Province of Louisiana," and in the same indefinite manner Spain set up ownership as far north as the southern boundary of Colorado. The history of this vast region, once known as the "Province of Louisiana," then as the "Territory of Louisiana," and last as the "Louisiana Purchase," began shortly after the death of Christopher Columbus.

There are few events in the history of American progress so important as the purchase of Louisiana, although Thomas Jefferson said of the territory involved: "It is a barren sand, individuals will not buy. We gain nothing but peace."

After many history-making years as the Louisiana Purchase, the vast area was split into twelve states and one territory, Colorado falling heir in this way to two-fifths of her territory. At the close of the Mexican War, another large tract of country, consisting of the broad acres south of the Arkansas River, which, up to that time, had been claimed by Texas, was turned over to Colorado; but the greater part of Colorado's territory was ceded to the United States by Mexico at the close of the war of 1846-48.

Following the purchase of Louisiana, our government, deciding to investigate its new possessions, sent out an expedition of twenty-three men, under Lieutenant Zebulon Pike, to explore the region, and it was in 1806 that he caught his first glimpse of the towering peak that bears his name today. Resting under the sun of a November day, the Rocky Mountains seemed to that little

land of hungry, weary men "Blue Mountains" indeed, and so they named them. The great peak, rearing its head so high in the clouds, was pronounced quite "inaccessible" by the explorers—one of the Almighty's "no thoroughfares." But that was a hundred years ago. Thousands have since wended their way to its summit, and but a few years ago a centennial celebration was held in honor of the intrepid explorer, Zebulon Pike, who, with his little detachment, was said to have been the first white visitor to the territory over which he traveled.

For many years after Zebulon Pike first saw the peak which bears his name, it was called "James Peak;" the name being given it in 1820 and continued until 1849—the year of the rush to the California gold fields. Then the pioneers, who had never liked the name, declared it should be "Pike's Peak;" and Pike's Peak it has since been, and will so carry the name of the great explorer down the stream of time. It was Zebulon Pike who first broke ground for a settlement where Pueblo now stands, raising there, for the first time on Colorado soil, the American flag. It was Zebulon Pike who first looked down from Music Pass upon the San Luis valley, calling it a "terrestrial paradise" shut in from the sight of man; and it was Zebulon Pike who said of our plains that they might in time "become as celebrated as the deserts of Africa."

Thirteen years later, in 1819, a second expedition was sent out by our government under Major Stephen H. Long of the United States army. After much toilsome travel, this expedition struck the South Platte early in the year of 1820, and, footsore and weary, followed westward until in sight of a mountain range, where they halted, camped and named the highest peak in sight for their leader, Major Long.

John C. Fremont made a visit to what is now Colorado in 1843, reaching Fort St. Vrain on Independence Day. He made his third trip in 1845. At that time he came to explore and learn if a railroad could be built through the Rocky Mountains, such an enterprise being under serious consideration. Fremont's camp, called "Camp Starvation," was situated near Wagon Wheel Gap, and the first federal military post on Colorado soil was located at Fort Massachusetts, on Ute Creek, just at the western base of the Sangre de Cristo Mountains in 1852. Captain John W. Gunnison, who gave up his life in the exploration of the West, entered Colorado in 1853.

In our histories these early explorers are given credit to an extent that is hardly fair; for the great, impenetrable West was

known to many trappers and other white men before the time of Fremont, Pike or Long. But it was the gold discovery, with its hope of speedy wealth, that drove thousands across the dreary ocean of dust and into the solitude of our mountains—some to reach the promised land of plenty, others to die of “hope deferred.”

In 1821 the embargo upon trade with Mexico was lifted, and the old Santa Fe Trail, which for years had been only a trace across the desert, over which pack trains traveled, became a busy highway of commerce. Three years later the first wheels cut ruts in the Old Trail that threaded the lonely desert, and with the close of the Mexican War the old highway was thrown open to an enormous pilgrimage, and hundreds of white-topped wagons crept ceaselessly back and forth. On the original trail, leading through the Taos valley, Pueblo was located.

The old coaches and the men who handled the “ribbons” are gone these many years, but the Daughters of the American Revolution of Kansas, Colorado and New Mexico have marked with granite slabs the old trail that in the early day made possible the “commerce of the prairies.”

The first party of men to reach the vicinity of Cherry Creek is said to have been a party of nine sturdy sons of Georgia. They arrived with the spring of 1858, but close upon their heels came a second party, who chose to camp near what is Pueblo today. They set up their camp of twenty or thirty cabins, and promptly christened it “Montana City.” Settlements began to spring up in many places at this time, and soon after the establishment of “Montana City” a settlement was formed near the present site of Boulder, and in September the first permanent settlers arrived at what is now called Denver, though at that time it was St. Charles, Arapahoe County, Kansas Territory. St. Charles was situated upon the east side of Cherry Creek, in what is now East Denver, and at once on the west side of the creek a rival camp sprang up. The new settlement boasted one hundred incorporators, and there was fierce rivalry between the two camps, the west side camp, which was called Auraria City, usually being in the lead. The boom of St. Charles blew away one gusty November day, but the abandoned site was soon taken possession of by General William Larimer and a party of forty, who organized the Denver Town Company, ignored the old name of St. Charles, and christened the new town Denver, in honor of James W. Denver, then governor of Kansas.

At this time the Territory of Kansas, to which Colorado was attached, extended as far west as the Rocky Mountain range, and the entire district was known as "the Pike's Peak Region." Adventurers were flocking in from every quarter of the globe to take up a residence upon one or the other side of Cherry Creek, in order to prospect the adjoining country, and from that early day to the present time Denver has been the point of arrival and departure for the multitudes that have followed.

The panic of 1857 left many men facing poverty. In the East was the spirit of unrest born of such a financial upheaval, and it was natural that new fields should be sought. The reports of gold discoveries in Colorado spreading, a continuous stream of humanity traveled westward from the Missouri River, the hope of a golden reward leading them to face the terrors of savage foes. And so the march of progress, that gave "the Domain of Gold to the World," began.

These early pathbreakers were made of stuff that could suffer hardship unflinchingly, and few less desirable followed in their wake. Fifty thousand men are said to have journeyed to the land of gold at that time. It was, in that day, "Pike's Peak or bust," and, as has been said, the fact that the one-hundredth anniversary of the discovery of Pike's Peak has been celebrated proves that many reached their destination without "busting."

The first election held in Colorado was November 6, 1858. There were less than two hundred voters in all the broad expanse of country, and some were citizens by only a few weeks' residence; but upon the founding of Arapahoe County political enthusiasm began.

There was not a large amount of formality at that first election, and the election judges were not obliged to sit long after the sun went down to count the ballots, as there were but thirteen ballots cast and but one precinct. No doubt, however, caucuses were held and a vigorous fight made at Colorado's first election. The result was that H. J. Graham was elected delegate to Congress, and A. J. Smith representative to the Kansas legislature. Two days after the election was held, Mr. Graham was on his way to Washington to urge that a new territory, to be called "Jefferson Territory," be formed; but Congress failed to take Mr. Graham very seriously and he was not successful. Smith was more so and succeeded in having Arapahoe County officially established by the Kansas legislature, the new county including the entire region extending to the western limit of Kansas. When the Thirty-sixth Congress met in 1860, Arapahoe County was not

popular, and the self-constituted "Territory of Jefferson," of which Robert W. Steele was governor, was in a dying condition. The delegate to Congress—Williams by name—was leading a strenuous life endeavoring to be recognized as such, and the edict had gone forth from his constituents that a new territory *must* be formed, "the home-made territory," as Historian Smiley has styled it, being little better than no government, and the jurisdiction of Kansas more a theory than a fact. A bill was presented to Congress setting forth the situation; but feeling ran high at the time between North and South, and rather than constitute a new territory pledged for or against slavery, all such bills were tabled. Nothing daunted Delegate Williams, and with several representatives from Colorado he was on hand at the opening of the following session to renew the battle; and upon February 1, 1861, the Senate called up the bill organizing the "Territory of Idaho," which was the name decided upon. After several minor amendments, one at the request of Delegate Williams, striking out the word "Idaho" and substituting the Spanish word "Colorado," the name suggested by Governor Gilpin, the bill passed the Senate. There was an effort made to reconsider, as there had been no declaration upon the slavery question, but the motion was lost, and on February 9 the bill passed the House. February 28, 1861, President Buchanan signed the bill that created Colorado Territory. The bill went through easily at last. Any number of territories as far away might have been constituted during that tragic session, for senators and representatives alike were looking with tense faces and tenser nerves at the nearer problem that threatened the Union, and were hearing the sound of guns. The smoke of battle was upon them, and no man could foretell the end.

The different names proposed for the new Territory of Colorado were Idaho, Montana, San Juan, Columbus, Lula, Lafayette and Jefferson.

The good news that the bill had passed and become a law was six days in reaching Colorado, and was not generally known until March 4. Colorado Territory was created in the last days of the Buchanan administration, but President Lincoln made the first territorial appointments, and on March 22 he sent to the Senate for confirmation the name of William Gilpin, of Missouri, for governor; Lewis L. Weld, of Colorado, for secretary; William L. Stoughton, of Illinois, for attorney general; Francis M. Chase, of Ohio, for surveyor general; Copeland Townsend, of Colorado, for marshal; and B. F. Hall and S. F. Pettis for the Supreme Court.

The joy over the new territory soon dimmed, and Denver became the central point for the wrangling of territorial politics, and territorial misgovernment was soon found to be an intolerable burden, which, however, was borne for fifteen years. In that time there were eight administrations, two being under Governor McCook.

Governor John Evans, one of the great captains of civil life, was the second territorial governor, and Alexander Cummings, who gave an illustration of territorial politics, and of whom there is little good to be chronicled, followed him as the third governor. Then followed A. C. Hunt, Edward McCook, Samuel Elbert, McCook for his second term, and John L. Routt.

The second term of McCook was so offensive to the people that it was largely instrumental in determining them to throw off the territorial yoke, and John L. Routt took office with the clear understanding at Washington that statehood was to be obtained as quickly as possible.

During the lifetime of Colorado Territory five delegates were sent to Congress, Senator T. M. Patterson being the last to serve in that capacity, his second election being for the regular term of member of Congress. The first territorial legislature consisted of nine members of the Council and thirteen members—for they were not superstitious—in the House.

For a time the location of the territorial capital was uncertain, there being three different locations in seven years. These were Denver, Colorado City and Golden. Colorado City was decided upon as the first capital November 5, 1861, but it took only four days to change the minds of the locators, and the capital was transferred to Golden for the following session, and not until 1867 was it moved to Denver. In 1874 the legislature came near making Pueblo the seat of territorial government, such a bill passing the House. In the midst of unrest and dissatisfaction with the existing government, a State Constitution Convention was called October, 1875, and by March of the following year had completed its work. It was voted upon July 1, 1876, and carried by an overwhelming majority, the vote in Denver alone being 5,591 to 37; and on August 1 came General Grant's proclamation declaring Colorado a state of the Union.

In this brief space it is impossible to speak of the many history-making details, or of the splendid heroism of the early pioneers who made it possible for this state to witness the most magnificent development of civilization and human progress that the world has ever known.

There was a time when Colorado was just a vague spot upon the United States map; when bounding it was like bounding a foreign land. Today the very name of Colorado, the world over, stands for splendid energy and progress. For this we must thank the men and women who triumphed over every obstacle; who made the desert "to blossom like the rose." And high on the honor roll of Colorado are the names of William Gilpin and John Evans, men of ability, lofty purpose and great integrity; Jerome B. Chaffee, George M. Chilcott, John L. Routt, William N. Byers, who established the *Rocky Mountain News* in 1859; John M. Chivington, Jacob Downing, Bela Hughes, E. O. Wolcott, James B. Grant, the first Democratic governor of Colorado; D. H. Moffat, N. P. Hill, James B. Belford, H. A. W. Tabor, Amos Steck, and Rev. Father Machebeauf, who dared the hardship and peril of frontier life in order that his people might have the consolation of their religion. There are still in Colorado at this time men who lived through the years that lie between, and whose names will be added to the honor roll in days to come.

PHYSICAL CHARACTERISTICS OF COLORADO.—Situation, size, surface, altitude, soil, minerals, climate.

The Louisiana Purchase.

Land ceded Colorado at close of Mexican War.

Land ceded by Mexico in 1846-48.

EARLY INHABITANTS.—Cliff-dwellers (see page 115).

Indians.

Previous to the occupation of Colorado by the whites, the Arapahoe and Cheyenne Indians held undisputed sway over the plains country.

The Utes and Kiowas occupied the mountains.

Wandering Utes still live in southwestern Colorado.

The old Ute Reservation was closed, and the Southern Utes were removed to the Uinta Reservation, Utah, April 26, 1892.

The Southern Ute Agency is located at Ignacio.

The Southern Ute Indian Boarding School is maintained at Ignacio, with a capacity of fifty pupils.

The Allen Day School, also located at Ignacio, has a capacity of thirty pupils.

The school census of this tribe shows 113 pupils of school age.

In 1911 there were fifty-six pupils enrolled in the Boarding School, and twenty-three in the Allen Day School.

There is but one military fort in Colorado. It is located near Denver and is called Fort Logan.

There are approximately 200 Indian children of school age in the state.

The last report of the Indian superintendent, June 30, 1911, gives 841 Indians now in Colorado.

WILD ANIMALS OF MOUNTAIN AND PLAIN.—Buffaloes in enormous numbers wantonly slaughtered and now practically extinct. The extinction of the buffalo was accomplished between 1860 and 1875.

Beavers, mountain lions, antelopes, wild horses, wolves, prairie dogs, elk, deer, mountain sheep.

FUR-TRADERS AND TRAPPERS.—James Purcell, an Indian trader, was, without doubt, the first white fur-trader in Colorado. The summer of 1803 found him on the South Platte.

Pike said of him: "He was the first American to penetrate the wilds of Louisiana."

Baptiste Le Grande was trapping in the state in 1804.

Nineteen fur-traders were doing business near Pueblo in 1811, and in 1812 a party of five Americans were trapping and exploring.

In 1814 a party of fur-traders from St. Louis visited Colorado to collect furs.

In the summer of 1815 August Pierre Chouteau and Jules de Munn formed a partnership for trading in the far West, and set out for Colorado the following month.

The present location of Pueblo was a popular resort for fur-traders in the early day.

The first families, consisting of men, women and children, in Colorado were found near Pueblo in the summer of 1846, a party of Mormons having settled there. The first child said to have been born in the state was born there.

TRADING-POSTS.—A small trading-post was built by Missouri traders on the upper Arkansas, not far from Pueblo, in 1822.

William W. Robert and George Bent, of St. Louis, built a trading-post on the north bank of the Arkansas in 1826.

In 1832 a trading-post was established on the upper Arkansas. Several were established between 1830 and 1845.

A French trader erected a trading-post at the junction of Adobe Creek and the Arkansas in Fremont County, in 1830.

On the western slope there was one log-built trading-post. It was located near what is now Delta. It was built by Antoine Roubidia, a Frenchman who roamed the western slope as early as 1825.

Fur-trading was in its prime in 1840.

William Bent was the last trader to maintain a post in Colorado.

The fur-traders and early explorers play an important part in the early history of Colorado, but they came and went with no thought of home-making.

PERIOD OF EXPLORATION.—Spanish exploration.

French exploration.

COLORADO HISTORY, BEGINNING WITH THE ROCKY MOUNTAIN EXPEDITION OF CAPTAIN PIKE IN 1806-7

Exploration of Pike, Long, Fremont, Gunnison.

FRONTIER FORTS.—Gault and Blackwell built a fort near Fountain Creek, October, 1842. This was succeeded by "Pueblo," ruins of which were found when the city of Pueblo was founded.

Fremont passed this fort in 1845.

A walled station or fort was built on the Arkansas, near the mouth of Hardscrabble Creek, some five miles north of Florence, in 1842.

Bent and St. Vrain constructed a trading-post and fort in Otero County in 1826, but later moved down the river and built the adobe fort called "Fort Williams." The name was later changed to "Fort Bent." This was the largest and most important fort in the Rocky Mountain region. It continued as a fort and trading-post until the autumn of 1852, when Bent, its owner, about to move to another location, tired of the negotiations he had been carrying on with the government for its transfer to them as a permanent fort, mined it with gunpowder and blew it to wreckage. The new Fort Bent, built by William Bent in Prowers County, was sold to the United States in 1859 and renamed "Fort Wise." Later it became "Fort Lyon."

Fort Lancaster was established in 1835. Later the name was changed to "Fort Lupton."

The largest and most important trading-post and fort on the South Platte was Fort St. Vrain. This fort was only second to Bent and Fort Laramie. It was built in 1838 by the Bent brothers and Ceran St. Vrain, for whom it was named.

MILITARY FORTS.—Fort Massachusetts, a federal military fort, was established in Colorado in 1852. It was located near the western base of the Sangre de Cristo range in what is now Costilla County. This fort was abandoned in 1858, and the garrison

moved to Fort Garland, where the village of Fort Garland now stands.

Fort Collins, Fort Sedgwick, Fort Morgan, Camp Weld, Fort Lyons, now the naval sanitarium, were the forts of the early day.

THE RUSH TO THE PIKE'S PEAK REGION.—Occasioned by the discovery of gold in California, and the financial depression of the panic of 1857.

FIRST DISCOVERY OF GOLD.—Trappers and hunters were the first to find gold in the sandy creek beds.

Cherokees from Indian Territory prospected Cherry Creek and the Poudre in 1850, finding quartz bearing gold.

William G. Russell and a party of thirty men, who were prospecting in 1858, were joined by eight Georgians. Later this party was joined by a party of Jayhawkers, the united company numbering one hundred and more persons. The Georgians prospected the "Pike's Peak Country," Cherry Creek, the Platte and Poudre, but failed to find gold in paying quantities.

This band of gold-seekers dwindled until only thirteen were left, but they continued to prospect the tributaries of the Platte, making a rich strike in Dry Creek, a mile or two south of Denver, and soon succeeded in washing out several hundred dollars in gold.

This was the first important gold discovery in the state.

FIRST DISCOVERY OF SILVER LODES.—Silver lodes were first found in Summit County. Float ore, rich in silver, was found in 1864 in the McClelland Mountain near Georgetown. High-grade silver ore was shipped to Germany in 1872.

EARLY GOLD-SEEKERS.—A teamster, who had traveled with Captain R. B. Marcy's command, washed a small amount of gold from the sands at the intersection of the Platte and Cherry Creek, and on his return to St. Louis in 1858 started with his tales the rush of gold-seekers from Missouri. Early in 1859 a party of men, on arriving in Omaha, created great excitement by displaying quills filled with gold from the "Pike's Peak Country."

NEWS OF DISCOVERIES.—News of these gold discoveries spreading, and losing nothing in repeating, a thousand or more men made their way to the eastern slope of the Rocky Mountains, during the summer of 1858, and a mining camp was established. With the coming of snow and frosty nights, tents gave way to cabins built of cottonwood logs. From this rude camp sprang Denver, "Queen City of the Plains."

THE PIKE'S PEAK COUNTRY.—In 1858 a party of men from Kansas camped for two months in the Garden of the Gods, prospecting with indifferent success. From that time historic Pike's Peak came to stand for the entire gold-bearing region.

GOLD-SEEKERS OF 1859.—This year witnessed a great rush of gold-seekers to Pike's Peak. Some of the travelers came on foot, so eager were they; some in ox-carts, some in stages, and some rode in prairie schooners behind mules or horses of their own.

The trip from Omaha to what is now Denver, the point of arrival and departure then as now, consumed from six to seven weeks, provided the traveler met with no bad luck.

At that time every traveler, every prairie schooner, headed for Pike's Peak, its snowy crest being the loadstone that lured them on.

It is estimated that fully a hundred thousand gold-seekers traveled the dusty plains with the "Pike's Peak Country" as their destination. Of this great number many perished of hunger and thirst, finding graves along the highway which was marked, in many places, by broken-down prairie schooners bearing the suggestive label, "Busted, by thunder;" for the ignorant hosts, dazzled by the thought of gold, made little provision for the long, hard journey, the like of which they had neither knowledge nor comprehension, nor for the many misfortunes destined to overtake them.

TRAILS AND ROADS.—The Arkansas, the Platte and the Smoky Hill were the principal routes to the land of gold.

"The Old Santa Fe Trail" was the great thoroughfare that opened up "the commerce of the prairies."

STAGE LINES, PONY EXPRESS AND EARLY RAILROADS.—In 1859 the Pike's Peak Express Company established a stage line between the Missouri River and the Rocky Mountains. This line later became the property of Wells Fargo & Co.

A pony express was established in 1860.

In 1870 the Colorado Central Railway was built from Denver to Golden.

In 1871 the Denver & Rio Grande Railway was built seventy-five miles southward from Denver, and the town of Colorado Springs was established at its terminus.

The same year this road was extended to Pueblo, El Moro, and across the Sangre de Cristo range to San Luis Park.

The Atchison, Topeka & Santa Fe reached Denver in 1876.

In 1877 the Denver & Rio Grande reached Alamosa, and a railroad was built to Georgetown.

In 1878 Central City was reached by a railroad, also Silver Cliff, and the South Park was built to Morrison.

Denver was connected with the Union Pacific in 1870 by the Denver Pacific Railroad.

The same year the Kansas Pacific reached Denver.

DANGER FROM INDIANS.—While not in actual danger from Indians, travelers to the great West in the early day lived in constant dread of them. They were the "bandits of the plains" always lying in wait to steal oxen or horses, leaving the travelers to continue their journey as best they could.

The more serious trouble with the Indians came with the Civil War, when the United States troops were withdrawn from the frontier.

THE RUSH TO THE "PIKE'S PEAK COUNTRY."—Lasted two years. It was then followed by an eastern stampede, and thousands returned to their homes during the summer and autumn of 1859, sadder, if not wiser, men.

"The fifty-niners" who remained, pioneering in a new land, laid the foundation of Colorado's greatness.

FIRST TOWNS IN THE STATE.—In 1858 a thriving village called "Auraria City" sprang up on the west side of Cherry Creek, while another, called "St. Charles," was laid out on the east side of Cherry Creek. Shortly after a party of men from Leavenworth, Kansas, arrived and, liking the location of the proposed St. Charles, began to build the town that existed only on paper. St. Charles was discarded as a name, and Denver, destined to become the metropolis of the Rocky Mountain states, sprang into being.

For a time great rivalry existed between the towns on either side of Cherry Creek, Auraria leading, but one by one the business men crossed, casting their fortunes with Denver, which became an important city. Auraria also grew, and during 1858 the white inhabitants of Colorado increased from bare hundreds to upwards of twenty thousand.

Boulder and Fountain City were also founded in 1858.

Golden followed in 1859.

In Clear Creek County the leading town was Idaho.

In Gilpin County there was an important group, including Black Hawk, Mountain City, Central, Missouri City and Nevada, later Nevadaville.

Pueblo was settled temporarily in 1846. In 1850 a trading-post was established there. The present city was laid out in 1859, and was chartered in 1873.

Colorado Springs was founded in 1871.

Canon was a town of importance in 1860.

In 1872-73 attention was drawn to the San Juan region, and Silverton, Lake City and Ouray sprang up.

The populous city of Leadville was established in 1874.

In the summer of 1859 Fairplay and Jefferson were established.

FIRST NEWSPAPER.—William N. Byers came to the state in 1859. He then predicted that Denver would become a city of a hundred thousand, and be a railroad center between the Atlantic and Pacific.

He established the first newspaper in Colorado, calling it the *Rocky Mountain News*. The first number appeared April 23, 1859, two days after his arrival.

On the same day the first and only edition of the *Cherry Creek Pioneer* appeared.

The early files of the *Rocky Mountain News* are to be found in the State Historical Department, having been presented the state—a priceless gift—by Mr. Byers.

FIRST LUMBER BROUGHT TO COLORADO.—It was brought to Denver in April, 1859.

FIRST STAGE-COACH.—It reached the frontier town of Denver May 7, 1859.

VISIT OF HORACE GREELEY.—His visit was in 1859. He was accompanied by other newspaper men of the East. With his own hands he turned up a shovel of earth and washed a trace of gold from it. That particular bit of earth, so the story goes, had been first treated to a shot of gold by an enterprising miner.

Horace Greeley came at a time of great depression. His confidence in the future of Colorado did much to restore the failing confidence of the people, and many who intended returning to their former homes remained.

DISTINGUISHED GUESTS.—Other distinguished guests who came to Colorado in the very early day were: Louis Agassiz; Henry M. Stanley, the great African explorer, who visited Colorado in 1867; William H. Seward; the grand duke Alexis; Generals Grant and Sherman; and Albert Bierstadt, who painted his great canvas, "Storm in the Rocky Mountains," as a result of his visit.

FIRST SCHOOL.—Before Denver was a year old a school was established by a professor hailing from St. Louis. He made his first appearance in a high silk hat driving an ox-cart.

THE PUBLIC-SCHOOL SYSTEM.—It was established in 1861.

STATE EDUCATIONAL INSTITUTIONS.—By territorial enactment provision was made for a School of Mines at Golden in 1870; for a Deaf-Mute Institute at Colorado Springs at a later date; and for a State University at Boulder, and an Agricultural College at Fort Collins, in 1874-76.

The State University opened in 1877, and the same year the buildings of the Agricultural College were ready for use.

In 1876 the territorial legislature passed a bill for a school law, modeled after the systems of the East.

In 1870 there were 110 public schools in the Territory of Colorado. There are today in the State of Colorado 2,496 schools.

CONSOLIDATION OF DENVER AND AURARIA.—This consolidation occurred in April, 1860, the citizens meeting on the Larimer bridge to ratify the bond. Auraria became, by this act, West Denver.

THE BOOM OF 1860.—The Pike's Peak mining region experienced another boom in 1860, and prairie schooners crept across the plains in an almost unbroken line. The newcomers scattered in all directions. New discoveries were made and new camps were established, Denver becoming the supply point for Colorado City, Boulder, Golden, Central City, Georgetown, Breckenridge, Idaho Springs, and other places.

FIRST TELEGRAPH LINE.—The first telegraph line entered Colorado in January of 1862.

BOARD OF TRADE.—Denver organized a board of trade in 1867.

MINING, SMELTING AND THE OUTPUT OF GOLD.—In 1859 the universal medium of exchange was gold dust. Paper money was rarely seen.

The gold produced in 1860 amounted to more than two million dollars.

The total yield from the beginning of 1871 to 1879 was \$45,556,124.57.

The first really great gold discovery was made by J. H. Gregory at the present site of Central and Black Hawk. This mine, named for Gregory, yielded more money than any other Colorado fissure.

Primitive stamp mills were established in Gilpin County in 1859.

Colorado smelting works were established at Black Hawk in 1867-68. It was an epoch-making event.

The Boston & Colorado Smelting Works established their first workings at Argo in 1878.

The establishment of smelters in 1868 renewed mining interest, and set Colorado once more on the road to prosperity.

THE FIRST MINT.—A coining and assay department was added to a Denver bank in 1860. It was purchased by the government in 1862.

The location of a branch of the United States Mint followed.

The present United States Mint was completed in 1904, and coinage was begun in 1905.

OTHER MINERAL RESOURCES.—Colorado has other mineral resources of untold value.

Colorado stands fifth in rank as a coal-producing state.

Colorado is rich in lava stone, sandstone, granite and marble.

FIRST AGRICULTURE.—Mexicans who located in Fremont County in 1830 began to till the soil in a small way.

In 1847 good crops of wheat, corn, beans and pumpkins were raised near Pueblo by a mixed people then living in that region.

The year 1870 was marked by the coming of the advance guard of "the Union Colony" and the founding of Greeley. These colonists found the locality adapted to farming.

As early as 1867-69 ditching and the conservation of water were begun.

At an early day companies were engaged in farming in the counties of Arapahoe, Weld, Larimer, Jefferson, El Paso, Fremont and Las Animas, and in stock in Elbert, Bent, Pueblo, Huerfano and Boulder.

PLACER MINING.—Ended in most of the diggings in 1863.

EFFECT OF CIVIL WAR.—During the four years of the Civil War there was little emigration to the West. The growth of Colorado came to a standstill.

In 1864 Indian warfare almost cut Colorado off from the states.

HOME GOVERNMENT.—Its need was early felt, and a constitutional convention was held in Denver August 9, 1859. In November, by a majority vote, a new territory called "Jefferson," was organized. The territory embraced was much larger than the Colorado of today, taking in territory from Nebraska, Wyoming and Utah.

TERRITORIAL PERIOD.—February 26, 1861, the Territory of Colorado was organized by act of Congress, with the boundaries of the present state. The census at that time was 25,329, 4,484 being females. By this act the Territory of Jefferson came to an end.

William Gilpin became the first governor of the territory.

He was appointed by President Lincoln.

He reached Denver May 20.

The new territory consisted of thirteen counties, and had a population of 25,331.

Its capital was Denver.

The territorial legislature met in Denver September 9.

TERRITORY PLUNGED INTO CONFLICT.—Pro-slavery, anti-slavery. Strong element in sympathy with Confederate army.

Number of Union men leave territory to return to states and enlist.

Governor Gilpin raised regiment, equipping men as best he could.

First service of this Colorado regiment was the breaking-up of a band of secessionists led by a Texan.

Friction due to an attempt to establish a "Western Confederacy."

Services of Colorado cavalry.

Indian uprisings.

The Sand Creek fight.

Opening of hostility by Sioux in 1862.

Battle on Smoky Hill.

Territorial militia, with Henry M. Teller as major-general in command, ordered out.

Call issued for volunteers.

Message of Governor Evans to friendly Indians.

Governor Evans' appeal to Washington.

Council at Camp Weld September 28.

Battle of Beecher Island.

The Peace Commission.

The Fetterman Massacre.

General Phil Sheridan takes command in 1868.

With the surrender of Lee at Appomattox ended the struggle between the North and South, and there were soldiers to fight the redskins; but, according to Byers, the period between 1864 and 1868 was the darkest in the history of the territory.

Administration of Governor Gilpin. Other territorial offices.

Election of delegates to Congress.

Capitals of the territory.

Burden of territorial government borne for fifteen years, and during eight administrations.

The frequent changes in executive officers gave evidence of the unsatisfactory character of the territorial government.

NAMES PROPOSED FOR THE TERRITORY.—Arapahoe, Idaho, Lula, Montana, Nemara, San Juan, Tampa, Wapola, Tanosa, Lafayette, Colona, Columbus, Franklin.

The original Senate bill carried the name "Idaho."

Governor Gilpin gave to the new territory the name "Colorado."

There were but two Colorado men among the first territorial officers.

TERRITORIAL LEGISLATURE.—Five delegates were sent to Congress during the life of the territory.

The first territorial legislature was composed of nine members in the Council and thirteen members in the House.

TERRITORIAL GOVERNORS OF COLORADO :

William Gilpin, 1861-62.

John Evans, 1862-65.

Alexander Cummings, 1865-67.

A. Cameron Hunt, 1867-69.

Edward McCook, 1869-73.

Samuel E. Elbert, 1873-74.

Edward McCook, 1874-75.

John L. Routt, 1875-76.

CLOSE OF TERRITORIAL ERA.—Territorial intrigue and recrimination reached a climax in 1874, when the legislature proposed making Pueblo the seat of territorial government. By untiring effort the bill was defeated.

Soon after came the removal of Governor Elbert and his fellow-officers, and the reappointment of McCook as his successor. This act displeased the people more than anything that had been done under the territorial form of government, and, though his appointment was confirmed in June of 1874, McCook was obliged to give way to John L. Routt, February, 1875.

The appointment of Governor Routt was accompanied by an understanding at Washington that territorial misgovernment was to end, and that the first step in an immediate movement for statehood had been taken.

A state constitutional convention was called for October, 1875.

The work was completed by March of the following year and voted upon July 1, 1876. It carried by an overwhelming majority.

Colorado was proclaimed a state by proclamation of General Grant, August 1, 1876.

THE CENTENNIAL STATE.—The last territorial legislature voted \$10,000 for the purpose of having Colorado represented at the World's Exposition held in Philadelphia in 1876.

At that exposition Colorado took her place as the thirty-eighth state. Colorado was called "The Centennial State" because admitted in the year that was the one-hundredth anniversary of the signing of the Declaration of Independence.

STATEHOOD.—Politicians began to agitate the statehood question as early as 1863.

Colorado admitted to Union as a state August 1, 1876.

John L. Routt, the last territorial governor, was the first state governor.

The constitution in its general provisions is similar to the organic laws of the states admitted to the Union since the Civil War.

The Bill of Rights is broad and comprehensive, a declaration of the principles of justice and liberty.

EQUAL RIGHTS.—From the beginning women were allowed a vote for school officers.

In 1893 women were admitted to full suffrage.

CAPITOL AND STATE SEAL.—The present state capitol building was occupied by the state executive officers in 1894, and by the state legislature in January, 1895.

The state retained the territorial seal, increasing its diameter to two and one-half inches, and substituting "State of Colorado, 1876," for the territorial legend.

TEXT AND REFERENCE BOOKS

"European Beginnings of American History."

Montgomery's "Leading Facts of American History."

Kemp's "History for Graded and District Schools."

"Hero Stories from American History."

"Stories of English History."

"Short Stories from American History."

"Heroes of the Middle West."

"Pilgrims and Puritans."

GINN & CO.

"Introductory American History as Recommended by the American Historical Society."

"Teacher's Manual to General History."

Thomas' "Histories of the United States."

"Cliff, Mound, and Lake Dwellers."

Pratt's "America's Story for America's Children."
"The Western United States."

D. C. HEATH & CO.

"Pioneers of the Rocky Mountains and the West."

"Sidelights on American History."

"Pioneers on Land and Sea."

"Pioneers in the Mississippi Valley."

"The Men Who Made the Nation."

"Story of the Great Lakes."

THE MACMILLAN COMPANY

"Elementary History of Our Country."

"History of the United States."

"European Hero Stories."

HOUGHTON, MIFFLIN & CO.

McMaster's "Brief Course History of the United States."

"Indian Folk Lore."

"Explorers and Founders of America."

"Makers and Defenders of America."

"Stories of the English, Greeks and Romans."

"Alice's Visit to the Hawaiian Islands."

"Five Little Strangers."

AMERICAN BOOK COMPANY

"Cave Boy and Age of Stone."

APPLETON & CO.

"The Early Cave Men, the Later Cave Men."

RAND, M'NALLY & CO.

"Father Junipero and the Mission Indians of California."

LITTLE, BROWN & CO.

"Path Breakers from River to Ocean."

LAKESIDE PRESS

"Rocky Mountains and Pacific Slope."

LOTHROP, LEE & SHEPHARD

"The Making of Colorado."

"A Little Journey to Strange Places and People in Our South-west."

A. FLANAGAN & CO.

Fynn's "American Indian as a Product of Environment."

Margaret Mendenhall Smith's "History Outlines."

HERRICK BOOK COMPANY

HUMANE EDUCATION

Humane education is now required by law. This law applies to all public schools.

The punishment for wrongdoing often falls upon the innocent—often the women and children who may be related to the wrongdoer. Education, when perfectly understood and applied, will remove the cause of wrongdoing, and thus prevent suffering of the innocent. The teaching of morals and humanity is of far greater value than much that is now taught. A being educated, but without moral and humane ideals, is worse and more dangerous than if he were to remain ignorant. The mainsprings of character and feeling lie deep in the human soul and must be touched by something more lasting than formal rules, “don’ts” and “must nots.” Character must be formed in the days of childhood. The child is the molder’s clay. The adult is the glazed, hardened, finished product. To cultivate kindness in children will be of greater value to them than all else. The central idea should be justice to all, including man and the lesser animals. The ideals of right and wrong, of justice and fair play, must be formed in early childhood. The child must be taught to feel for the sufferings of another. Teach children to apply their knowledge in personal conduct. Talk with children and have them talk with you. Reference: “Dumb Animals, How to Treat Them”—Whitehead.

FIRST YEAR

Teach kindness by example. Doing kind things will gradually form a part of the child’s very being. Show the child that animals, like himself, enjoy and suffer from the same causes. How to help the lesser animals to be happy, comfortable, clean and contented. How to make other children and people happy, and how to be happy ourselves. The proper care of pets and domestic animals with reference to affection, food, shelter and usefulness. Birds and their usefulness, their nests, eggs and young. Observe the eyes, ears, nose, mouth, feet and covering of animals. Give outdoor excursions for animal studies. Tell animal stories. How to relieve suffering; helpfulness.

SECOND YEAR

Treat the lesser animals as you wish to be treated. Justice is the principle to be emphasized. This may be put in special forms for each animal: Treat the horse as you wish to be treated

were you in his place and he in yours. How this can be done. The homes, food, liberty, play, young and good time of animals; what these mean to us and the animal. What we can do to make animals happy. What we can do to make people happy. How to be happy ourselves. How animals are abused or neglected. How children may be abused or neglected. Observe, investigate, and apply the knowledge obtained.

THIRD YEAR

We are all animals and may help each other. How other animals help us: the horse, the cow, the birds, sheep, poultry and bees. How we may help the lesser animals: proper food and drink; sick or diseased animals, their care; good barns, stables, chicken-houses, bird-boxes, and their care.

Visit and discuss good buildings for the care of animals and the animals themselves. Being honest with the animal and not deceiving him; its effect on the animal. Being honest with people; its effect on others and on yourself.

Can we lie to animals? Do animals lie to us? Do animals deceive? What is the difference between deception by animals and deception by people? Which do these things to injure another?

How can we help sick, diseased and suffering children? Have children tell of good things done.

FOURTH YEAR

Learn to control yourself, then you may train or control animals. The one who gets mad or cannot control his temper should not have charge of children or animals. One who gets drunk or cannot control his appetite is not fit to drive a team or care for animals or children. The animal is just what we make him by proper care or by abuse and neglect. Explain fully all these and ask children to give examples.

Careless people who do not keep their homes, their clothing and their bodies clean are not fit to care for animals. Sick or diseased people should not milk cows or care for animals in dairies, as it endangers health. Study sanitary conditions in homes, schools, towns and animal homes.

How we should treat little children. In what ways they are like the animals.

FIFTH YEAR

Love makes us and our associates happy. Love will make us do good things for others and for animals. Have children name

the good things for people that love will induce. What will it induce us to do for animals? Do animals love? Whom and why do they love?

Anger, hate and moroseness make us and those about us unhappy, even the animals. Do animals get angry, hateful and morose? What would make them so?

We are the educators, the teachers of animals. What can we teach them, and how can we do it?

Man could not live without other animals. Show why this is true. What traits in people cause you to love them?

SIXTH YEAR

To educate means to fit ourselves to be useful men and women, and to make the world better and happier.

Muscles grow strong by use. Show how to grow muscles.

Brains grow strong by use. Show how to grow brains.

Kind hearts grow strong by use. Show how to grow kind hearts.

Is it wrong to starve a child? Not supply him a good home and clothing? Not to educate him?

Is it wrong to starve one of the lesser animals? What effect would it have on the animal? On those who do it? On the community?

What is the difference between abusing a child and one of the lesser animals? What should be done in each case?

SEVENTH YEAR

An injury to the lesser animal is an injury to ourselves.

1. It causes a great loss of money; viz., in the horse, cow, sheep, hogs and poultry.

2. It causes disease and suffering of both animal and human beings. Tuberculosis, diphtheria, scarlet fever and other diseases spread in this way. Flies scatter disease from animal filth.

3. It makes those who neglect and abuse animals cruel and hard-hearted. It coarsens character and destroys the power to feel for the sufferings of another.

We should do right because it is right and not because of fear. Why have we laws for animal protection? Why have we laws for child protection? Which came first and why?

EIGHTH YEAR

Our every act leaves an increased power and tendency to act again in the same manner. Show that this is true of muscular

action; of brain activity; and of our feelings for the sufferings and rights of others. Habits are formed in this way.

Show how a good habit is formed.

Show how a bad habit is formed.

What habits hurt the individual himself?

What habits may hurt others?

What habits may hurt the lesser animals?

What animals show gratitude, friendship, love, good-will, helpfulness and good sense? How? What animals show anger, hate, revenge, fear, jealousy, a dislike to men? Why?

Should animals be held responsible for their conduct, the same as people? We have reflex action of muscles and of brain. May cruel acts and kind acts become reflex?

HYGIENE AND SANITATION

The laws of the State of Colorado require that instructions be given in all public schools in physiology and hygiene, with special reference to the effects of alcoholic drinks and narcotics upon the human system.

FIRST TO FOURTH YEAR

Instruction along these lines should be given at regular periods; but teachers having Grades 1 to 4 should watch for opportunities to impress upon the minds of primary-grade children the principles of right living, as varying conditions of the school-room will suggest that instructions on these points are timely at that particular moment. For example, a drooping, sleepy child will afford opportunity for instruction on the need of rest at proper times, and the parts of the body affected can be explained at such a period. (All instruction, of course, in these grades should be oral.)

Detection of impure air by the teacher becomes an opportunity to explain the need for pure air, to describe the lungs and their workings, and to demonstrate methods of ventilation.

If, in any of the work of the schoolroom, dirt settles upon the hands of teacher or scholar, an opportunity is afforded to describe the skin, to show its uses, and to emphasize the necessity for cleanliness.

A simple calisthenic movement will give opportunity to tell the scholars something concerning the uses, movements and care of the different parts of the body.

Recess time will provide occasion to describe proper exercise; the approach of the noon hour will afford place for simple statements about food, the need for its proper care at the places where it is sold and at home, and the necessity for its proper preparation.

The posture of a pupil, particularly if the right position is observed, will give the teacher a chance to describe the benefit of sitting erect, its effect upon the diaphragm, and the consequent ill effect attending improper position.

The few minutes preceding dismissal at the close of the day will give chance for showing the importance of proper clothing for the season at hand, to describe the necessity for proper night clothing, and the part that sleep plays in growing up into strong, successful men and women.

In this instruction, teachers for these grades should avoid physiological names, using in their place common terms. The object of this instruction should be to fasten upon the children habits of right living, which will become second nature.

Avoid emphasis upon disease, showing rather the perfect type resulting from proper living.

It would be well for the teacher in these grades to list the parts of the body, particularly eyes, ears, nose, mouth, teeth, throat, lungs and stomach, and during the term to keep record of the number of occasions upon which instruction has been given, so that a well-distributed emphasis upon all the elements of right living may be secured.

FIFTH AND SIXTH YEARS

In these grades the instruction concerning the parts of the body is given from the point of view of health.

A key will be found under each subject. References are made to the chapter or pages of books which contain helpful matter, as it is believed that one or more of these publications are available to all teachers.

First Month. THE EYES.

- a. How to take care of them.
- b. Different kinds of light, the amount and direction.
- c. Right and wrong positions of book or paper.
- d. Print and why it differs in size.

KEY.

"Graded Lessons in Physiology and Hygiene," Krohn; pages 175-185.

"Primer of Hygiene," by Ritchie and Caldwell; pages 113-120.

"Introductory Physiology and Hygiene," Conn; pages 139-144-146.

"Good Health," Gulick Series; pages 62-76.

"Civics and Health," Allen; pages 72-82.

THE EAR.

- a. Its work; how it is built; and proper care of it.
- b. Value of cultivated hearing.

KEY.

"Introductory Physiology and Hygiene," Conn; pages 140-141.

"Good Health," Gulick Series; pages 90-100.

"Human Mechanism," Hough and Sedgwick; page 401.

- “Graded Lessons in Hygiene,” Krohn; pages 186-191.
 “Primer of Hygiene,” Ritchie and Caldwell; pages 121-126.
 “Civics and Health,” Allen; pages 83-88.

THE TEETH.

- a. A clean mouth and health.
- b. Sound teeth and sound minds.
- c. The toothbrush and the dentist. Friends, not foes.

KEY.

- “Primer of Hygiene,” Ritchie and Caldwell; pages 38-45.
 “Civics and Health,” Allen; pages 89-103.
 “Graded Lessons in Physiology and Hygiene,” Krohn; pages 192-195.

“Introductory Physiology and Hygiene,” Conn; pages 53-56.

“Good Health,” Gulick Series; pages 147-152.

Second Month. THE NOSE.

- a. Proper breathing.
- b. Effect of air on the nose.
- c. Effect of improper breathing (mouth-breathing).

KEY

a, b and c

“Civics and Health,” Allen; pages 51-55.

“Introductory Physiology and Hygiene,” Conn; pages 78-79.

“Good Health,” Gulick Series; pages 131-136.

c

“Primer of Hygiene,” Ritchie and Caldwell; pages 59-61.

“Human Body and Health,” Davidson; pages 104-105.

“Graded Lessons in Physiology and Hygiene,” Krohn; pages 136-139.

THE LUNGS.

- a. Pure air and how it is impaired.
- b. Air movement; how much air we need.
- c. Ventilation, proper and improper; even temperature; changing the air in school, living- and sleeping-rooms.

KEY

“Graded Lessons in Physiology and Hygiene,” Krohn; pages 125-126.

“Introductory Physiology and Hygiene,” Conn; pages 82-86.

“Primer of Hygiene,” Ritchie and Caldwell; pages 46-58.

“Good Health,” Gulick Series; pages 1-28.

“Human Body and Health,” Davidson; pages 100-116.

Third Month. THE SKIN.

a. What it is and what it does.

b. Its proper care.

(1) The value of bathing.

(2) Various kinds of baths, and effects.

(3) Helpful and harmful soaps.

(4) The importance of airing clothing, bedding, draperies, rugs, etc.

(5) Clean hands and cooking.

KEY

a. "Human Body and Health," Davidson; page 85.

b, (1). "Human Body and Health," Davidson; page 91.

b, (5). "Human Body and Health," Davidson; page 91.

a and b. "Good Health," Gulick Series; pages 114-120.

a and b. "Graded Lessons in Hygiene," Krohn; pages 64-69; 72-74.

a and b. "Introductory Physiology and Hygiene," Conn; pages 108-112.

a and b, (1) and (2). "Primer of Hygiene," Ritchie and Caldwell; pages 71-73, 75-76.

THE NAILS.

a. Use; structure; care.

b. The beauty of well-kept nails.

KEY

"Primer of Hygiene," Ritchie and Caldwell; page 74.

"Introductory Physiology and Hygiene," Conn; pages 113 and 118.

"Good Health," Gulick Series; pages 101-107.

"Graded Lessons in Hygiene," Krohn; page 71.

"Human Body and Health," Davidson; pages 87-88.

THE HAIR.

a. Use; structure; care.

b. Shampooing and tidiness.

KEY

"Introductory Physiology and Hygiene," Conn; page 113.

"Primer of Hygiene," Ritchie and Caldwell; pages 73-74.

"Good Health," Gulick Series; pages 108-113.

"Graded Lessons in Hygiene," Krohn; pages 70-71.

"Human Body and Health," Davidson; pages 88-90.

Fourth Month. MUSCLES.

a. Structure and use.

- (1) Relation of muscle to food.
- (2) Importance of special care of infants.
- (3) Value and dangers of athletics.

KEY

"Good Health," Gulick Series; pages 165-168.

"Graded Lessons in Hygiene," Krohn; pages 228-241.

"Human Body and Health," Davidson; pages 144-148.

"Introductory Physiology and Hygiene," Conn; pages 100-107.

"Primer of Hygiene," Ritchie and Caldwell; pages 131-140.

Fifth Month. BONES.

a. Structure; use; form.

- (1) The relation of food and exercise.
- (2) Effect of pressure.
- (3) Cause of round shoulders and of curved spines; the proper adjustment of desks and chairs.
- (4) Injury and repair.

KEY

"Graded Lessons in Hygiene," Krohn; pages 80-93.

"Human Body and Health," Davidson; pages 135-139.

"Introductory Physiology and Hygiene," Conn; pages 92-97.

"Good Health," Gulick Series; pages 169-170.

Sixth Month. OTHER PARTS OF THE BODY.

a. The use and care of ligaments, organs of digestion, and special senses.

b. Facts concerning spine and muscular weakness.

KEY

"Human Body and Health," Davidson; page 98.

"Introductory Physiology and Hygiene," Conn; pages 43-50,

92.

"Primer of Hygiene," Ritchie and Caldwell; pages 32-37.

"Graded Lessons in Hygiene," Krohn; pages 135-136, 139.

Seventh Month. EMERGENCIES AND HOW TO MEET THEM.

a. Treatment of cuts.

b. Treatment of burns.

c. Use of handkerchief or piece of cloth for bandages.

d. Court plaster.

e. Treatment of frostbite, sunstroke, nose-bleeding, and fainting.

KEY FOR SEVENTH AND EIGHTH MONTHS

"Introductory Physiology and Hygiene," Conn; pages 71-74, 98-99, 122-124, 305.

"Primer of Hygiene," Ritchie and Caldwell; pages 66, 127-130.

"Emergencies," Gulick Series; pages 1-151.

"Graded Lessons in Hygiene," Krohn pages 242-250.

"Human Body and Health," Davidson; pages 183-188.

Eighth Month. EMERGENCIES CONTINUED.

f. What to do in case of fits, drowning, choking, poisoning, sprains and bruises.

g. Danger from illuminating gas, sewer gas. How to restore to consciousness a person overcome by these.

Ninth Month. REVIEW.

This should be conducted with a view to constant emphasis on personal and home hygiene.

NOTE.—In connection with the instruction in personal hygiene in these grades, it is suggested that the study of "community hygiene" will prove to be very interesting to the pupils, particularly for those of the sixth grade. For this purpose, the book "Town and City," of the Gulick Hygiene Series, will be found valuable.

SEVENTH AND EIGHTH YEARS

In these grades the instruction should be with a view, first, to show how to train the body for efficiency; and, second, to the establishment of habits.

A reading key will be found under each subject, where references are made to the chapter or pages of books which contain helpful matter. It is believed that one or more of these publications are available to all teachers.

First Month. 1. DIGESTION.

a. Organs; describe their structure and give processes.

b. Related subjects.

- (1) Importance of mastication. The proper care of the teeth.
- (2) Effect of rapid eating.
- (3) When to eat.
- (4) How to arrange the table, and "table manners."
- (5) How to take care of food; of milk and butter; of the refrigerator and cellar.
- (6) Economy of food.
- (7) Waste and garbage.
- (8) Preparation of food.

- (9) The misuse of condiments.
- (10) Danger in decaying fruit or food.

KEY

"The Body at Work," Gulick Series; pages 139-156, 161, 166-168, 170, 183.

"Elementary Physiology and Hygiene," Conn; pages 11-23, 32-79, 297-299.

"The Human Body and Health" (Advanced), Davidson; pages 76-105.

Second Month. 2. CIRCULATION.

- a. Organs; describe their structure and give their operations.
- b. Blood; what it is for; and its parts.
- c. Related subjects.
 - (1) The heart; its strength; taking pulse.
 - (2) Overwork and effects.
 - (3) Danger of excessive jumping and running.
 - (4) General principles of physical training.
 - (5) Effect of position on circulation.
 - (6) Fainting.

KEY

"The Human Body and Health" (Advanced), Davidson; pages 114-131.

"The Body at Work," Gulick Series; pages 58-66, 78-114.

"Elementary Physiology and Hygiene," Conn; pages 80-103.

"Civics and Health," Allen; pages 115-123.

"The Human Mechanism," Hough and Sedgwick; pages 22-27, 132-161.

Third Month. 3. RESPIRATION.

- a. Organs; describe their structure and give their operations.
- b. Related subjects.
 - (1) Pure air required.
 - (2) Dust, its effects, and how to protect from it.
 - (3) Impure and impoverished air; how caused, and preventive measures.
 - (4) Air in its relation to the sick; for themselves; for their associates.
 - (5) A clean body and clean clothing.
 - (6) Ventilation of schoolrooms and homes.
 - (7) The value of sunshine.

KEY

"Elementary Physiology and Hygiene," Conn; pages 104-123.

"The Human Mechanism," Hough and Sedgwick; pages 162-176.

"The Body at Work," Gulick Series; pages 117-123.

"Civics and Health," Allen; pages 9, 66, 176, 178, 195, 142, 145 (7), 146 (5), 147 (6), 212-213, 216-217.

"The Human Body and Health" (Advanced), Davidson; pages 132, 162.

Fourth Month. 4. THE NERVOUS SYSTEM.

a. The organs; describe their structure, their operation, and what they are for.

b. How to protect them.

c. Related subjects.

(1) Sleep; need for it; when and how much at different ages.

(2) Right conditions for sleep.

(3) Recreation.

(4) Relaxation.

KEY

"The Human Mechanism," Hough and Sedgwick; pages 26-28, 70-87, 157-161, 173, 185, 209, 266, 273, 286, 324, 334, 396.

"Control of Body and Mind," Gulick Series; pages 17-18, 36-144, 164-165, 3-4, 172, 174, 182, 184, 185, 197-198, 210-212, 221-222, 241-242.

"Civics and Health," Allen; pages 85-86, 108-114, 201, 272.

"Human Body and Health" (Advanced), Davidson; pages 215, 236.

"Elementary Physiology and Hygiene," Conn; pages 189-212.

Fifth Month. 5. SPECIAL SENSES.

a. Describe them and what they are for.

b. How to give them proper care.

c. Related subjects.

(1) Care of eyes and ears after illness.

(2) Causes of habitual headache.

(3) Protection of eyes of infants.

KEY

"Control of Body and Mind," Gulick Series; pages 154-171.

"Civics and Health," Allen; pages 40, 69-82, 89, 164, 171, 184.

"Human Body and Health" (Advanced), Davidson; pages 237-258.

"Elementary Physiology and Hygiene," Conn; pages 213-236.

"The Human Mechanism," Hough and Sedgwick; pages 244-265, 395-402.

Sixth Month. 6. CONTAGIOUS DISEASES.

a. How these diseases are spread.

b. Drinking-places in schoolhouses.

c. Quarantine; isolation; health ordinances; why obey them.

KEY

"Civics and Health," Allen; pages 13, 16, 19, 31, 57-71, 95, 152-158, 201-207, 218-267, 308, 18.

"Human Body and Health" (Advanced), Davidson; pages 259-278.

"What You Should Know About Tuberculosis," Department of Health, New York City, 1910.

"Elementary Physiology and Hygiene," Conn; pages 20, 117, 237-290.

"The Human Mechanism," Hough and Sedgwick; pages 466-504.

"The Body and Its Defences," Gulick Series; pages 117-135, 241-246.

Seventh Month. THE PRINCIPLES AND PRACTICES OF PROTECTION OF THE PUBLIC HEALTH.

1. Get copies of rules of State Board of Health pertaining to health and disease. Get rules of Board of Education governing contagious diseases. Show that these are necessary and reasonable.

2. SCHOOL AND PUBLIC HYGIENE.

a. Requirements for public health; pure food; pure air; pure water, and protection from disease.

b. Duties of local Board of Health.

c. Dangers of Patent Medicines.

KEY

"Human Body and Health" (Advanced), Davidson; pages 230, 278.

"Elementary Physiology and Hygiene," Conn; pages 291, 304.

"The Human Mechanism," Hough and Sedgwick; page 530.

"Civics and Health," Allen; pages 15-16.

"Civics and Health," Allen; pages 369-377, 380.

"The Body and Its Defences," Gulick Series; pages 142-143.

"Human Body and Health" (Advanced), Davidson; pages 71-73, 75, 166.

"The Human Mechanism," Hough and Sedgwick; page 482.

"Elementary Physiology and Hygiene," Conn; page 288.

Eighth Month.

3. PROTECTING THE FOOD SUPPLY.

a. Get a copy of the Colorado pure-food law. Get officers of the State Board to talk to pupils.

4. PROTECTING THE WATER SUPPLY.

a. Where do we get our water?

- b. What can spoil it, and how to prevent this.
- c. Impure ice and its dangers.
- d. Well water; danger from.
- e. The danger following floods.

KEY

- "Civics and Health," Allen; pages 226, 307.
 "The Body and Its Defences," Gulick Series; pages 166-169.
 "Human Body and Health" (Advanced), Davidson; page 278.
 "Elementary Physiology and Hygiene," Conn; pages 292-295.
 "The Human Mechanism," Hough and Sedgwick; pages 451-452, 513, 526.

Ninth Month.

5. PROTECTING THE AIR FROM IMPURITIES.

- a. Sanitary conditions in schoolhouses, other public buildings and halls, sidewalks, streets, cars, outhouses, back yards, alleys, etc.
- b. Plumbing.
- c. Dusting and cleaning rooms.
- d. Where does our garbage go? Is it a safe way to dispose of it?
- e. Soft-coal smoke.
- f. Care of stables.
- g. Sewerage; the right and wrong kinds; what we need.

6. PROTECTING THE WELL FROM EXPOSURE TO CONTAGIOUS AND INFECTIOUS DISEASES.

- a. Hospitals.
- b. Isolation of those suffering from contagious or infectious diseases.
 - (1) The duty to the community.
 - (2) The duty to those removed.
- c. Absence from school necessary.
- d. Prevention of epidemics.
- e. How disease is spread in the schoolroom: spitting on floor, putting pencils in mouths and ears, common drinking cup, etc.

KEY

- "Elementary Physiology and Hygiene," Conn; pages 117, 283.
 "Human Body and Health" (Advanced), Davidson; pages 151-162.
 "The Human Mechanism," Hough and Sedgwick; pages 461, 456, 444, 459, 519.
 "Civics and Health," Allen; pages 3-10, 18, 135.

LANGUAGE

FIRST YEAR

This course is outlined with the suggestion that the teachers select each month such parts of the work as the class will be able to accomplish. We have aimed to give a choice of material.

First Month. Talks with the children about their home life—the house, the baby, the cat, the yard, their toys, their games, etc.

Mother Goose Melodies to be used all through the year. Stories that have to do with child-life. Observance of the fall leaves; stories relating to leaves. "The Wee Wee Man;" "Story of the Little Red Hen."

Poem: "Wynken, Blynken and Nod."

Fables: "The Fox and the Grapes" (Aesop's Fables). Study of some picture suggestive of animal life.

Second Month. Study of autumn fruit. Paper-cutting and coloring. Form, color, size. Talks about the different occupations of people. Where have the insects and birds gone? Observe the short days and long nights. Mother Goose Melodies; "Little Boy Blue."

Poem: "The Rock-a-by Lady."

Third Month. Observe how nature prepares for winter. Getting ready at home for winter—putting in coal, making jelly, making warm clothes.

Note how animals and birds prepare for cold weather. Notice the putting on of more flesh.

Speak of the Eskimo.

Talks on Thanksgiving.

Poem: "The Winds."

Fourth Month. Work based on Christmas. Have children give account of their shopping trips. Christmas in other lands. Talks and observation of sun, stars, snowflakes, holly. Study the rabbit and winter birds.

Stories of the Christ Child.

Poem: Christmas poem to be selected by teacher.

Fifth Month. Talks about the New Year. Observe ice, freezing, winter sports.

Note correct use of "see," "saw;" "do," "does."

Poem: "My Shadow."

Talks on care of the body.

Sixth Month. Talks on Washington and Lincoln. Give stories of their early life. Have pictures.

Paper-cutting, and stories relating to St. Valentine's Day.

Pussy willows.

Poem: "Stars and Daisies."

Arrange your questions so that the child must use correct expressions in his answers.

Ex.: Did you see the bird?

I saw the bird.

Did you eat your dinner?

I ate my dinner.

Seventh Month. Have children take notice of the signs of spring—bees, flowers, house-cleaning, birds, sap.

Plan the school garden.

Drill on correct expressions in language until they are the child's property.

Poem: "The Brook Song."

Eighth Month. Copy sentences; then later answer questions by writing familiar sentences which they have previously copied. Period at end of statements. Question mark after questions. Capitals at the beginning of sentences. Language work suggested by the school garden. Short outdoor excursions.

Poem: "Bunch of Golden Keys."

THE LITTLE RED HEN

THE STORY NURSE BRIDGET TOLD

Once there was a little Red Hen.

She was a wise body and lived all alone. A nice quiet body was the little Red Hen! She worked hard on her farm all day. Can't you see her, children, driving her little horses and milking her little cows?

Over the hills and far away lived a bad old Fox. Oh, he was a very wicked old fellow, children! He lived in a den among the rocks. His wicked old mother lived with him. And she was even more wicked than her son.

Now, the Fox wanted to get the Red Hen to eat. He would lie awake nights to think how to get her. He thought and thought until he was only skin and bones. But at last a plan came to him. He took a big bag and said to his mother:

"Have the pot boiling. Be sure and have it boiling when I get home. I'll bring the Red Hen and we'll have her for supper."

Then he stole away over the hills to where the little Red Hen lived.

At last he came to the Red Hen's house. She was picking up sticks. "All right," said the Fox, stepping in at the door. He looked about for a place to hide. He hid under the bed, but his nose stuck out. Then he hid under the table, but his tail stuck out. At last he went behind the door.

The little Red Hen came in with her apron full of sticks. She locked the door and put the key in her pocket. Then she turned around. There stood the Fox. There lay his big tail spread out on the floor. Oh, how scared was the little Red Hen! She dropped her sticks and flew up on the beam that ran across the room.

"You won't get me now," she cried. "You may as well go home, you bad fellow!"

"All right," said the Fox; "I'll bring you down soon."

So he played a trick on the floor right under where she sat. He turned round and round and round after his tail.

Poor little Red Hen! She got dizzy looking at the Fox's tail. So she just dropped on the floor. The old Fox picked her up and put her into his bag. Then he set out for home.

Poor little Red Hen shut up there in the bag! She cried, and cried, and cried. She cried until she had wet her apron and six handkerchiefs with her tears. She did not want to be carried home by the Fox. She did not want to be eaten by him and his wicked old mother.

Then she thought of her scissors, and pulled them out. She cut a big hole in the bag. Before the old Fox could think, she had jumped out. She took a big stone and put it into the bag. Then she ran home and locked her door.

"You didn't get me this time, you wicked, sly old Fox," she said.

Well, the old Fox went home. The stone was heavy, but he did not mind.

Mother Fox was standing at the door. "Have you the pot boiling?" he said.

"Yes, my son. Did you get the little Red Hen?"

"Yes, mother, here she is in my bag. Now I'll cut the string and hold the bag over the pot. When I drop her in, you put on the cover."

"Yes, my son, I will."

The stone went in with a splash. The boiling water flew out on every side. It burned the Fox to death, and the old mother, too.

But the little Red Hen lived safe in her house. She drove her horses and worked in her fields.

And the old Fox never gave her any more trouble.

WYNKEN, BLYNKEN AND NOD

Wynken, Blynken and Nod one night

Sailed off in a wooden shoe,

Sailed on a river of crystal light

Into a sea of dew.

"Where are you going, and what do you wish?"

The old moon asked the three.

"We have come to fish for the herring fish

That live in this beautiful sea.

Nets of silver and gold have we,"

Said Wynken, Blynken and Nod.

The old moon laughed and sang a song,

As they rocked in the wooden shoe.

And the wind that sped them all night long

Ruffled the waves of dew.

The little stars were the herring fish

That lived in that beautiful sea.

"Now cast your nets wherever you wish,

But never afraid are we!"

So cried the stars to the fishermen three—

Wynken, Blynken and Nod.

All night long their nets they threw

To the stars in the twinkling foam.

Then down from the sky came the wooden shoe,

Bringing the fishermen home.

'Twas all so pretty a sail it seemed

As if it could not be,

And some folks thought 'twas a dream they'd dreamed

Of sailing that beautiful sea.

But I shall name you the fishermen three—

Wynken, Blynken and Nod.

Wynken and Blynken are two little eyes,
 And Nod is a little head,
 And the wooden shoe that sailed the skies
 Is a wee one's trundle-bed.
 So shut your eyes while mother sings
 Of wonderful sights that be,
 And you shall see the beautiful things
 As you rock on the misty sea,
 Where the old shoe rocked the fishermen three—
 Wynken, Blynken and Nod.

—EUGENE FIELD.

THE ROCK-A-BY LADY

The Rock-a-by Lady from Hush-a-by Street
 Comes stealing, comes creeping.
 The poppies they hang from her head to her feet,
 And each hath a dream that is tiny and fleet.
 She bringeth her poppies to you, my sweet,
 When she findeth you sleeping!

There is one little dream of a beautiful drum—
 "Rub-a-dub" it goeth;
 There is one little dream of a big sugar plum;
 And lo! thick and fast the other dreams come,
 Of popguns that bang, and tin tops that hum,
 And a trumpet that bloweth!

And dollies peep out of those wee little dreams,
 With laughter and singing;
 And boats go a-floating on silvery streams;
 And the stars peek-a-boo with their own misty gleams;
 And up, up and up, where the Mother Moon beams,
 The fairies go winging!

Would you dream all those dreams that are tiny and fleet?
 They'll come to you sleeping.
 So shut the two eyes that are weary, my sweet!
 For the Rock-a-by Lady from Hush-a-by Street,
 With poppies that hang from her head to her feet,
 Comes stealing, comes creeping.

—EUGENE FIELD.

MY SHADOW.

I have a little shadow that goes in and out with me,
 And what can be the use of him is more than I can see.
 He is very, very like me from the heels up to the head;
 And I see him jump before me, when I jump into my bed.

The funniest thing about him is the way he likes to grow—
 Not at all like proper children, which is always very slow;
 For he sometimes shoots up taller like an India-rubber ball,
 And he sometimes gets so little that there's none of him at all.

He hasn't got a notion of how children ought to play,
 And can only make a fool of me in every sort of way.
 He stays so close beside me; he's a coward, you can see.
 I'd think shame to stick to nursie as that shadow sticks to me!

One morning, very early, before the sun was up,
 I rose and found the shining dew on every buttercup;
 But my lazy little shadow, like an arrant sleepy-head,
 Had stayed at home behind me and was fast asleep in bed.

—ROBERT LOUIS STEVENSON.

THE BROOK SONG.

Little brook! Little brook!
 You have such a happy look—
 Such a very merry manner, as you swerve and curve and crook;
 And your ripples, one and one,
 Reach each other's hands and run,
 Like laughing little children in the sun!

Little brook, sing to me;
 Sing about a humblebee
 That tumbled from a lily-bell and grumbled mumblingly,
 Because he wet the film
 Of his wings, and had to swim,
 While the water-bugs raced 'round and laughed at him!

Little brook, sing a song
 Of a leaf that sailed along
 Down the golden-braided center of your current swift and strong.
 And a dragon-fly that lit
 On the tilting rim of it,
 And rode away and wasn't scared a bit.

—JAMES WHITCOMB RILEY.

STARS AND DAISIES.

At evening, when I go to bed,
I see the stars shine overhead;
They are the little daisies white,
That dot the meadow of the night.

And often, while I'm dreaming so,
Across the sky the Moon will go;
She is a lady, sweet and fair,
Who comes to gather daisies there.

For, when at morning I arise,
There's not a star left in the skies;
She's picked them all and dropped them down
Into the meadow of the town.

—FRANK DEMPSTER SHERMAN.

THE WIND

Who has seen the wind?
Neither I nor you;
But when the leaves hang trembling,
The wind is passing through.

Who has seen the wind?
Neither you nor I;
But when the trees bow down their heads,
The wind is passing by.

—CHRISTINA ROSSETTI.

BUNCH OF GOLDEN KEYS

A bunch of golden keys is mine,
To make each day with gladness shine.
"Good morning," that's the golden key
That unlocks every day for me.

When evening comes, "Good night" I say,
And close the door of each glad day.
When at the table, "If you please"
I take from off my bunch of keys.

When friends give anything to me,
 I'll use the little "Thank you" key.
 I'll often use each golden key,
 And so a happy child I'll be.

—SAMUEL TAYLOR COLERIDGE.

SECOND YEAR

First Month. Conversation on simple fables and oral reproduction; sentences from copy and from dictation; original sentences from familiar words.

CAPITALS.—Months, days of week, cities, streets.

Poem: First and second months, "September," by Helen Hunt Jackson.

Second Month. HIAWATHA'S CHILDHOOD.

MODEL LESSON

Read the story of Hiawatha's childhood. Explain, as the poem is read: big sea water (lake), cones, wigwams, firs, linden, moss, rushes, reindeer sinews, pine tree, owl, fireflies, brakes, rainbow, flecks and shadows on the moon. Show pictures to assist in explanation of the foregoing. Meaning of: "stilled his fretful wail," "lulled him into slumber," "Ewayea," "lapping of the water," "flitting through the dusk of the evening," "rippling," "angry," "fade and perish," "hooting," "native." After reading the poem to the children, ask questions on it similar to the following: Who was Hiawatha? Tell something about his appearance. In what kind of a cradle did he swing? With what was it lined? Who rocked it? What do we call an Indian baby? What do we call an Indian woman? Who was Nokomis? What did she do for Hiawatha? What stories did she tell him? What did he see as he lay in his cradle? What did he call the firefly? Did Hiawatha ever get frightened? Was he afraid of the dark? What did Nokomis tell him to make him go to sleep? What sound did the owl make? What did Nokomis think the rainbow was? In what kind of a house did Hiawatha and Nokomis live? What grew behind it? What color was the water before it? What kind of trees grew near? What grew upon the fir trees?

Answers to the foregoing should be given orally, and sentences given written on the board to read and copy, as follows:

Hiawatha was an Indian boy. His skin was red and his hair black. He had a linden cradle. It was lined with moss. His grandmother rocked it. She sang songs to him and told him

stories. She told him about the moon and stars. He saw the fireflies. They were his candles. He heard the owls hoot and was afraid. Nokomis thought the rainbow was made of flowers. Hiawatha and Nokomis lived in a wigwam. The lake was before it. Cones grew on the trees.

Have pupils of the first grade draw, cut and paste the wigwam, canoe, cradle, trees, lake, rainbow, moon and stars, firefly, owl, bear, bird. Paint with water-colors or colored pencils. Pupils may be given sticks or seeds to lay the outline of the wigwam, cradle, pine trees, moon and stars. On sewing-cards prick the outline of the bear, birds, wigwam, owl, rainbow, cradle, canoe, moon and stars. Use different colors in sewing.

Correct the use of: "has," "have;" "is," "are;" "each," "all." Stories, fables, conversation lessons, picture-study.

Third Month. STUDY OF MONDAMIN ("Hiawatha," Chapter V).—Give the experiences of the different days, the burial, the sprouting.

Stories suitable for Thanksgiving.

Let the children dramatize these stories and have the conversation lesson in keeping with Thanksgiving.

Poem: "The Wind and the Leaves."

Fourth Month. HIAWATHA'S SAILING.—Memorize a few lines. Have the children describe the canoe.

Stories suitable to Christmas.

Teach a short Christmas poem.

Correct: "I done it," "I seen it," "I didn't do nothing," etc.

Fifth Month. HIAWATHA'S FISHING (Chapter VIII).

Stories pertaining to the New Year.

Conversation lesson on winter and life in the far north. Eskimo life and reindeer.

Poem: "The Wind."

Sixth Month. HIAWATHA'S WOOING.—Let the children dramatize several of the lines.

Stories of spring and her helpers.

NATURE-STUDY.—Require observation as to the changes in the season and in all nature. Lead the child to notice putting on thicker fur and feathers in winter, the storing of food by squirrels, the snow, the twigs, winter games in other countries, etc.

Pictures and stories of Washington, Lincoln and Longfellow. Stories of the flag.

Let the child reproduce stories. Lead the child to say what he means.

Stories and paper-cutting. St. Valentine.

Poem: "Toast to the Flag."

Seventh Month. HIAWATHA'S WEDDING FEAST.—Memorize a few lines of the song of Chibiabos.

Story of the North Wind.

Have pupils prepare soil and get boxes ready for planting seeds.

Observation lessons on the chicken.

Eighth Month. HIAWATHA'S PICTURE-WRITING (Chapter XIV).

Make a bird calendar. House-cleaning. Plans for vegetable and flower garden. Building of nests. Insects.

Poem: "Calling the Violet."

Ninth Month. Review of the year's work. Outdoor excursions. Description of walks.

Correct use of: "sleep," "slept;" "awake," "awoke," "awaken;" "swell," "swelled."

SEPTEMBER

The goldenrod is yellow,
The corn is turning brown,
The trees in apple orchards
With fruit are bending down.

The gentian's bluest fringes
Are curling in the sun,
In dusky pods the milkweed
Its hidden silk has spun.

The sedges flaunt their harvest
In every meadow-nook,
And asters by the brookside
Make asters in the brook.

From dewy lanes at morning
The grapes' sweet odors rise.
At noon the roads all flutter
With golden butterflies.

By all these lovely tokens,
September days are here,
With summer's best of weather
And autumn's best of cheer.

—HELEN HUNT JACKSON.

THE WIND AND THE LEAVES

“Come little leaves,” said the wind one day,
 “Come o’er the meadows with me, and play.
 Put on your dresses of red and gold;
 Summer is gone, and the days grow cold.”

Soon as the leaves heard the wind’s low call,
 Down they came fluttering, one and all;
 Over the brown fields they danced and flew,
 Singing the soft little songs they knew.

“Cricket, good-bye, we’ve been friends so long!
 Pretty brook, sing us your farewell song;
 Say you are sorry to see us go.
 Oh! you will miss us, right well we know.

“Dear little lambs, in your fleecy fold,
 Mother will keep you from harm and cold;
 Fondly we’ve watched you in vale and glade;
 Say, will you dream of our loving shade?”

Dancing and whirling, the little leaves went;
 Winter had called them, and they were content.
 Soon fast asleep in their earthy beds,
 The snow laid a coverlet over their heads.

—GEORGE COOPER.

CHRISTMAS BELLS

I heard the bells on Christmas Day
 Their old, familiar carols play,
 And wild and sweet
 The words repeat
 Of peace on earth, good-will to men!

Then pealed the bells more loud and deep:
 “God is not dead; nor doth he sleep!
 The Wrong shall fail,
 The Right prevail,
 With peace on earth, good-will to men!”

—HENRY WADSWORTH LONGFELLOW.

THE WIND

I saw you toss the kites on high
 And blow the birds about the sky;
 And all around I heard you pass,
 Like ladies' skirts across the grass—
 O wind, a-blowing all day long,
 O wind, that sings so loud a song!

I saw the different things you did,
 But always you yourself you hid.
 I felt you push, I heard you call,
 I could not see yourself at all—
 O wind, a-blowing all day long,
 O wind, that sings so loud a song!

O you that are so strong and cold,
 O blower, are you young or old?
 Are you a beast of field and tree,
 Or just a stronger child than me?
 O wind, a-blowing all day long,
 O wind, that sings so loud a song!

—ROBERT LOUIS STEVENSON.

TOAST TO THE FLAG

Your Flag, and my Flag!
 And here it flies today
 In your land and my land
 And half a world away.
 Rose-réd and blood-red,
 Its stripes forever gleam;
 Soul-white and snow-white,
 The good forefathers' dream.
 Sky-blue and true blue,
 With stars to gleam aright,
 A gloried guidon in the day,
 A shelter through the night.

Your Flag, and my Flag!
 And oh, how much it holds!
 Your land and my land
 Secure within its folds.
 Your heart and my heart
 Beat quicker at the sight,
 Sun-kissed and wind-tossed,
 The red and blue and white.
 The one Flag, the great Flag,
 The Flag for me and you—
 Glorified all else beside,
 The Red and White and Blue.

—W. B. NESBIT.

CALLING THE VIOLET

Dear little Violet,
 Don't be afraid!
 Lift your blue eyes
 From the rock's mossy shade.
 All the birds call for you
 Out of the sky;
 May is here waiting,
 And here, too, am I.

Come, pretty Violet!
 Winter's away;
 Come, for without you
 May isn't May.
 Down through the sunshine
 Wings flutter and fly;
 Quick, little Violet,
 Open your eye!

—LUCY LARCOM.

THIRD YEAR

First Month. Oral reproduction of lessons and stories.

Use of "their," "there;" "to," "two" and "too." Composition on subjects with which the child is familiar. Be sure that the child has been given enough facts and is interested in the subject before calling for the written work. How statements and questions begin and end.

Poem: "The Barefoot Boy."

Second Month. By means of sentences fix the correct use of the simple personals; as, "Mary and I go to school."

Poem: Finish poem of first month.

Third Month. Make sentences using: "here," "hear;" "new," "knew;" "hole," "whole;" "grate," "great;" etc.

Use of "saw," "seen;" "did," "done."

Composition: Thanksgiving. Give description of early life in the colonies.

Use of capital letters.

Composition: "What Will I Do on Thanksgiving?"

Poem: "The Tree."

Fourth Month. Use of "sit" and "set."

By imitation teach use of possessive forms and paragraphing.

Composition work relating to Christmas in other lands: England, Germany, Norway.

Poem: "New Year's Eve."

Letter-writing.

Fifth Month. Teach period, interrogation point.

Correct use of "may," "can;" "might," "could;" "between," "among."

History of Robinson Crusoe.

Conversation and story-telling.

Reproducing stories found in readers.

Poem: "The Mountain and the Squirrel."

Sixth Month. Use of "teach" and "learn."

Story of Sir Galahad.

Stories of Washington and Lincoln.

Poem: "If Ever I See."

Teach the use of the comma in a few simple constructions.

Use of "I" and "me," "she" and "her," "he" and "him."

Seventh Month. Quotation marks, exclamation point.

Use of "good" and "well."

The birds are returning. Make a bird calendar.

Memorize the Twenty-third Psalm.

Eighth and Ninth Months. Teach spelling of simple homonyms. Use in sentences. Use of "these" and "those."

Review letter-writing carefully.

Watch the paragraphing in composition. Have pupils correct errors.

Poem: "Little Brown Hands."

THE BAREFOOT BOY

Blessings on thee, little man,
 Barefoot boy with cheeks of tan,
 With thy turned-up pantaloons
 And thy merry whistled tunes;
 With thy red lips, redder still,
 Kissed by strawberries on the hill;
 With the sunshine on thy face,
 Through thy torn brim's jaunty grace;
 From my heart I give thee joy—
 I was once a barefoot boy!

Oh, for boyhood's painless play,
 Sleep that wakes in laughing day,
 Health that mocks the doctor's rules,
 Knowledge never learned in schools,
 Of the wild bee's morning chase,
 Of the wild flower's time and place,
 How the tortoise bears his shell,
 How the woodchuck digs his cell,

How the robin feeds her young,
 How the oriole's nest is hung,
 Where the whitest lilies blow,
 Where the freshest berries grow,
 Where the ground-nut trails its vine,
 Where the wood-grape's clusters shine,
 Of the black wasp's cunning way,
 Mason of his walls of clay.

Oh, for boyhood's time of June,
 Crowding years in one brief moon,
 When all things I heard or saw
 Me, their master, waited for!
 I was rich in flowers and trees,
 Humming-birds and honey-bees;
 For my sport the squirrel played,
 Plied the snouted mole his spade.

Laughed the brook for my delight,
 Through the day and through the night,
 Whispering at the garden wall,
 Talked with me from fall to fall.
 Mine the sand-rimmed pickerel pond;
 Mine the walnut slopes beyond;
 Mine, on bending orchard trees,
 Apples of Hesperides.

I was monarch; pomp and joy
 Waited on the barefoot boy!

—JOHN GREENLEAF WHITTIER.

THE TREE

The Tree's early leaf buds were bursting their brown;
 "Shall I take them away?" said the Frost, sweeping down.
 "No, leave them alone
 Till the blossoms have grown,"
 Prayed the Tree, while he trembled from rootlet to crown.

The Tree bore his blossoms, and all the birds sung;
 "Shall I take them away?" said the Wind as he swung.
 "No leave them alone
 Till the berries have grown,"
 Said the Tree, while his leaflets quivering hung.

The Tree bore his fruit in the midsummer glow;
 Said the girl: "May I gather thy berries now?"
 "Yes, all thou canst see;
 Take them; all are for thee,"
 Said the Tree, while he bent down his laden boughs low.

—BJORNSTJERNE BJORNSON.

NEW YEAR'S EVE

Ring out, wild bells, to the wild sky,
 The flying cloud, the frosty light!
 The year is dying in the night;
 Ring out, wild bells, and let him die!

Ring out the old, ring in the new;
 Ring, happy bells, across the snow!
 The year is going—let him go;
 Ring out the false, ring in the true!

Ring out old shapes of foul disease;
 Ring out the narrowing lust of gold;
 Ring out the thousand wars of old;
 Ring in the thousand years of peace!

Ring in the valiant man and free,
 The larger heart, the kindlier hand;
 Ring out the darkness of the land;
 Ring in the Christ that is to be!

—ALFRED TENNYSON.

THE TWENTY-THIRD PSALM

The Lord is my shepherd; I shall not want.
 He maketh me to lie down in green pastures:
 He leadeth me beside the still waters.
 He restoreth my soul:
 He leadeth me in the paths of righteousness for his name's
 sake.
 Yea, though I walk through the valley of the shadow of death,
 I will fear no evil:
 For Thou art with me; Thy rod and Thy staff they comfort
 me.
 Thou preparest a table before me in the presence of mine
 enemies;
 Thou anointest my head with oil; my cup runneth over.
 Surely goodness and mercy shall follow me all the days of
 my life:
 And I will dwell in the house of the Lord for ever.

THE MOUNTAIN AND THE SQUIRREL

The mountain and the squirrel.
 Had a quarrel,
 And the former called the latter "Little Prig."
 Bun replied:
 "You are doubtless very big;
 But all sorts of things and weather
 Must be taken in together
 To make up a year
 And a sphere.
 And I think it no disgrace
 To occupy my place.
 If I'm not so large as you,

You are not so small as I,
 And not half so spry.
 I'll not deny you make
 A very pretty squirrel track.
 Talents differ; all is well and wisely put;
 If I cannot carry a forest on my back,
 Neither can you crack a nut."

—RALPH WALDO EMERSON.

LITTLE BROWN HANDS

They drive home the cows from the pasture,
 Up through the long shady lane,
 Where the quail whistles loud in the wheat fields
 That are yellow with ripening grain;
 They find in the thick, waving grasses,
 Where the scarlet-lipped strawberry grows;
 They gather the earliest snowdrops,
 And the first crimson buds of the rose;
 They toss the new hay in the meadow;
 They gather the elder bloom white;
 They find where the dusky grapes purple
 In the soft-tinted October light;
 They know where the apples hang ripest,
 And are sweeter than Italy's wines;
 They know where the fruit hangs the thickest
 On the long, thorny blackberry vines.
 Those who toil bravely are strongest;
 The humble and poor become great;
 And so from these brown-handed children
 Shall grow mighty rulers of state;
 The pen of the author and statesman—
 The noble and wise of the land—
 The sword, and the chisel, and palette
 Shall be held in the little brown hand.

—M. H. KROUT.

FOURTH YEAR

First Month. Dictation—not more than three or four lines on interesting topics.

Use of pictures as basis of conversation lessons.

Letter-writing. Hyphen. Formation of plurals in -es, -ves, without s; formation of possessives continued.

Reproduction of what pupil has been taught in geography, history, etc.

This month give special attention to the subject of wheat and the manufacture of flour.

Poem: "The Village Blacksmith."

Second Month. Correct use of "guess" and "think," of "queer" and "funny."

The use of apostrophe to denote omitted letter ("isn't," "won't," "don't," etc.).

Composition and conversation lessons on Columbus.

Continue drill on verb forms and personal pronouns.

Poem: Continue study of "The Village Blacksmith."

Third Month. Uses of the article "a" before a consonant sound, and "an" before a vowel sound.

Note the birds that stay in winter.

Compositions and conversations on Thanksgiving Day.

Write an invitation to a friend to spend Thanksgiving with you.

Comma, quotation, question mark, exclamation point. Formation of plurals.

Correct use of "go," "went," "gone."

Poem: "October's Bright Blue Weather."

Fourth Month. Read Dickens' "Christmas Carol" to the class. Question to bring out the ideas received by the class.

"Like." Never use "like" before a statement.

Composition: "Christmas in Other Lands." Furnish outlines for letters, that the arrangement may be orderly. Write letter of thanks for gifts received. Correct carefully the few lines of dictation given each day. Review by dictation, punctuation, capitalization, correct forms of the verbs and pronouns.

Poem: "Christmas Everywhere."

Fifth Month. Compositions and stories, illustrated by drawings, of the beaver. Talks on fur-bearing animals. Use of "in" and "into." Require more exact work as the year advances. Teacher tells a story and lets the class suggest the finish.

Principal words of abbreviation.

Correct use of "stop," "stay;" "carry," "bring," "fetch;" "real," "awful," "very;" "this," "that," "these," "those."

Correlate the geography with grammar in conversation lessons on the long nights, short days, why it is cold in winter. Notice the changes that cold weather brings.

Study the forms of the snowflakes.

Poem: "The Sandpiper."

Sixth Month. Tell stories of animals. Study the habits of home animals and lead the children to love the dog, the cat, the horse.

Stories of their devotion to their masters.

Use of "got" or "have got" for "have."

Conversation and composition. Washington and Lincoln. Stories of Washington and Lincoln that will interest the child. Reproduction. Dictate short letters.

Poem: "The Landing of the Pilgrims."

Seventh Month. Study and write short compositions on sugar.

Show how nature is getting ready for spring.

Notice where the sun rises, sets. Watch capitals.

Use of "swarm," "flock" and words that name a collection of animals.

Poem: "Paul Revere's Ride."

Eighth Month. A study of trees. Note different kinds of wood. Uses.

Protection of forests. Why?

Correct the common use of the double negative.

Composition carefully corrected.

Use of word "O" and "Oh."

By this month child should know short selections from many good poems.

Poem: Continue poem of seventh month.

Ninth Month. Review principal facts in this year's work.

Child should be able to give the substance orally or in writing of a carefully selected reading lesson, to write a paragraph from dictation, to write a letter, to use the new words learned in his ordinary speech.

Written work should be accurately done so far as pupils have been instructed.

Poem: "The Yellow Violet."

THE VILLAGE BLACKSMITH

Under a spreading chestnut tree
The village smithy stands;
The smith, a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands.

His hair is crisp, and black, and long;
His face is like the tan;
His brow is wet with honest sweat;
He earns whate'er he can,
And looks the whole world in the face,
For he owes not any man.

Week in, week out, from morn till night,
You can hear his bellows blow;
You can hear him swing his heavy sledge,
With measured beat and slow,
Like a sexton ringing the village bell,
When the evening sun is low.

And children coming home from school
Look in at the open door;
They love to see the flaming forge,
And hear the bellows roar,
And catch the burning sparks that fly
Like chaff from the threshing-floor.

He goes on Sunday to the church,
And sits among his boys;
He hears the parson pray and preach;
He hears his daughter's voice,
Singing in the village choir,
And it makes his heart rejoice.

It sounds to him like her mother's voice,
Singing in Paradise!
He needs must think of her once more,
How in the grave she lies;
And with his hard, rough hand he wipes
A tear out of his eyes.

Toiling—rejoicing—sorrowing,
 Onward through life he goes;
 Each morning sees some task begin,
 Each evening sees it close;
 Something attempted, something done,
 Has earned a night's repose.

Thanks, thanks to thee, my worthy friend,
 For the lesson thou hast taught!
 Thus at the flaming forge of life
 Our fortunes must be wrought;
 Thus on its sounding anvil shaped
 Each burning deed and thought.
 —HENRY WADSWORTH LONGFELLOW.

OCTOBER'S BRIGHT BLUE WEATHER

O suns and skies and clouds of June,
 And flowers of June together,
 Ye cannot rival for one hour
 October's bright blue weather;

When loud the bumblebee makes haste,
 Belated, thriftless, vagrant,
 And goldenrod is dying fast,
 And lanes with grapes are fragrant;

When gentians roll their fringes tight
 To save them for the morning,
 And chestnuts fall from satin burrs
 Without a sound of warning;

When on the ground red apples lie
 In piles, like jewels shining,
 And redder still on old stone walls
 Are leaves of woodbine twining;

When all the lovely wayside things
 Their white-winged seeds are sowing,
 And in the fields, still green and fair,
 Late aftermaths are growing;

When springs run low, and on the brooks,
 In idle golden freighting,
 Bright leaves sink noiseless in the hush
 Of woods, for winter waiting.

O sun and skies and flowers of June,
 Count all your boasts together:
 Love loveth best of all the year
 October's bright blue weather.

—HELEN HUNT JACKSON.

CHRISTMAS EVERYWHERE

Everywhere, everywhere, Christmas tonight!
 Christmas in lands of the fir tree and pine;
 Christmas in lands of the palm tree and vine;
 Christmas where snow peaks stand solemn and white;
 Christmas where corn fields lie sunny and bright!

Christmas where children are hopeful and gay;
 Christmas where old men are patient and gray;
 Christmas where peace, like a dove in its flight,
 Broods o'er brave men in the thick of the fight;
 Everywhere, everywhere, Christmas tonight.

For the Christ Child who comes is the master of all;
 No palace too great and no cottage too small.

—PHILLIPS BROOKS.

THE SANDPIPER

Across the lonely beach we flit,
 One little sandpiper and I;
 And fast I gather, bit by bit,
 The scattered driftwood bleached and dry.
 The wild waves reach their hands for it.
 The wild wind raves, the tide runs high,
 As up and down the beach we flit—
 One little sandpiper and I.

Above our heads the sullen clouds
 Scud black and swift across the sky;
 Like silent ghosts in misty shrouds
 Stand out the white lighthouses high.
 Almost as far as eye can reach
 I see the close-reefed vessels fly,
 As fast we flit along the beach—
 One little sandpiper and I.

I watch him as he skims along
 Uttering his sweet and mournful cry;
 He starts not at my fitful song,
 Nor flash of fluttering drapery.
 He has no thought of any wrong;
 He scans me with a fearless eye;
 Stanch friends are we, well tried and strong—
 The little sandpiper and I.

Comrade, where wilt thou be tonight,
 When the loosed storm breaks furiously?
 My driftwood fire will burn so bright!
 To what warm shelter canst thou fly?
 I do not fear for thee, though wroth
 The tempest rushes through the sky;
 For are we not God's children both—
 Thou, little sandpiper, and I?

—CELIA THAXTER.

THE LANDING OF THE PILGRIMS

The breaking waves dashed high
 On a stern and rock-bound coast,
 And the woods against a stormy sky
 Their giant branches tossed.

And the heavy night hung dark
 The hills and waters o'er,
 When a band of exiles moored their bark
 On the wild New England shore.

Not as the conqueror comes,
They, the true-hearted came;
Not with the roll of stirring drums,
And the trumpet that sings of fame.

Not as the flying come,
In silence and in fear;
They shook the depths of the desert gloom
With their hymns of lofty cheer.

Amidst the storm they sang;
And the stars heard, and the sea;
And the sounding aisles of the dim woods rang
With the anthems of the free!

The ocean eagle soared
From his nest by the white wave's foam,
And the rocking pines of the forest roared—
This was their welcome home!

There were men with hoary hair
Amidst that pilgrim band;
Why had they come to wither there
Away from their childhood's land?

There was woman's fearless eye,
Lit by her deep love's truth;
There was manhood's brow serenely high,
And the fiery heart of youth.

What sought they thus afar?
Bright jewels of the mine?
The wealth of seas, the spoils of war?
They sought a faith's pure shrine!

Aye, call it holy ground,
The soil where first they trod;
They left unstained what there they found,
Freedom to worship God.

THE YELLOW VIOLET

When beechen buds begin to swell,
And woods the bluebird's warble know,
The yellow violet's modest bell
Peeps from the last year's leaves below.

Ere russet fields their green resume,
Sweet flower, I love, in forest bare,
To meet thee, when thy faint perfume
Alone is in the virgin air.

Of all her train, the hands of Spring
First plant thee in the watery mold,
And I have seen thee blossoming
Beside the snow-bank's edges cold.

Thy parent sun, who bade thee view
Pale skies, and chilling moisture sip,
Has bathed thee in his own bright hue,
And streaked with jet thy glowing lip.

Yet slight thy form and low thy seat,
And earthward bent thy gentle eye,
Unapt the passing view to meet,
When loftier flowers are flaunting nigh.

Oft, in the sunless April day,
Thy early smile has stayed my walk;
But midst the gorgeous blooms of May
I passed thee on thy humble stalk.

So they who climb to wealth forget
The friends in darker fortunes tried;
I copied them—but I regret
That I should ape the ways of pride.

And when again the genial hour
Awakes the painted tribes of light,
I'll not o'erlook the modest flower
That made the woods of April bright.

—WILLIAM CULLEN BRYANT.

FIFTH YEAR

First Month. Review the subject of punctuation.

Give drill upon the correct use of "is," "are;" "was," "were."

Read "Barbara Frietchie" to class. Study the poem. Notice new words. What words would you have used in place of these new words? Do you think the author's words better? Why?

Brief composition on familiar subject. Correct syllabication at end of line.

Poem: "To the Fringed Gentian."

Second Month. Pupils should learn to talk freely. Encourage by all means possible the child's ability to stand before his class and to express his thoughts clearly. Make each lesson a language lesson. Form habit of consulting dictionary. Placing of new words, written and oral, in sentences, in letters.

Insist on accurate work; therefore have the written work brief.

Drill on correct use of "has," "have;" "did," "done;" "doesn't," "don't."

Poem: Selections from the "Birds of Killingsworth."

Talks on treatment and protection of birds.

Third Month. Drill on "see;" "sit," "set;" "isn't," "aren't."

Write business letter ordering a bicycle or a picture.

Teach subject and predicate. Distinguish between assertive, interrogative, imperative, and exclamatory sentences.

Poem: Continue study of previous month.

Composition: "How Animals Prepare for Winter."

Fourth Month. Correct use of "shall" and "will," "wrote" and "written." "spoke" and "spoken."

Distinguish between the simple and complete subject and predicate; the noun.

Review formation of plurals. Use of the apostrophe. Forming of possessive, singular, plural, annotation marks.

Write an invitation to a Christmas party. A letter thanking someone for a gift. Invitation to parents and friends to attend Christmas exercises.

Have the class familiar with the life of Bryant.

Poem: "Abou Ben Adhem."

Fifth Month. Correct "learned" for "taught;" "can" for "may;" "had went" for "had gone."

Review work of previous months.

Commit to memory ten prepositions.

Composition: "Story of William Penn."

Poem: "A Sermon for Young Folks."

Sixth Month. Drill upon personal pronouns, adjectives. Pay some attention to the comparison of adjectives.

Composition: "Early History of Colorado." See page 115.

Poem: "Old Ironsides."

Seventh Month. Secure recognition of the verb and the direct object.

Poem: "The Arrow and the Song."

Composition: "Circulation," noting circulation of blood, of sap, etc.

Correct: "It is me," or "him," or "her," or "them."

As the year advances, pupils should depend less and less upon the teacher for their composition subjects.

Eighth Month. Use dictation exercises until the child distinguishes between "capitol" and "capital;" "chews" and "choose;" "except" and "accept."

Study the frog. Composition on frog, with drawing to illustrate the different stages in life-history.

Poem: "The Flag Goes By."

Ninth Month. Review technical work of the preceding eight months.

A carefully corrected composition.

Poem: "The Throstle."

TO THE FRINGED GENTIAN

Thou blossom bright with autumn dew,
And colored with the heaven's own blue,
That openest when the quiet light
Succeeds the keen and frosty night.

Thou comest not when violets lean
O'er wandering brooks and springs unseen,
Or columbines, in purple dressed,
Nod o'er the ground bird's hidden nest.

Thou waitest late and com'st alone,
When woods are bare and birds are flown,
And frost and shortening days portend
The aged year is near his end.

Then doth thy sweet and quiet eye
 Look through its fringes to the sky,
 Blue—blue—as if the sky let fall
 A flower from its cerulean wall.

I would that thus, when I shall see
 The hour of death draw near to me,
 Hope, blossoming within my heart,
 May look to heaven as I depart.

—WILLIAM CULLEN BRYANT.

THE ARROW AND THE SONG

I shot an arrow into the air;
 It fell to earth, I knew not where;
 For, so swiftly it flew, the sight
 Could not follow it in its flight.

I breathed a song into the air;
 It fell to earth, I knew not where;
 For who has sight so keen and strong
 That it can follow the flight of song?

Long, long afterward, in an oak
 I found the arrow, still unbroke;
 And the song, from beginning to end,
 I found again in the heart of a friend.

—HENRY W. LONGFELLOW.

SELECTIONS FROM THE BIRDS OF KILLINGWORTH

The robin and the bluebird, piping loud,
 Filled all the blossoming orchards with their glee;
 The sparrows chirped as if they still were proud
 Their race in Holy Writ should mentioned be;
 And hungry crows, assembled in a crowd,
 Clamored their piteous prayer incessantly,
 Knowing who hears the ravens cry, and said:
 "Give us, O Lord, this day our daily bread!"

Thus came the jocund Spring in Killingworth,
 In fabulous days, some hundred years ago,
 And thrifty farmers, as they tilled the earth,
 Heard with alarm the cawing of the crow,
 That mingled with the universal mirth,
 Cassandra-like, prognosticating woe;
 They shook their heads and doomed with dreadful words
 To swift destruction the whole race of birds.

And a town-meeting was convened straightway
 To set a price upon the guilty heads
 Of these marauders, who, in lieu of pay,
 Levied blackmail upon the garden beds
 And cornfields, and beheld without dismay
 The awful scarecrow, with his fluttering shreds;
 The skeleton that waited at their feast,
 Whereby their sinful pleasure was increased.

The thrush that carols at the dawn of day
 From the green steeples of the piny wood;
 The oriole in the elm; the noisy jay,
 Jargoning like a foreigner at his food;
 The bluebird balanced on some topmost spray,
 Flooding with melody the neighborhood;
 Linnet and meadow lark, and all the throng
 That dwell in nests, and have the gift of song.

You slay them all! And wherefore? For the gain
 Of a scant handful more or less of wheat,
 Or rye, or barley, or some other grain,
 Scratched up at random by industrious feet,
 Searching for worm or weevil after rain,
 Or a few cherries that are not so sweet
 As are the songs these uninvited guests
 Sing at their feasts with comfortable breasts.

Do you ne'er think what wondrous beings these?
 Do you ne'er think who made them, and who taught
 The dialect they speak, where melodies
 Alone are the interpreters of thought?
 Whose household words are songs in many keys,
 Sweeter than instrument of man e'er caught!
 Whose habitations in the tree-tops even
 Are half-way houses on the way to heaven.

Think every morning, when the sun peeps through
 The dim leaf-latticed windows of the grove,
 How jubilant the happy birds renew
 Their old melodious madrigals of love!
 And when you think of this, remember, too
 'Tis always morning somewhere, and above
 The awakening continents, from shore to shore,
 Somewhere the birds are singing evermore.

* * * * *

The summer came, and all the birds were dead.
 The days were like hot coals; the very ground
 Was burned in ashes; in the orchards fed
 Myriads of caterpillars, and around
 The cultivated fields and garden beds
 Hosts of devouring insects crawled, and found
 No foe to check their march till they had made
 The land a desert without leaf or shade.

But the next spring a stranger sight was seen—
 A sight that never yet by bard was sung;
 As great a wonder as it would have been
 If some dumb animal had found a tongue!
 A wagon overarched with evergreen,
 Upon whose boughs were wicker cages hung,
 All full of singing birds, came down the street,
 Filling the air with music wild and sweet.

From all the country round these birds were brought,
 By order of the town with anxious quest,
 And loosened from their wicker prisons, sought
 In woods and fields the places they loved best,
 Singing loud canticles, which many thought
 Were satires to the authorities addressed,
 While others, listening in green lanes, averred
 Such lovely music never had been heard.

—HENRY WADSWORTH LONGFELLOW.

ABOU BEN ADHEM

Abou Ben Adhem (may his tribe increase!)
 Awoke one night from a deep dream of peace,
 And saw, within the moonlight in^o his room,
 Making it rich, like a lily in bloom,
 An angel, writing in a book of gold.
 Exceeding peace had made Ben Adhem bold,
 And to the presence in the room he said:
 "What writest thou?" The vision raised its head,
 And, with a look made of all sweet accord,
 Answered: "The names of those who love the Lord."
 "And is mine one?" said Abou. "Nay, not so,"
 Replied the angel. Abou spoke more low,
 But cheerily still, and said: "I pray thee, then,
 Write me as one that loves his fellow-men."
 The angel wrote and vanished. The next night
 It came again, with a great awakening light,
 And showed the names whom love of God had blessed,
 And, lo! Ben Adhem's name led all the rest.

—LEIGH HUNT.

A SERMON FOR YOUNG FOLKS

Don't ever go hunting for pleasures—
 They cannot be found thus, I know;
 Nor yet fall a-digging for treasures,
 Unless with the spade and the hoe!

The bee has to work for the honey;
 The drone has no right to the food;
 And he who has not earned his money
 Will get out of his money no good.

The ant builds her house with her labor;
 The squirrel looks out for his mast;
 And he who depends on his neighbor
 Will never have friends, first or last.

To conscience be true, and to man true;
 Keep faith, hope and love in your breast;
 And when you have done all you can do,
 Why, then you may trust for the rest.

—ALICE CARY.

OLD IRONSIDES

Ay, tear her tattered ensign down!
 Long has it waved on high,
 And many an eye has danced to see
 That banner in the sky;
 Beneath it rung the battle shout
 And burst the cannon's roar:
 The meteor of the ocean air
 Shall sweep the clouds no more.

Her deck, once red with heroes' blood,
 Where knelt the vanquished foe,
 When winds were hurrying o'er the flood
 And waves were white below,
 No more shall feel the victor's tread,
 Or know the conquered knee:
 The harpies of the shore shall pluck
 The eagle of the sea!

Oh, better that her shattered hulk
 Should sink beneath the wave!
 Her thunders shook the mighty deep,
 And there should be her grave.
 Nail to the mast her holy flag!
 Set every threadbare sail,
 And give her to the god of storms,
 The lightning, and the gale!

—OLIVER WENDELL HOLMES.

THE FLAG GOES BY

Hats off!
 Along the street there comes
 A blare of bugles, a ruffle of drums,
 A flash of color beneath the sky.
 Hats off!
 The flag is passing by!

Blue and crimson and white it shines,
 Over the steel-tipped, ordered lines.
 Hats off!
 The colors before us fly;
 But more than the flag is passing by.

Sign of a nation, great and strong,
 To ward her people from foreign wrong;
 Pride and glory and honor—all
 Live in the colors to stand or fall.

Hats off!

Along the street there comes
 A blare of bugles, a ruffle of drums;
 And loyal hearts are beating high.

Hats off!

The flag is passing by!

—HENRY HOLCOMB BENNETT.

THE THROSTLE

“Summer is coming, summer is coming,
 I know it, I know it, I know it.
 Light again, leaf again, life again, love again!”
 Yes, my wild little Poet.

Sing the new year in under the blue.
 Last year you sang it as gladly.
 “New, new, new, new!” It is then *so* new
 That you should carol so madly?

“Love again, song again, nest again, young again.”
 Never a prophet so crazy!
 And hardly a daisy as yet, little friend;
 See, there is hardly a daisy.

“Here again, here, here, here, happy year!”
 O warble, unchidden, unbidden!
 Summer is coming, is coming, my dear,
 And all the winters are hidden.

—ALFRED TENNYSON.

SIXTH YEAR

First Month. Note speech of children, and prepare exercises to correct errors.

Review the technical work of fifth grade.

Compositions based on child's experience. If a text-book is used, have the lesson orally before assigning the same to be learned from the book.

Poem: “Gradatim.”

Second Month. Teach parts of speech.

Review subject and predicate.

Composition from outline.

Dictation, reviewing punctuation and the correct use of different verbs: "sit," "set," "sat;" "lie," "lay," etc.

Poem: "The Ship of State."

Third Month. Use of "don't," "won't," "can't," "haven't," "doesn't."

Letter inviting a friend to spend Thanksgiving with you. Write a letter of acceptance.

Have short reviews of previous work; each day use a few minutes in review. Review the various forms of sentences. Some knowledge of the phrase and clause.

Poem: "A Song."

Fourth Month. Dictation containing phrases and clauses (short paragraph carefully corrected).

Write invitation to parents to Christmas exercises.

From phrases and clauses lead to complex and compound sentences.

Poem: "The Love of Country."

Fifth Month. Exercises reviewing personal pronoun.

Dictation. Give parts of speech of words used.

Composition pertaining to the New Year.

Poem: "Concord Hymn."

Sixth Month. Review the parts of speech, as the pupil should have a fair knowledge of the parts of speech by the end of this year's work.

Composition based on stories of Washington.

Poem: "Gladness of Nature."

Seventh Month. Talk on the attribute complement and object complement. Draw the pupil's attention to sentences containing attribute complement.

Dictation, reviewing the different forms of sentences.

Composition: Have each child in the class write a letter addressed to president of Audubon Society, 165 Buenna Avenue, Chicago, requesting him to send literature on the protection of birds.

Poem: "The Heart of the Tree."

Eighth Month. Express qualities in three different degrees: "long," "longer," "longest."

Give the rule for second and third forms.

Compositions: Plans for the garden, or a written lesson on the care of young chickens.

Poem: Same as seventh month.

Ninth Month. Review technical work of the year.

Report of the outdoor excursions, oral and written.

Conversation lessons on vacation plans.

Note the use of the verb, and endeavor to accustom the pupil through the eye and the ear to correct forms of "see," "saw," "come," "came," etc., and to the correct form of the personal pronoun in: "It is I," "he," or "she."

GRADATIM

I count this thing to be grandly true,
That a noble deed is a step toward God—
Lifting the soul from the common sod
To a purer air and a broader view.

We rise by things that are under our feet;
By what we have mastered of good and gain;
By the pride deposed and the passion slain,
And the vanquished ills that we hourly meet.

Wings for the angels, but feet for the men!
We may borrow the wings to find the way—
We may hope, and resolve, and aspire, and pray;
But our feet must rise, or we fall again.

Heaven is not reached at a single bound;
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to the summit round by round.

—JOSIAH GILBERT HOLLAND.

THE SHIP OF STATE.

Sail on, sail on, O Ship of State!
Sail on, O Union, strong and great!
Humanity, with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!
We know what Master laid thy keel;
What Workmen wrought thy ribs of steel;
Who made each mast, and sail, and rope;
What anvils rang, what hammers beat;
In what a forge and what a heat
Were shaped the anchors of thy hope!

Fear not each sudden sound and shock—
 'Tis of the wave, and not the rock;
 'Tis but the flapping of the sail,
 And not a rent made by the gale!
 In spite of rock and tempest roar,
 In spite of false lights on the shore,
 Sail on, nor fear to breast the sea!
 Our hearts, our hopes, are all with thee.
 Our hearts, our hopes, our prayers, our tears,
 Our faith, triumphant o'er our fears,
 Are all with thee—are all with thee!

—HENRY WADSWORTH LONGFELLOW.

A SONG

There is ever a song somewhere, my dear:
 There is ever a something sings always:
 There's the song of the lark when the skies are clear,
 And the song of the thrush when the skies are gray.
 The sunshine showers across the grain,
 And the bluebird trills in the orchard tree;
 And in and out, when the eaves drip rain,
 The swallows are twittering ceaselessly.

There is ever a song somewhere, my dear,
 In the midnight black, or the midday blue;
 The robin pipes when the sun is here,
 And the cricket chirrups the whole night through.
 The buds may blow and the fruit may grow,
 And the autumn leaves drop crisp and sear;
 But whether the sun, or the rain, or the snow,
 There is ever a song somewhere, my dear.

There is ever a song somewhere, my dear,
 Be the skies above or dark or fair;
 There is ever a song that our hearts may hear—
 There is ever a song somewhere, my dear—
 There is ever a song somewhere.

—JAMES WHITCOMB RILEY.

THE LOVE OF COUNTRY

Breathes there the man with soul so dead,
 Who never to himself hath said,
 This is my own, my native land?
 Whose heart hath ne'er within him burned,
 As home his footsteps he hath turned
 From wandering on a foreign strand?

If such there breathe, go, mark him well!
 For him no minstrel raptures swell;
 High though his titles, proud his name,
 Boundless his wealth as wish can claim,
 Despite those titles, power and pelf,
 The wretch, concentred all in self,
 Living, shall forfeit fair renown,
 And, doubly dying, shall go down
 To the vile dust, from whence he sprung,
 Unwept, unhonored, and unsung.

—SIR WALTER SCOTT.

CONCORD HYMN

By the rude bridge that arched the flood,
 Their flag to April's breeze unfurled,
 Here once the embattled farmers stood,
 And fired the shot heard round the world.

The foe long since in silence slept;
 Alike the conqueror silent sleeps;
 And Time the ruined bridge has swept
 Down the dark stream which seaward creeps.

On this green bank, by this soft stream,
 We set today a votive stone,
 That memory may their deed redeem,
 When, like our sires, our sons are gone.

Spirit, that made those heroes dare
 To die, and leave their children free,
 Bid Time and Nature gently spare
 The shaft we raise to them and Thee!

—RALPH WALDO EMERSON.

THE GLADNESS OF NATURE

Is this a time to be cloudy and sad,
When our mother nature laughs around;
When even the deep blue heavens look glad,
And gladness breathes from the blossoming ground?

There are notes of joy from the hangbird and wren,
And the gossip of swallows through all the sky;
The ground-squirrel gaily chirps by his den,
And the wilding bee hums merrily by.

The clouds are at play in the azure space,
And their shadows at play on the bright green vale;
And here they stretch to the frolic chase,
And there they roll on the easy gale.

There's a dance of leaves in that aspen bower;
There's a titter of winds in that beechen tree;
There's a smile on the fruit, and a smile on the flower,
And a laugh from the brook that runs to the sea.

And look at the broad-faced sun, how he smiles
On the dewy earth that smiles in his ray,
On the leaping waters and gay young isles!
Aye, look, and he'll smile thy gloom away!

—WILLIAM CULLEN BRYANT.

THE HEART OF THE TREE

What does he plant who plants a tree?
He plants the friend of sun and sky;
He plants the flag of breezes free,
The shaft of beauty towering high;
He plants a home, to heaven anigh,
For song and mother-croon of bird
In hushed and happy twilight heard,
The treble of heaven's harmony;
These things he plants who plants a tree.

What does he plant who plants a tree?

He plants cool shade and tender rain
 And seed and bud of days to be,
 And years that fade and flush again;
 He plants the forest's heritage,
 The harvest of a coming age,
 The joy that unborn eyes shall see;
 These things he plants who plants a tree.

What does he plant who plants a tree?

He plants, in sap and leaf and wood,
 In love of home and loyalty,
 And far-cast thought of civic good,
 His blessing on the neighborhood.
 Who in the hollow of his hand
 Holds all the growth of all our land,
 A nation's growth from sea to sea,
 Stirs in his heart who plants a tree.

—H. C. BUNNER.

TEN RULES

Never put off until tomorrow what you can do today.
 Never trouble another for what you can do yourself.
 Never spend your money before you have earned it.
 Never buy what you don't want because it is cheap.
 Pride costs more than hunger, thirst and cold.
 We seldom repent of having eaten too little.
 Nothing is troublesome that we do willingly.
 How much pain the evils have cost us that have never hap-
 pened.
 Take things always by the smooth handle.
 When angry, count ten before you speak; if very angry, count
 a hundred.

—THOMAS JEFFERSON

GRAMMAR

SEVENTH YEAR

When a pupil reaches this grade he should be able to recognize the parts of speech, to select subject and predicate, to know phrase and clause, something of capitalization and punctuation.

Definitions should follow, not precede, the teaching of the thing to be defined. Use diagrams to aid pupils getting the thought through seeing. Diagramming is fascinating and useful, if used judiciously. Help children to voice their thoughts clearly; to make themselves heard when they speak, not by raising the voice, but by distinct enunciation. Train them to cut their words clear of each other, and not to shorten the last syllable, as "runnin'" for "running." Give exercise in narration, description or letter-writing once a week throughout the year.

First Month. Simple sentence, complete subject, complete predicate, simple subject, simple predicate, attribute.

Objective complement.

Poem: "Polonius' Advice to Laertes."

Second Month. Classification of sentences according to use: declarative, interrogative, imperative, exclamatory. Change interrogative and imperative sentences to declarative, and analyze. Classify sentences according to their structure: simple, complex, compound.

Have regular form for analysis of simple sentences.

Poem: Same as first month.

Third Month. Select nouns and pronouns found in sentences. Study how nouns are used in sentences (subject, predicate, attribute complement, object, objective complement).

Rule: The pronouns "I," "he," "she," "we," "they," "who," should be used as subjects and attribute complements.

The pronouns "me," "him," "her," "us," "them," "whom," should be used as objects.

Interest pupils in the application of this rule in their speech.

Special attention to "it," "there" and "that" as introductory words.

Teach the natural and the inverted order of sentences.

Drill on phrases and clauses.

Poem: "The Building of the Ship" (two months).

Fourth Month. Adjuncts (modifiers): according to use, adjective and adverbial; according to form, word, phrase, clause.

Note in each sentence why the adjunct has been used.

Analyze easy sentences to illustrate above.

Compound subject, predicate, object. Review.

Fifth Month. Ordinary sentences to be analyzed and diagrammed.

Select the essential elements. Mention the adjuncts, telling what they modify, and tell if the adjunct is phrase or clause.

Prepositional phrase. What pronouns are used as objects of prepositions?

Letter-writing, receipts, checks.

Review social and commercial notes.

Poem: "Winter" (two months).

Sixth Month. Before leaving this work, be sure that pupils can analyze simple sentences according to the formula you have given them. Keep up the knowledge that the pupil has acquired in the sixth grade about the parts of speech.

Begin the analysis of complex sentences. Determine which are principal and which are subordinate clauses. Classify these clauses according to use, as noun clauses, adjective clauses, and adverbial clauses. Select many sentences and classify clauses as suggested.

Seventh Month. Begin study of compound sentences.

Make special study of connectives.

Analyze and diagram short compound sentences.

In composition work notice punctuation of adjective clause.

Poem: "Recessional."

Eighth and Ninth Months. Note independent construction, exclamation, parenthetical expressions.

Review of the year's work. This can be accomplished by analysis, diagramming definitions.

Exercises to correct errors in speech of pupils.

Poem: "The Year's at the Spring."

WINTER

(From the Prelude to Part II, "Vision of Sir Launfal.")

Down swept the chill wind from the mountain peak,
 From the snow five thousand summers old;
 On open wold and hilltop bleak
 It had gathered all the cold,
 And whirled it like sleet on the wanderer's cheek;
 It carried a shiver everywhere
 From the unleafed boughs and pastures bare.
 The little brook heard it and built a roof
 'Neath which he could house him, winter-proof;
 All night by the white stars' frosty gleams
 He groined his arches and matched his beams;
 Slender and clear were his crystal spars
 As the lashes of light that trim the stars;
 He sculptured every summer delight

In his halls and chambers out of sight ;
 Sometimes his tinkling waters slipt
 Down through a frost-leaved forest-crypt,
 Long, sparkling aisles of steel-stemmed trees
 Bending to counterfeit a breeze ;
 Sometimes the roof no fretwork knew
 But silvery mosses that downward grew ;
 Sometimes it was carved in sharp relief,
 With quaint arabesques of ice fern-leaf ;
 Sometimes it was simply smooth and clear
 For the gladness of heaven to shine through, and here
 He had caught the nodding bulrush-tops
 And hung them thickly with diamond-drops,
 That crystallised the beams of moon and sun,
 And made a star of every one.
 No mortal builder's most rare device
 Could match this winter-palace of ice ;
 'Twas as if every image that mirrored lay
 In his depths serene through the summer day,
 Each fleeting shadow of earth and sky,
 Lest the happy model should be lost,
 Had been mimicked in fairy masonry
 By the elfin builders of the frost.

—JAMES RUSSELL LOWELL.

POLONIUS' ADVICE TO LAERTES

Give thy thoughts no tongue,
 Nor any unproportioned thought his act.
 Be thou familiar, but by no means vulgar.
 The friends thou hast and their adoption tried,
 Grapple them to thy soul with hooks of steel ;
 But do not dull thy palm with entertainment
 Of each new-hatched, unfledged comrade.
 Beware
 Of entrance to a quarrel ; but being in,
 Bear it that the opposed may beware of thee.
 Give every man thine ear ; but few thy voice ;
 Take each man's censure ; but reserve thy judgment.
 Costly thy habit as thy purse can buy,
 But not expressed in fancy ; rich, not gaudy ;
 For the apparel oft proclaims the man ;
 And they in France, of the best rank and station,

Are most select and generous, chief in that.
 Neither a borrower nor a lender be;
 For a loan oft loses both itself and friend,
 And borrowing dulls the edge of husbandry.
 This above all—to thine own self be true,
 And it must follow, as the night the day,
 Thou canst not then be false to any man.

—WILLIAM SHAKESPEARE.

THE BUILDING OF THE SHIP

“Build me straight, O worthy Master!
 Staunch and strong, a goodly vessel,
 That shall laugh at all disaster,
 And with wave and whirlwind wrestle!”

* * * * *

Then the Master,
 With a gesture of command,
 Waved his hand;
 And at the word,
 Loud and sudden there was heard,
 All around them and below,
 The sound of hammers, blow on blow,
 Knocking away the shores and spurs.
 And see! she stirs!
 She starts—she moves—she seems to feel
 The thrill of life along her keel,
 And spurning with her foot the ground,
 With one exulting, joyous bound,
 She leaps into the ocean’s arms!

And lo! from the assembled crowd
 There rose a shout, prolonged and loud,
 That to the ocean seemed to say:
 “Take her, O bridegroom, old and gray!
 Take her to thy protecting arms,
 With all her youth and all her charms!”

How beautiful she is! How fair
 She lies within those arms, that press
 Her form with many a soft caress
 Of tenderness and watchful care!
 Sail forth into the sea, O ship!
 Through wind and wave right onward steer!
 The moistened eye, the trembling lip,
 Are not the signs of doubt or fear.

Sail forth into the sea of life,
 O gentle, loving, trusting wife,
 And safe from all adversity
 Upon the bosom of that sea
 Thy comings and thy goings be!
 For gentleness and love and trust
 Prevail o'er angry wave and gust;
 And in the wreck of noble lives
 Something immortal still survives!

Thou, too, sail on, O Ship of State!
 Sail on, O Union, strong and great!
 Humanity, with all its fears,
 With all the hopes of future years,
 Is hanging breathless on thy fate!
 We know what Master laid thy keel;
 What Workmen wrought thy ribs of steel;
 Who made each mast, and sail, and rope;
 What anvils rang, what hammers beat;
 In what a forge and what a heat
 Were shaped the anchors of thy hope!

Fear not each sudden sound and shock—
 'Tis of the wave, and not the rock;
 'Tis but the flapping of the sail,
 And not a rent made by the gale!
 In spite of rock and tempest roar,
 In spite of false lights on the shore,
 Sail on, nor fear to breast the sea!
 Our hearts, our hopes, are all with thee,
 Our hearts, our hopes, our prayers, our tears,
 Our faith triumphant o'er our fears,
 Are all with thee—are all with thee!

—HENRY WADSWORTH LONGFELLOW.

RECESSIONAL

God of our fathers, known of old—
 Lord of our far-flung battle line—
 Beneath whose awful hand we hold
 Dominion over palm and pine—
 Lord God of Hosts, be with us yet,
 Lest we forget—lest we forget!

The tumult and the shouting dies—
 The captains and the kings depart;
 Still stands thine ancient sacrifice,
 An humble and a contrite heart.
 Lord God of Hosts, be with us yet,
 Lest we forget—lest we forget!

Far-called our navies melt away—
 On dune and headland sinks the fire—
 Lo, all our pomp of yesterday
 Is one with Nineveh and Tyre!
 Judge of the nations, spare us yet,
 Lest we forget—lest we forget!

If, drunk with sight of power, we loose
 Wild tongues that have not Thee in awe—
 Such boasting as the Gentiles use,
 Or lesser breeds without the law—
 Lord God of Hosts, be with us yet,
 Lest we forget—lest we forget!

For heathen heart that puts her trust
 In reeking tube and iron shard—
 All valiant dust that builds on dust,
 And guarding calls not Thee to guard—
 For frantic boast and foolish word,
 Thy mercy on thy people, Lord!

Amen.

—RUDYARD KIPLING.

THE YEAR'S AT THE SPRING

The year's at the spring,
 And day's at the morn;
 Morning's at seven;
 The hillside's dew-pearled;
 The lark's on the wing;
 The snail's on the thorn;
 God's in His heaven—
 All's right with the world.

—ROBERT BROWNING.

EIGHTH YEAR

Pupils should prepare each month, except September, a composition of not less than two hundred words upon a subject assigned by the teacher or selected by the pupil with the approval of the teacher. After the pupil has corrected all errors that he can discover, the teacher should carefully note the remaining errors and return the composition for the pupil's final draft. One short paragraph should be written each day and corrected by teacher and rewritten by pupil. Make use of blackboard to learn words. Letter-writing, business letters to be emphasized.

First Month. NOUN.—All that is given about nouns in the text-book used. Have pupils parse noun. Analyze and diagram sentences containing nouns in their different constructions: subject, predicate attribute, object, principal term of prepositional phrase, appositive, possessive modifier, independently in address.

Poem: Prelude to the first part of the "Vision of Sir Launfal."

Second Month. PRONOUNS.—Definitions of the classes of pronouns. Parsing. Agreement of pronouns with their antecedents; placing of pronouns with their antecedents; placing of pronouns to make their application clear.

Special attention to the relative pronouns. Give the construction or use of each pronoun parsed.

Teach how to organize and conduct a society; nomination and election of officers, order of business, keeping minutes.

Analysis of sentences containing pronouns in their different constructions.

Memory work: From the Second Inaugural Address of Abraham Lincoln.

Third Month. ADJECTIVE.—Comparison. Adjectives that are compared. Irregular adjectives that should not be compared. Parse nouns, pronouns, and adjectives in the sentence analyzed.

Fourth Month. VERBS.—You will need to spend much time on this subject. Make the outline for the study of verbs, infinitives and participles, to agree with the text-book used.

Memory work: "The Chambered Nautilus" (two months).

Fifth Month. Continue study of the verb. Parse the verb. Correct errors in the use of verbs and pronouns. Analyze and diagram sentences containing forms of pronouns and verbs that are often used incorrectly.

Sixth Month. Continue study of verb. Drill on the participle and infinitive. Give many sentences to teach correct use of verbs.

Poem: "Mercy."

Seventh Month. ADVERB.—Classification; comparison. Review adjectives. Analysis of sentences containing adverbs. Parsing.

Eighth Month. PREPOSITION, CONJUNCTION, INTERJECTION.—Use the preposition that expresses the exact shade of meaning desired.

Teach pupils how to prepare a debate, and have the pupils debate some question of interest to them.

Poem: "Work."

Ninth Month. Review all difficult technical points, giving special attention to the following:

1. The classes, inflection and syntax of the parts of speech.
2. The syntax of words, phrases and clauses.
3. The use of the text-book in grammar as a book of reference.
4. The use of the rules of grammar as an aid in composition and in the interpretation of literature.

SUMMER

(From the Prelude to Part 1, "Vision of Sir Launfal.")

What is so rare as a day in June?

Then, if ever, come perfect days;

Then Heaven tries the earth if it be in tune,

And over it softly her warm ear lays.

Whether we look or whether we listen,
 We hear life murmur or see it glisten;
 Every clod feels a stir of might,
 An instinct within it which reaches and towers,
 And, groping blindly above it for light,
 Climbs to a soul in grass and flowers.

The flush of life may well be seen
 Thrilling back over hills and valleys;
 The cowslip startles in meadows green,
 The buttercup catches the sun in its chalice,
 And there's never a leaf nor a blade too mean
 To be some happy creature's palace.

The little bird sits at his door in the sun,
 Atilt like a blossom among the leaves,
 And lets his illumined being o'errun
 With the deluge of summer it receives;
 His mate feels the eggs beneath her wings,
 And the heart in her dumb breast flutters and sings;
 He sings to the wide world and she to her nest—
 In the nice ear of nature, which song is the best?

The breeze comes whispering in our ear
 That dandelions are blossoming near,
 That maize has sprouted, that streams are flowing,
 That the river is bluer than the sky,
 That the robin is plastering his home hard by;
 Joy comes, grief goes, we know not how;
 Everything is happy now,
 Everything is upward striving;
 'Tis as easy now for the heart to be true
 As for grass to be green or skies to be blue—
 'Tis the natural way of living.

Who knows whither the clouds have fled?
 In the unscarred heavens they leave no wake;
 And the eyes forget the tears they have shed;
 The heart forgets its sorrow and ache;
 The soul partakes of the season's youth,
 And the sulphurous rifts of passion and woe
 Lie deep 'neath a silence pure and smooth,
 Like burnt-out craters healed with snow.

THE CHAMBERED NAUTILUS

This is the ship of pearl which, poets feign,
 Sails the unshadowed main—
 The venturous bark that flings
 On the sweet summer wind its purpled wings
 In gulfs enchanted, where the Siren sings,
 And coral reefs lie bare,
 Where the cold sea-maids rise to sun their streaming hair.

Its webs of living gauze no more unfurl;
 Wrecked is the ship of pearl!
 And every chamber cell,
 Where its dim dreaming life was wont to dwell,
 As the frail tenant shaped his growing shell,
 Before thee lies revealed—
 Its irised ceiling rent, its sunless crypt unsealed!

Year after-year beheld the silent toil
 That spread his lustrous coil;
 Still, as the spiral grew,
 He left the past year's dwelling for the new,
 Stole with soft step its shining archway through,
 Built up its idle door,
 Stretched in his last-found home, and knew the old no more.

Thanks for the heavenly message brought by thee,
 Child of the wandering sea!
 Cast from her lap, forlorn!
 From thy dead lips a clearer note is born
 Than ever Triton blew from wreathed horn!
 While on mine ear it rings,
 Through the deep caves of thought I hear a voice that sings:

Build thee more stately mansions, O my soul,
 As the swift seasons roll!
 Leave thy low-vaulted past!
 Let each new temple, nobler than the last,
 Shut thee from heaven with a dome more vast,
 Till thou at length art free,
 Leaving thine outgrown shell by life's unresting sea!

—OLIVER WENDELL HOLMES.

FROM THE SECOND INAUGURAL ADDRESS

Fondly do we hope, fervently do we pray, that this mighty scourge of war may speedily pass away. Yet, if God wills that it continue until all the wealth piled by the bondman's two hundred and fifty years of unrequited toil shall be sunk, and until every drop of blood drawn with the lash shall be paid with another drawn with the sword, as was said three thousand years ago, so still it must be said: "The judgments of the Lord are true and righteous altogether."

With malice toward none; with charity for all; with firmness in the right, as God gives us to see the right, let us strive on to finish the work we are in: to bind up the nation's wounds; to care for him who shall have borne the battle, and for his widow and his orphan—to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

—ABRAHAM LINCOLN.

MERCY

The quality of mercy is not strained—
 It droppeth as the gentle rain from heaven
 Upon the place beneath; it is twice blessed—
 It blesseth him that gives, and him that takes;
 'Tis mightiest in the mightiest; it becomes
 The throned monarch better than his crown;
 His scepter shows the force of temporal power,
 The attribute to awe and majesty,
 Wherein doth sit the dread and fear of kings;
 But mercy is above this sceptered sway—
 It is enthroned in the hearts of kings,
 It is an attribute to God himself;
 And earthly power doth then show likest God's,
 When mercy seasons justice.

—WILLIAM SHAKESPEARE.

WORK

Let me but do my work from day to day,
 In field or forest, at the desk or loom,
 In roaring market-place or tranquil room;
 Let me but find it in my heart to say,
 When vagrant wishes beckon me astray:
 "This is my work; my blessing, not my doom;
 Of all who live, I am the one by whom
 This work can best be done in the right way."

Then shall I see it not too great, nor small,
 To suit my spirit and to prove my powers;
 Then shall I cheerful greet the labouring hours
 And cheerful turn, when the long shadows fall
 At eventide, to play and love and rest,
 Because I know for me my work is best.

—HENRY VAN DYKE.

TEXT AND REFERENCE BOOKS

Manley-Bailey Language Books.

Hyde's "Two Book Course in English."

Allen's "School Grammar."

D. C. HEATH COMPANY.

Arnold's "With Pencil and Pen."

Prince's "Practical Grammar."

"Mother Tongue," Book I, revised.

"Mother Tongue," Book II, revised.

GINN & CO.

Kimball's "Elementary English," two-book series.

"Step in English."

Metcalf and Rafter's "Language Lessons."

"English Classics." Eclectic Edition.

AMERICAN BOOK COMPANY.

"Literature in the Common Schools."

LITTLE, BROWN & CO.

"Selections for Memorizing," D. R. Hatch.

HERRICK BOOK CO.

"First Steps in English."

SILVER, BURDETT & CO.

"English by Grades."

Houghton-Mifflin Company.

"Language through Nature, Literature and Art."

RAND, McNALLY & CO.

"Foundation Lessons in English Grammar."

THE MACMILLAN COMPANY.

MANUAL TRAINING.

"We believe that the time is rapidly approaching when both industrial and commercial education shall be introduced into all schools and made to harmonize with the occupations of the community. We believe that it is the duty of the state not only to qualify its children to be good citizens, but also as far as possible to be useful members of this community."

It is not expected that present conditions will permit performing all the work in this outline. It is hoped, however, that every teacher will find something in it which she can use.

The outline in cooking and sewing will be found in another part of this course of study.

Perhaps the best way to manage is to give a quarter of a day per week; say, after recess, on Friday afternoon.

Practice in making simple repairs, such as occur about the home, on the farm and in the shops, is a valuable exercise, and some of the time of every public school might well be spent in learning how to keep ordinary household articles in repair.

FIRST YEAR

Braiding cords; making raffia strings for tying parcels. weaving paper mats for cornucopias; weaving rag mats for doll-houses.

Word-book of unfolded sheets, with paper covers, leaves punched and laced; book for paper cuttings, of folded sheets sewed through the fold, flexible cover.

A PICTURE BOOK

Bright-colored cambric, twenty-seven inches. Use coarse needles and thread. Have some pretty pictures to paste in the book, cut by the children from magazines.

1. Fold cloth through center with warp, and cut on fold.
2. Fold both strips into three equal pieces with woof, and cut.
3. Fold each piece through center parallel with selvedge edge.
4. Pin two pieces together at fold and pink edges.
5. Do same with other pieces, then fasten all together, as directed below.

6. Mark three holes—one in the middle of fold, one two inches above it, and one two inches below it.

7. Insert needle at lowest hole from the inside, and draw it through, leaving two inches of thread; pass over middle hole, down through upper one, out through middle hole on one side

of the long thread, and back through the same hole on the other side of the thread, and tie the two ends of the threads together.

8. Select a pretty picture for the outside, and paste the pictures in the book.

CLAY

Clay-modeling from familiar objects: corn, fruits, vegetables, animals, etc.

As the first-grade language deals with the home life of the child, develop the likenesses and differences in relation to the life of children in the city or town. The following problems, worked out in connection with the sand table, will furnish a live interest for several weeks:

NOTE.—A very good sand table can be made by the school children of older grade, and will be itself excellent manual work. The table top may be made of ordinary flooring, and supported by ordinary saw-horses. The flooring should be nailed to the top of the horses, and a rim of flooring run around so as to hold the sand in. Several coats of white paint would improve the table, but this is not essential. Three by six feet would be a very satisfactory size.

On the sand table lay out the farm, showing roads, streams, fences, etc. Streams and ponds should be marked with white paper if the table is not painted; the roads may be indicated by ruts of a little darker sand; the fences may be made of tooth-picks (worm fence) or sticks and strings (wire fence.)

The farm building may be built of blocks, of cardboard or of sticks (log-house fashion.) Cardboard may be used for the roof in all cases.

The various animals should be modeled of clay.

Another problem that follows naturally after the one above is the making and furnishing of the doll-house. All the pieces of furniture may be made of cardboard.

SECOND YEAR

Use of scissors in cutting out pictures; sewing little books; finger crotcheting; spool knitting; rugs for dolls.

As the second-grade language work is based upon the story of "Hiawatha," on the sand table may be planned a landscape consisting of hills and streams, forests (twigs) and meadows (grass), etc.

The wigwams should be made of cloth and sticks, and should be ornamented with Indian patterns.

The household utensils should be made of clay; the blankets, woven on little looms, which can be made of ordinary boards with headless tacks; the moccasins, made of cloth and decorated

with beads; the head-bands, made of cloth and decorated with chicken or turkey feathers; tomahawks, fashioned of wood.

WEAVING

Weaving-frames can be made from one-inch boards, eight inches by eight inches. Three-fourths of an inch from, and parallel to the top and bottom, drive a row of nails one-half inch apart, leaving on both sides an inch margin. After tying a knot in the end of the wicking, put it over one of the corner nails. The wicking should be passed back and forth around the nails, first on one side and then on the other. This forms the warp of the cloth. Do not draw the threads too tight and tie around the last nail. Thread the other color of wicking into the netting needles. Weave across the warp threads, alternately taking up and passing over them. Take from the frame and fasten the loose ends by weaving them back into the cloth. Work a brass ring with the blanket stitch, using a strand of the wicking, and sew it to one of the corners.

THIRD YEAR

In this grade, pupils make drawing on the material out of which the project is to be constructed.

Suggested projects: pin-wheel, book-mark, cornucopia, match-scratchers.

DIRECTIONS FOR MAKING CORNUCOPIAS

Material: cardboard six by six inches.

Draw a five and a half inch square; one-half inch from the left side and one-half inch from the bottom draw light construction lines as a help in locating the holes. Place first dot three-quarters of an inch from the intersection of the construction line; then place one every three-quarters of an inch. Draw very small circles around each point. Cut out the square, punch hole, and lace with ribbon. Punch can be made by filing off an 8d nail.

In the third grade, a pueblo, built of brick made of clay, takes the place of the wigwam, and the landscape of the sand table takes on a barren aspect of cliff and canyon, for the interest has shifted from the wild Indians of the plains and forests to the more civilized pueblo Indians. The blankets should be woven with more care, and the design should be made more important. The clay utensils should be decorated with water-colors. Simple baskets of raffia should be made to meet the needs of the pueblo family.

Or the work of this grade may be connected with home geography. A farm in a sparsely settled region may be represented on the sand table. The community begins to "settle up." First the farmer has one neighbor far away, then another moves in, and another. Then roads are built; a little village springs up, grows into a town, etc.

FOURTH YEAR

Pupils make a mechanical drawing of the models made.

Suggested projects: berry box, scrolled picture-frame, lamp-shade, lantern. The above are purely suggestive, as showing the proper scope of the work of the year.

DIRECTIONS FOR MAKING A BERRY BOX

To teach measuring with the ruler.

Material: cardboard one and three-fourths by three and one-half inches.

Measure up from center of bottom two and a half, four, five and six and a half inches, and place points. Draw light horizontal lines through these points, making the lower two about four inches long and in middle of page.

On the upper line place points one and a half, two, two and a half, three, three and three-eighths, three and seven-eighths, six and three-eighths, six and seven-eighths, seven and three-fourths, eight and one-quarter and ten and three-quarters inches from the left edge. Draw vertical construction lines through the remaining points. One-fourth inch up from the bottom of the upper figure draw horizontal solid lines, connecting the second and third, fourth and fifth, sixth and seventh, eighth and ninth vertical lines.

The space between the first and second vertical lines will be used as a flap; so cross-hatch. Connect third and fourth horizontal lines with solid lines four and three-quarters and seven and five-eighths inches from left edge.

Model: Make a drawing on cardboard, cut, score, place bottom in, and glue. Be sure to fold model *away* from the score lines, keeping the lines on the inside of the model.

Basketry is interesting work for this grade, especially for the girls.

BASKETRY

Round reeds in sizes from No. 0 to No. 8. Hemp cord may be used if a very flexible basket is desired. Sharpen the reed to a flat point, beginning about two inches from the end. Coil

INDUSTRIAL ARTS

Courtesy of NATIONAL SYSTEM OF INDUSTRIAL EDUCATION, PLANO, ILL.



CALENDAR



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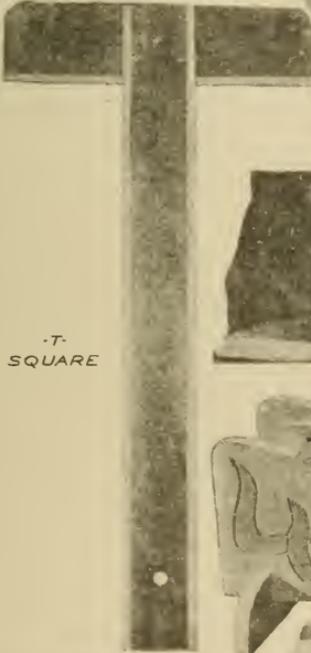
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CARD BOARD CONSTRUCTION

WHITTLING



BENCH WORK



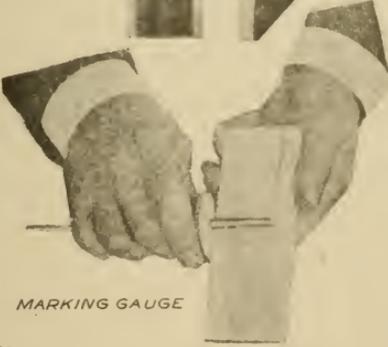
T-SQUARE



PLANING



TESTING WITH TRY SQUARE



MARKING GAUGE



CROSS CUT SAW



RIP SAW

the other end, leaving ten or fifteen inches uncoiled, and tie securely. Soak the reeds in water until they are very pliable; wipe before using. For large baskets use coarse strands. For finer stitches split to any desired size.

DIRECTIONS FOR MAKING A ROUND BASKET

Between the thumb and finger draw the sharpened end of the reed into as small a coil as possible. Lay the end of the raffia to the point and along the sharpened end of the reed, and hold it in place with the left hand. By making a sharp turn in the thread, begin winding over the reed and raffia to the point. Then shape into the coil by sewing through the center.

OVAL BASKET

The end of the reed is not sharpened. Lay the end of the raffia to the end of the reed along the reed and around the bend, and by a sharp turn of the thread wind four or five times over the raffia, covering the bend in the reed. The two reeds may then be caught together by the stitch selected for the basket. The navajo or the figure 8 stitch could be used.

SPLICING A REED

Sharpen the top side of one reed and the underside of the other to a long, flat point, and slip one past the other until the two together form the uniform size of the reed.

All the reeds in a coiled basket are wound fast with the raffia. The colored raffia is introduced in the same manner that the thread is spliced, by laying it along the reed and sewing over it. When working out designs in color, do not cut the thread when changing from one to another, but lay the thread not in use along the reed and sew over it, bringing it out when ready to use again. In finishing the basket, cut the end of the reed to a flat point, two inches in length, and taper the stitching off so that it shows as little as possible where it ends.

The stitching proceeds along a continuous coil, so that each stitch is passed beneath the stitches of the coil beneath. In analyzing these stitches, the two reeds will be spoken of as loose reeds and fastened reeds.

NAVAJO STITCH

1. Hold the commenced coil in left hand.
2. Proceed from right to left.
3. Pass the thread between the two reeds toward you.

4. Over the loose reed from you.
5. Between the two reeds toward you.
6. Down between the stitches of the fastened reed from you.
7. Beginning again, pass the thread between the two reeds toward you, completing the figure 8.
8. Draw the two reeds firmly together.

LAZY SQUAW STITCH

1. Hold the commenced coil in the left hand; work from right to left.
2. Wrap the thread toward you over and around the loose reed once.
3. Over the loose reed again.
4. Down from you between the stitches of the fastened reed and back to 1.

MARIPOSA STITCH (KNOTTED)

1. Same as Lazy Squaw Stitch.
2. Wrap the thread toward you over and around the loose reed once.
3. Over the loose reed again.
4. Down from you between the stitches of the fastened reed; this will bind the reeds together.
5. Bring needles up between the two reeds at the left side of the long stitch.
6. Cross over this stitch, going down between the two reeds at the right of the long stitch.
7. Bring the thread over the loose reed and begin wrapping again as at 2.

FIFTH YEAR

Tools are used for the first time in this grade. When the school board is unwilling to supply tools for manual-training work, it is suggested that the pupils organize an Arts and Crafts Club, having a small membership fee. In some schools the club gives a series of entertainments, having an exhibit showing what they have been able to do with the few tools brought from home, and giving an idea of what they could do if properly equipped. You will be surprised at the appliances you will have on hand for this work at the close of the year. For teachers who have had no special work in manual training, we would advise the course as given by the National System of Industrial Training, Plano, Illinois. This system explains and illustrates

the separate steps in each model in a very clear, and concise manner.

TOOLS GIVEN IN ORDER IN WHICH THEY SHOULD BE EXPLAINED
AND EXERCISES GIVEN

1. Rip-saw, to cut with grain of wood; cross-cut saw, to cut across grain of wood.
2. Try-square—used to obtain straight, square surfaces.
3. Jack-plane. It is necessary to take apart and explain how a plane is constructed. Call attention to the method of holding plane: pressure when starting with left hand, and toward end of board press down with right hand.
4. Whittling with knife, marking-gauge.
5. Brace and bit.
6. Chisel.
7. Block-plane.
8. Hammer.

(Pupils have by this time completed at least eight projects and have a sufficiently thorough knowledge of the tools to be taught sharpening on the oil-stone.)

9. Oil-stone.
10. Spoke-shave.
11. German twist-bit for boring a hole in thin hard wood; use this twist-bit to start hole, then use regular bit.
12. Counter-sink.
13. Screw-driver.
14. One-eighth inch chisel.
15. Hack-saw.

A manual training shop, if properly equipped, should contain a bench and stool for each pupil. The benches should contain the following: drawing-board, compass, T-square, rule, drawing pencil, 45 degree triangle, 60 degree triangle, eraser.

TOOLS

Saw	Hammer
Try-square	Screw-driver
Jack-plane	Vise
Block-plane	Bench-hook
One and one-half inch chisel	Bench-dog or
One-half inch chisel	Bench-stop
One-eighth inch chisel	

If only one saw is given to each bench, better have it a cross-cut, as this can also be utilized for ripping, while a rip-saw cannot be used as a cross-cut.

Projects suggested for the fifth, sixth, seventh and eighth grades:

FIFTH YEAR

Buzzer	Dart
Line-winder	Wind-wheel
Pencil-sharpener	Cutting-board
Bird-house	Settle

SIXTH YEAR

Match-striker	Strop
Calendar	Thread and needle board
Necktie-rack	Key-rack
Photo-frame	Thermometer

SEVENTH YEAR

Trefoil calendar	Bracket-shelf
Necktie-rack	Book-rack
Photo-frame	Hat- and coat-rack
Strop	

EIGHTH YEAR

Strop	Book-rack
Match-safe	Pen-tray
Thermometer	Towel-roller
Elliptical necktie-rack	

MUSIC

THE AIM.—It should not be the aim of the teacher of music to make a musician of this or that child, but to make a nation of music-lovers.

THE SONG.—Make the song the basis of instruction from the first to the last lesson. The singing of beautiful songs of home and country is a far more potent factor in creating a love for good music than the everlasting drill work in developing the technicalities of musical notation.

ROTE-SINGING.—The work in the primary grades should begin with simple rote-songs which appeal directly to the imagination and come within the interest and experiences of the natural development of the child's activities.

THE SCALE.—The children should first be taught to sing the scale by rote, then from the staff. Get them to notice how the melody rises and falls as the symbols called notes are strung upon the staff at different intervals of pitch.

EAR-TRAINING.—The child should be taught to listen to his own voice and learn to distinguish tone-relationship through the singing of simple intervals, of which the octave is the most practical, followed by the fifth, fourth, second, sixth, third and seventh.

SIGHT-SINGING.—Music-reading includes a knowledge of rhythm, intonation, expression, musical form, notation and the keyboard; and the children must learn to read music, if they would have any broad experience and largeness of musical culture.

THE KEYBOARD.—The invention of play-blocks in the nature of the pianoforte keyboard, as used in the Training School of the State Teachers College of Colorado, is a new and splendid process of correlating the eye, hand, ear and voice in the study of music.

NOTE.—Any number of sets of these play-blocks may be had by addressing the Director of Music of the State Teachers' College, Greeley, Colorado.

HOW TO TEACH A SONG.—Choose a song that is in keeping with the season; for example, "Autumn." Talk to the children about it; get expressions from them regarding the ripening of the fruit and grain, the coming of Jack Frost, the falling of the leaves, withered flowers and the migration of the birds; and the children will interpret and sing the song with surprising ease and correctness.

THE TALKING-MACHINE.—The children in the village and rural schools never hear good concerts, great artists or orchestras. With the invention of the mechanical player and the perfection of the talking-machine, the best music is brought into the school and the children of the most remote districts are given an opportunity to hear and enjoy the great singers, orchestras and bands. Through this medium they become familiar with the voices of the master-singers, and come to know selections from the famous operas and oratorios just as they know their Longfellow, Whittier, Tennyson and Shakespeare.

At present there are only a few records suitable for the primary grades, but we understand that a fine collection of songs for the little folk will soon be made by the best artists; also, music for the different folk-dances.

THE NEW VICTROLA No. 4 (\$15) is best adapted for all school purposes. It is loud enough for the average schoolroom or chapel. With this machine and a few well-chosen records a school will be richer in its emotional life and intellectual appreciation of the beautiful in music.

SONG MATERIAL.—The following songs are suitable for the whole school:

Patriotic.—"America;" "Star-Spangled Banner;" "Columbia, the Gem of the Ocean;" "Battle Hymn of the Republic;" "Hail Columbia."

Folk-Songs.—"Old Folks at Home;" "Old Black Joe;" "Old Kentucky Home;" "Maryland, My Maryland;" "Massa's in the Cold, Cold Ground."

Sacred Songs.—"Lead, Kindly Light;" "Rock of Ages;" "Abide with Me;" "Nearer, My God, to Thee;" "Onward, Christian Soldiers;" "He Leadeth Me;" "Sun of My Soul;" "The Holy City;" "I Need Thee Every Hour;" "Shall We Gather at the River;" "Calvary;" "Jesus, Saviour, Pilot Me."

Special Songs.—"Farewell to the Farm;" "The Shadow March;" "Windy Nights;" "Cotton Dolly and Other Songs;" "Old Christmas;" "The Swing."

GENERAL SUGGESTIONS

Seat older pupils according to parts—soprano, alto and bass—and younger pupils in front of the sopranos. While the latter will not always comprehend all that the others do, their interest will be aroused and they will make real progress if they are encouraged to follow the printed page with the eye and to sing, though their early singing may be almost wholly by rote.

Fresh air is a prime *essential to successful singing*. An erect position of the body, whether sitting or standing; light, buoyant tones, without effort of the throat, and an instrument of pitch for establishing the key and for testing adherence to key will result in attractive voice quality and safe use of the voice. A moment or two of the daily recitation devoted to special exercises for training the voice should lead to legato tones, head-tone quality and flexibility in all singing.

FIRST MONTH

First Week. Teach a number of *songs by rote*. Do not teach all verses of one song before teaching another. Have several songs in process of learning at the same time.

Imitate calls of the home or street.

Indicate phrases in the rote-songs as they are sung; teacher and class sing alternate phrases; compare the phrases, noting the likenesses or differences in melody; note the initial tones of successive phrases; the final tones.

Sing rote-songs, observing the accent.

Discover whether the rote-songs are in two-part or in three-part measure.

Mark the measure, "beat time," as familiar songs are sung.

Second Week. Introduce *the scale* through rote-songs.

Apply scale names and syllables making the scale a familiar melody to be sung as the teacher directs: down; up; in two-part measure; in three-part measure; according to various rhythmic figures—two 1's in the first measure, two 2's in the second, etc.

Dictate melodic phrases, thus: 1 3 5—, pupils respond by singing do mi sol —; teacher dictates 8 5 8 —, pupils respond by singing do sol do —. In the beginning employ the tones of the tonic chord, 1 3 5 8, in all possible combinations, thus: 1 3 1 —; 3 5 3 —; 8 5 8 —; 8 5 3 —; 3 5 1 —; 5 3 1 —; 5 3 5 —; 1 8 1 —; 3 1 3 —; 5 8 5 —; 1 3 5 —; 5 3 8 —. From this time forward melodic dictation should occupy a brief part of each day's recitation, the phrases employing finally all intervals of the scale.

Sing phrases with a neutral syllable, pupils singing the phrases in turn with the syllables.

Establish the key. Give the pitch of the key-tone from a pitch pipe or instrument of some sort, and "establish the key;" that is, sing the arpeggio up and back, 1 3 5 8 5 3 1 — to emphasize tonality or key-feeling. Demand careful listening to

the tone sounded before allowing it to be sung. In the key of F and higher keys use the melodic progression 1 3 5 3 1 5 1 — to establish the key.

Third Week. Sing *very simple sight-singing melodies* in the keys of C, G, F and D.

Let the signatures of the various keys be memorized and the scale written upon the staff in each key.

Do not repeat exercises until they are memorized. If the problem found in the exercise is properly presented by the teacher, pupils should find no difficulty in singing an exercise quite perfectly the first time. When they do, do not repeat.

Fourth Week. *Easy sight-singing melodies* in the keys of B-flat, A, E-flat, E and A-flat.

Do not hesitate to allow pupils to refer to their books for information as to key signatures and the corresponding position of 1 of the key. These should all be memorized in time. In the beginning, however, it is more important that pupils should be able to sing the notes of a key with their proper syllables, because they know the position of 1 of the key, than that they should know the position of 1 from the key signature. In other words, let the teacher tell them the position of 1, if necessary, or give them a device for finding the same, until they have had considerable experience in singing from the various keys and have had time to memorize the signatures.

SECOND MONTH

First Week. Sing *simple songs* which apply the problems in rhythm and melody that have been presented in the introductory sight-singing melodies of the first month. While "sight-singing" of songs means singing them with words at sight, that can hardly be expected at this time. The intermediate steps—that is, singing them first with the sol-fa syllables, then with a neutral syllable such as loo or lo—will probably be necessary. A different song studied each day, rather than the same song repeated until it is familiar and can be sung artistically, is advisable until pupils begin to feel some independence in music-reading. Let it never be forgotten, however, that all songs presented for study should be worthy of the most artistic rendition possible, and they should always be interpreted according to the sentiment expressed in the words and music.

For example, one song may be marked to be sung allegro; another, andante. Whether the sol-fa syllables or the words of these songs are being sung, the interpretation suggested by the

terms of expression, found just above a song at the left, should govern the singing.

Second Week. Study three *new songs*.

Third and Fourth Weeks. Continue sight-singing of *simple songs and exercises*.

Select two or three *simple songs in the minor mode*. Sing them and observe how often the tone 6 or la seems the dominating tone; observe, too, that 6 is the closing tone of each song. Whenever a melody is thus constructed it is said to be in the minor mode, and the closing tone is the key-tone. To appreciate minor tonality or key-feeling, sing the melodic progression $\underline{6} \ 1 \ 3 \ 6$
3 1 $\underline{6}$ —.

THIRD MONTH

First Week. Teach a melody in which two equal tones are sung to each beat for some of the words. This is a new rhythmic type—*two equal sounds to the beat*—represented by two eighth-notes. The melodies for the week should apply the two types—the quarter-note sung to the beat and two eighth-notes sung to the beat.

Second Week. Accurate and conscious singing of *two equal sounds to the beat continued* in this week's work will obviate future rhythmic difficulties.

Third Week. A rhythmic figure is a combination of rhythmic types. The dotted quarter-note followed by the eighth-note represents *two tones sung to two beats*—one long and one short tone. The dotted quarter-note is sung with the two beats, the eighth-note after the second beat. Drill upon this rhythmic figure until it is thoroughly appreciated by every student in the class as being two tones to two beats, the second a short tone sung *after* the second beat.

Fourth Week. Select songs for this week which contain *the dotted quarter-note followed by the eighth-note*. Let them be taught by rote or by note, as the teacher may choose, with attention to proper interpretation and distinct enunciation as well as to correct tone-lengths.

FOURTH MONTH

First Week. Teach that 5 $\sharp 4$ 5 — sol fi sol — sounds like 8 7 8 — do ti do — sung from the same pitch.

In the key of C and in keys having sharps in the signature, *sharp-four* ($\sharp 4$) is represented by a sharp (\sharp).

In keys having flats in the signature, sharp-four ($\sharp 4$) is represented by a natural (\natural).

Second Week. Teach that 6 $b7$ 6—la te la—sounds like 3 4 3—mi fa mi—sung from the same pitch. Choose songs which employ this melodic progression.

In the key of C and in keys having flats in the signature, flat-seven ($b7$) is represented by a flat (b).

In keys having sharps in the signature, flat-seven is represented by a natural (\natural).

Third Week. Let the songs of this week employ the *three rhythmic types*—one sound to the beat, two equal sounds to the beat, and four equal sounds to the beat. Master these in the melodies of the week before the rhythmic type, one long and two short sounds to the beat, is introduced.

Fourth Week. Employ *a new rhythmic type*—two short and one long sound to the beat. Master the rhythmic combinations in exercise melodies, omitting songs, if necessary for want of time. This will make future music-reading easy.

FIFTH MONTH

First and Second Weeks. Introduce *the dotted eighth-note followed by the sixteenth note*—. The number and relative length of tones sung to each beat must be clearly heard and appreciated by every pupil. Succeeding melodies can then be sung without difficulty.

Third and Fourth Weeks. Introduce *the triplet*, and thus complete the rhythmic types found in common use.

SIXTH MONTH

First Week. The bar removes the *effect of a chromatic sign*. It is customary, however, to employ the character representing the original pitch, whenever return to such pitch is made. For example, in any melody a sharp on the second line in any measure affects all notes on that line in that measure, making them g-sharp. Beyond the succeeding bar the pitch represented by the second line is what it was before the chromatic sign was introduced, namely, g. By way of emphasizing this return to the original pitch, the cancel or natural sign (\natural) is employed.

Second Week. Study melodies employing the *double-sharp* (\times)—the character used to represent a pitch a half-step higher than a sharped staff-degree.

Third and Fourth Weeks. Select songs which represent *types of national music*.

SEVENTH MONTH

First Week. Divide the chorus into sections and have *rounds* sung as rounds, after they have been learned as one-part songs. Avoid the disposition of one group of singers to outsing the others. Emphasize the necessity for singing softly enough to hear the other parts.

Second Week. Continue the singing of *rounds*. The more nearly perfect the balance of parts in the singing of rounds, the more musical the effect and the better the training toward part-singing for which this is the preparation. To teach pupils how to listen to music is as important as to teach them how to sing.

Third Week. Continue *two-part singing*. Two-part song should contain no difficulties which have not been mastered in one-part song. Divide the class into two groups and have both parts of the two-part selections sung at once—not one part first, then the other. Let the groups exchange parts frequently.

Fourth Week. *Santa Lucia* (pronounced Lu-che'-a) should be memorized. It is one of the best-known and most widely sung folk-songs.

EIGHTH MONTH

First Week. Continue *two-part singing*. Humming melodies, while thinking their syllables or words without pronouncing them, is good drill, especially if classes are inclined to loud singing or to falling from pitch.

Second Week. Select *songs* for this week which are heard where good music is sung, and commit them to memory.

Third Week. Give information concerning the great staff, and sing unison melodies from the *bass staff*. Singing from the bass staff, like singing from the treble, depends simply upon keeping in mind the position of 1 of the key.

Unchanged voices sound an octave higher than changed voices in unison singing.

Fourth Week. At this point *voices* may be assigned to soprano, alto and bass, according to their range and quality. All parts should be sung at once in taking up a selection having more than one part. Drill in chords.

NINTH MONTH

First Week. Simple *selections for soprano, alto and bass.*

Observe how the tones 1, 4 and 5 of the key make up almost the entire bass. This is because these tones are the roots of the principal triads or chords of the key.

Second Week. Occasional *singing of the bass by all voices* is valuable practice. This should come after a selection has been sung as a whole by all parts.

Third Week. Memorize a *Schubert melody*. "Am Meer" is suggested as a type of the most simple, yet most perfect of melodies.

Fourth Week. Select for this week's work *hymns* which are sung in churches of all denominations.

It is hoped, as a result of music-study according to the above outline, that song-singing at school and at home has been one of the pleasures of the school year which will never be forgotten.

TEXT AND REFERENCE BOOKS

"The Race, the Child and Music," by Professor Theo. E. Fitz, Greeley, Colorado.

"Song Reader;" Ginn & Co.

"Fullerton's New Song Book and Music Reader;" Cedar Falls, Iowa.

"Eleanor Smith's Music Course;" American Book Company.

"Modern Music Series;" Silver, Burdette & Co.

NATURE STUDY

"If I were a teacher, I would make excursions into the country with my children; we would picnic together under the trees, and I would contrive some way to give them a little live botany. They should see how much a flower meant to me. What we find out ourselves tastes so good! I would, so far as possible, let the child be his own teacher. The spirit of inquiry—awaken that in him if you can."—JOHN BURROUGHS.

The purpose of this work is to teach the child to *observe* and to become interested in the everyday things that he meets, and to develop a love for animals and a desire to protect them. The following course is only suggestive, as the teacher's environment will have much to do with her selection of subjects. This plan outlines the work for the first six grades of the public schools; the seventh and eighth grades being united for what is termed agriculture.

FIRST GRADE

Short excursions, especially in spring and autumn; the purpose being to see flowers and grass, to touch the grass and the bark of trees, to gather pods and seeds, to watch clouds, to feel winds, to fly kites and feel the force of the wind, to feed the birds.

Have a small garden, if possible. Commence early to teach children that animals must have care; that the dog and cat at home must be fed, must have water, etc. Note the color of leaves, flowers, sky. Note wind-blown seeds of goldenrod, dandelion, etc. Notice how far seeds travel.

Draw attention to how the earth and its people get ready for winter.

SECOND GRADE

Experiences with pets; autumnal changes; raising flowering plants in window gardens; planting and caring for winter flowering bulbs. Note which birds are flying southward; which winds are cold and which warm; study fruits brought by children. Show how nature prepares for winter by studying potatoes, cabbages, squash; etc. As winter advances, draw attention to the change in the home life, in all animal life; how the water changes to clouds, rain, fog, frost, ice, snow; study snowflakes.

The awakening of nature: Have children report first leaf, fruit, bird, etc., and different things indicating that spring is coming. Keep bird calendar to record the arrival of the birds. Study insect life; feeding caterpillars; watching change from caterpillar to pupa.

Study horses that pass the school. Find out how much the child knows about their habits, care: teach proper treatment. Have boys count the heart-beats of a horse per minute; the number of breathing times per minute, when rested and when tired. Rapid breathing wears the horse out.

Experience with sheep: Sheep's relatives—Rocky Mountain goat, deer, antelope, chamois. Compare the sheep with the cow. They are much alike. (For a full lesson see McMurray's Special Method in Science.) Both have cloven hoofs (walk on toe nails); both lack teeth in front part of upper jaw; both chew the cud. Compare the wool coat of the sheep with the hair coat of the cow. Compare the horns—where they grow and how they curve. Why this difference? How can sheep keep away their enemies? Compare the noses; the cry of the cow, sheep, calf and lamb. Explain how the shearing is done. Examine woolen cloth. What things are made of sheepskin? (Book-covers, gloves.) The flesh of the sheep is called mutton; the fat, tallow, used for candles. Compare the care given to the cow and sheep.

Make list of known trees; add to it as pupils learn others; have it in mind during the first five years of pupil's life in school to teach him to know the trees of Colorado. (See page 80 for list of trees.)

THIRD GRADE

Tree studies for autumn: leaf studies, reproduced in cuttings, drawings and clay.

Community life of ants or bees; outdoor studies of ant nests.

Study the cow: the cow, or animal that gives milk, meat, cheese and butter. Notice the heavy body, broad head, hollow horns, short legs, cloven hoofs. Let the children tell what they can about the cow. Where does it live? Where does it stay in winter? In summer? What is the winter food? Hay, corn, bran, mash, vegetables, salt. What does it eat in summer? How does it eat? When the cow first nibbles the grass and hay it does not eat it, but stows it away in a big bag inside its body. When the bag is full the cow lies down to rest, and the food it has eaten comes up into its mouth, little bit at a time, and is then chewed and eaten.

Talk about the care of the cow; the milking, and care of the milk. What do we call the flesh of the cow? Of the young cow? The fat is called tallow, and is used for making soap, wagon grease and candles. The milk is made into cheese; the hoofs into glue; the horns into buttons, knife-handles and combs; the hair

is used to put in plaster; the skin is made into leather. The horns are for defense. Notice that the cow has no front teeth on the upper jaw, how she chews her cud, and the lower jaw moves from side to side.

Studies with milk: the separation of cream from milk, the making of butter and of cottage cheese. Countries noted for dairy products.

Winter condition of buds and twigs; the results of placing in water the twigs of the willow and poplar. Tree studies for spring; the development of leaves and flowers on trees near the school and homes; the formation of next year's buds, best seen in June.

Life-history of the house fly: the egg, the larva, the pupa, the fly. The fly carries germs both inside and outside of its body. You will notice that its body and legs are covered with thousands of fine hairs. Its feet are especially adapted for collecting germs, and there are present in and upon each fly from 1,000 to 6,600,000 germs. Flies carry the germs of tuberculosis, scarlet fever, diphtheria, smallpox and other dangerous diseases.

Protection against the house fly.—Keep stables and other breeding-places clean, and thus prevent them from multiplying. Each female fly lays from 120 to 150 eggs. These hatch and become active in ten or twelve days. Do not allow decaying matter of any sort in or near your premises. Sprinkle kerosene or chloride of lime in your garbage can and over all decaying matter.

Experiment in window gardens to determine the essential conditions for seed germination and growth.

Make list of known flowers that grow in the vicinity. This can be put on the wall of the schoolroom, with a specimen of the flower, and add to the list as new flowers are discovered.

Make list of the birds that the children know. Note in your bird calendar the arrival of the birds in the spring. Have pupils describe them and be interested in finding new ones.

FOURTH GRADE

The planting of seeds of rapid growth, in order to study their life-cycle; seeds and seed-dispersal.

Change of air needed in burning; change accompanied by upward moving currents; provision for regulating currents by use of such device as lamp chimneys and draft arrangements of stoves and furnaces; simple experimental studies of natural and artificial ventilation in school and at home. Simple experiments with water; evaporation—why we sometimes see our breath, why

the pitcher sweats, etc. Condensation; water as a solvent, effects produced by freezing and thawing substances containing water; running water as a soil-mover.

Collect pebbles of various forms and of different mineral composition. Explain fossils; different color of stones; why some springs are greenish in color; why some springs are called copper springs or iron springs. Show crystals, salt, sugar, sulphur, quartz. Make strong solution of salt or sulphur, and allow slowly to cool and then evaporate. Place a string to remain in the water, that the crystals may adhere to it. Study the shape of the crystals. Review snow crystals.

In December make a careful study of evergreens, putting emphasis on those found near the school. As the children are popping corn at this season, study corn, also ask why it pops. Give other examples of expansive force of steam.

FIFTH GRADE

Study of bark, wood and pith in order to determine the basis of their usefulness; textile fibers; woods used in furniture, finishing and manufactured articles. Follow the building of a house in the neighborhood: source of each material used; duties of workmen engaged.

Make a weather chart for each month. Note direction of winds, and the relation of weather to this fact.

Do not fail to impress upon youth the beauty of a starry night. Teach the Great Dipper, Pole Star. Show how to distinguish a fixed star from a planet star. Find Venus—evening star, then morning star. Study phases of moon; record phases on chart: moon, no moon, crescent moon, half moon, full moon. How far the moon is from the earth.

Study the dog: use to man, faithfulness, obedience, keen sense of smell, courage, strength, endurance. Dog relations: wolf, fox, hyena, jackals, etc. (from stories and pictures).

Have the class tell stories of St. Bernard dogs. Teacher read or tell stories, having in view humane treatment of one of the most loyal of friends.

Observe erosion by rain and running water; deposit of sediment; formation of valleys. (Correlate with geography.)

SIXTH GRADE

Study the game laws of the state.

Draw attention to the advantages of good roads, and how each person can help in securing them.

Study the soil, looking forward to the agriculture work of the seventh grade. Underground work of water, caves, etc.

Correlate closely the work of this year with the geography. Atmosphere; wind belts; rain belts; heat; light; electricity. Teach the relation and dependence of plants, lower animals and human beings. Develop the proper care, respect and sympathy for plants and animals.

Study a few insects and animals more intensively than you have done.

TEXT AND REFERENCE BOOKS

Wright's "Nature Readers," 1, 2, 3, 4; D. C. Heath & Co.

"The Dallas Lore Sharp Nature Series;" Houghton, Mifflin & Co.

"Nature Study—Primary Grades—Grammar Grades;" American Book Co.

"Nature Study and Life;" Ginn & Co.

PENMANSHIP

Position of the Body

Sit in the center of the seat, with body erect and close to the desk, but not against it. Turn body just a trifle to the left so that right arm will have plenty of room on the desk. Place both feet flat upon the floor, keeping left foot a few inches to the left and in advance of right foot. Put both arms upon the desk, forming approximately right angles at elbows. Bend body forward slightly at hips, and allow the weight that rests upon the desk to be upon left arm, so that right arm will be free and easy. Permit head to droop a trifle to secure a restful angle of vision. Relax the entire body. If the left arm is kept well upon the desk at all times, it will not only assist in forcing the shoulders to fall equally, keeping the body erect, but it will be convenient for holding and adjusting the paper. Eyes should be between ten and fourteen inches from the writing.

Position of Arm, Hand and Pen

The elbow of the right arm may extend off the desk about an inch, but the preferred position is to have the entire forearm rest its full weight on the desk, touching it at two places only; viz., the arm rest (writing muscle) and nail of little finger. Keep back of hand almost flat, so that penholder will be directed toward or over right shoulder. Allow no part of arm or hand to touch the paper or desk except at the points designated. If the wrist and fleshy part of hand are lifted clear of desk, the wrist muscles will soon be trained to hold that joint straight and firm, but not rigid. Close fingers against each other firmly and bend well under the hand. With the left hand take the penholder and place it in right hand between the thumb and second finger, allowing it to rest upon side of second finger nail. The inside of thumb and first finger should rest flat upon penholder in a loose manner. Holder should form an angle of about forty-five degrees, which will place it opposite or in rear of knuckle joint of first finger. Relax the entire body, especially the arm and hand, so that they will be free from any strain and remain in a loose-jointed condition at all times. Use only sufficient strength to keep the holder from falling out of the hand. See that both nibs of the pen rest evenly on the paper. It is most important that a beginner should watch the position of his hand. Other mistakes

may be rectified gradually, but the position of the hand must be established at once, if the pupil is to do good work.

Position of Paper

The sides of the paper should lie parallel with the right forearm. As the writing progresses down the page, move the paper upward, and not the right arm downward. The arm should rest at a point near the middle of the paper, laterally, but rather toward the right of the middle than toward the left. The right arm should lie with its full weight upon the paper, and the weight of the upper body should be placed on the left arm. Cleanliness of the paper should be preserved by using a blotter underneath the right hand. If the desk surface is not smooth, three or four sheets of paper should be kept under the sheet being written upon.

Movement

Muscular movement is produced by causing the arm to roll upon the large bunch of muscles of the forearm, located just forward from the elbow, where the arm rests upon the desk, with the nail of the little finger gliding upon the paper. The nail of the little finger should describe every movement the pen makes, and the motion of the pen should be governed exclusively by the arm. In all movement practice and in all written work the forearm should act as a unit. The propelling muscles are located in the shoulder, but the muscles in the skin of the forearm, at the arm rest, must stretch and contract as the movement is exercised. This stretching and contracting is of supreme importance in learning to write. Practicing Exercise 1 will do that which cannot be accomplished in any other way. Rapid exercise of the rolling and propelling movements will perform a kneading process upon the skin muscles that will free them of all resisting qualities, and then develop the proper degree of elasticity and lightness. Improvement is always determined by the quality of the movement that is developed.

Without a practical means of execution, no style of writing can meet the demands of modern commercialism. As soon as a good position is understood, it is not difficult to develop an excellent movement. During the process of movement development, do not emphasize form. Master one subject at a time. Do not allow improper movement in any written work. Prohibit writing that cannot be supervised.

Materials

Use pens. Discourage the use of pencils in any writing, and do not permit pupils to use fountain pens of any make. Medium-pointed pens are the best for teaching a free, elastic movement. Pupils are to supply themselves with blotters and pen-wipers. If pens are handled carefully, a pupil should not use more than one pen a week. Inkwells should be cleaned and filled twice a week.

Counting

Count, or mark time with an instrument, until a rapid and regular movement is mastered. This is applicable especially to the movement drills, and can be used advantageously in all writing at different times, throughout the text. Rhythm is of supreme importance. Rapid practice of the movement drills, using large forms, will soon destroy inept muscular and nervous substance, which will be replaced immediately by new substance that is adapted for pen-work.

Form

As soon as movement is developed sufficiently, strive for form. Require every member of the class to qualify on each line as the lessons are covered. Do not permit pupils to fall behind in order to qualify. When a pupil fails to qualify on a lesson, he must do outside work until he does qualify, and not neglect the succeeding lessons. Keep the class together.

The capitals are evolved in order of principle and simplicity as follows: *O, A, C, E, N, M, W, H, X, G, K, Z, V, U, Y, P, B, R, L, S, T, F, D, G, I, J*. The small letters are similarly evolved, as follows: *t, i, u, w, e, n, m, x, v, y, z, o, c, a, d, g, q, r, s, j, p, l, b, h, k, f*.

Make a close study of every letter before presenting it. Get clearly in mind what should be the relative widths of parts and lengths and where should be slight or intense curves. Observe angles and turns. It is lack of definiteness in this respect that is the stumbling-block of many teachers.

Capitals are practiced at a full space high to avoid too much mental effort in regard to form during the period of movement development. Often a beginner will apply the movement to large forms when he would persistently use his fingers if he were compelled to write smaller. As soon as the movement is controlled sufficiently, reduce the height of capitals to three-fourths of a space. Small *t, d* and *p* are one-half space high. Extended loops, *l, b, h, k* and *f*, are the height of capitals. The minimum letters

are one-fourth space high. Small *r* and *s* are a trifle higher than the minimum letters.

In making the capitals, use a rapid, dashy, elastic movement. Try to produce the finest quality of hair lines. Speed is necessary. Roll off pages without restriction in the movement. Do not pay much attention to form until the movement becomes automatic. Practice the small letters rapidly, but use a more restricted motion. Concentrate your power on each letter. Do not spin off small letters in rapid succession, as if you were practicing movement drills. The movement should be slightly restricted, but not drawn. There is a certain measure and exactness in making small letters that is unknown to capitals. Make each letter as nearly perfect as possible, without reference to the one that follows. Look at the copy frequently. Always have in mind a very definite aim. Never practice for general results.

Slant is natural. While the approximate slant given in the text should be emphasized, the course is planned so that everyone will develop his individual slant.

Throughout the entire course specific movement drills should be given frequently.

Post qualified work of pupils in the room once a week.

At first, practice paper should be ruled with vertical lines dividing the paper into halves and fourths. Use a pencil and ruler for the purpose.

As soon as a pupil advances sufficiently, he should practice without the vertical lines.

Learn to write half-way across the page without lifting the pen.

In writing, the speed is three down strokes a second. Movement drills are written more rapidly. * To determine how many times a letter can be made in a minute, divide three times sixty by the number of counts in that letter.

The entire class should write on the same lesson at the same time. Permit no one to go ahead or to fall behind.

This does not mean, of course, that in the recitation one pupil must stop at the end of a line and sit idle until a slow pupil catches up with the class.

Individual instruction is necessary.

Walk about the room continually with an alertness that prohibits poor position, improper movement, slow speed, etc. Require every pupil to be busy every minute of the time. Criticise judiciously and commend at every opportunity. Pupils usually do as poorly as the teacher permits and as well as she demands.

Before beginning the penmanship course, require every pupil to submit a specimen of his writing, as follows: "This is a specimen of my business writing at this time., Colo., September, 191..." Signed. Compare this specimen with a similar specimen at the end of the year. Specimens should be filed by the teacher.

Analysis

Ex. 1: The compact oval is made by a vibratory movement which is explained under "Movement." The first practice of this oval is for the purpose of stretching and contracting the muscles in the skin of the forearm, so as to secure a large range of movement. As this is being accomplished, a tearing-down and rebuilding process will take place in the muscles. For some students it requires many weeks of persistent practice on movement drills to develop sufficient muscular and nervous adaptability for good execution. Practice the oval at the rate of 200 revolutions a minute. The retraced oval at the beginning of the line is made by eight revolutions. The width of the oval is equal to two-thirds of its height. By continuing the retraced oval, gradually moving to the right until seventy-two revolutions are made, a compact oval is almost completed, as shown in the second exercise on the line. The oval made in the direction that the hands of a clock move is called the indirect oval, and the one made in the opposite direction is called the direct oval. Change directions after each line, so that the practice will be about equally divided. Rapid practice is especially conducive to stimulating thought and concentration. Hold the pen lightly, and make the holder slant so as to form an angle of about forty-five degrees. Keep both nibs of pen resting evenly upon the paper, and think intently upon the work. Make the exercises compact and regular, without a drawn or blurred appearance. Strive for a fine hair line.

Ex. 2: Apply instructions regarding the oval and practice the retraced oval given at the beginning of the line. Fill several pages of this exercise before beginning the *O*. Make twenty-five to the minute, each being retraced eight times. The *O* has the same slant and height as the oval, and the horizontal curve that forms the finishing loop is begun in the center of the letter. Watch the slant, roundness, close at the top, and do not make the finishing stroke too long. The letter is made in two counts. Come to a stop at the end of the first count until the letter is understood and the movement controlled. As soon as possible, make the letter

without a check in the motion, and write at the rate of seventy-five to the minute, with no pause between letters. Persevere until a decided improvement is shown.

Ex. 3: *A* is similar to *O*. Study the analysis closely. It is made in two counts. The first part consists of a downward curve and upward straight line. The curve is pronounced. The second part is a left curve extending just a trifle below the line. Notice the slant and width. Practice liberally on the *A* exercise before beginning the *A*. Stop at the end of each count and close at top as explained for *O*. Write seventy to the minute.

Ex. 4: *C* is another oval-like letter. Practice the exercise freely before beginning the letter. It is begun with a small oval and finished with a larger one. Observe the slant of the letter. Make the entire letter without pausing, and do not check the motion between letters. It is made in two counts. Write seventy-five to the minute. Study and practice.

Ex. 5: The two parts of *E* are portions of an oval. The upper part is just one-half as large as the lower one. Make each part rounding, and slanting the same as an oval. The small loop connecting the parts of the letter lies in the direction of an imaginary line that is perpendicular to the main slant of the letter. *E* is more difficult than the other capitals given thus far, and more practice will be necessary to master it. It has the same slant as *O*, *A*, *C*, and is made in two counts. After practicing the exercise until it can be made easily and well, begin the letter. Make seventy-five to the minute. Fill many pages.

Ex. 6: The motto of the penmanship student should be "Review." It is the constantly repeated effort to improve that counts. In Exercise Six are all of the capitals thus far studied. Review each one separately at first, until it can be made well and uniformly, and then practice *O*, *A*, *C*, *E*, in groups. Try to make each letter perfectly, as though you were preparing it for engraving. Strive especially for uniformity in slant, height, width and spacing. Remember the speed. Write four groups on a line at the rate of four lines to the minute.

Ex. 7: This exercise introduces and analyzes *t*, the first lower-case letter. Notice how it is evolved from the straight line movement drill. The beginning and ending strokes are pronounced right curves, and the down stroke is straight. The down stroke retraces half the height of the letter. It is made with a quick up-and-down movement, with a slight pause on the base line. Make the letter one space high at first. Practice

it singly until it is understood and the movement controlled; and then join in groups of eight, at the rate of twenty groups to the minute. As soon as satisfactory proficiency has been reached, reduce the height to one-half space.

Ex. 8: The *i* resembles *t* in reduced form. The down stroke does not retrace. Write with a rapid movement, pausing on the base line. The height is one-fourth space. Watch slant and spacing. After the letter has been practiced singly, join it in groups of three, and later join sixteen on a line without lifting the pen, at the rate of 180 a minute. Dot carefully.

Ex. 9: *u* is composed of double *i*. The width of the letter is equal to its height. Observe parallelism in the straight lines and also in the curves. Make a strong finish to all letters. Practice singly, and then join in groups as explained for *i*, at the rate of from ninety to one hundred a minute. Remember that the nail of the little finger inscribes every letter the pen makes. Be sure that the forearm acts as a unit. Keep the top of the *u* sharp and the base rounding. Exercise care, freedom and grace.

Ex. 10: The *w* is begun like *u*, and finished with a short, horizontal curve. Start the finishing stroke with a dot, and slightly retrace at the height of the letter. Follow previous instructions. Write sixteen on a line at the rate of eighty a minute.

Ex. 11: Small *e* is made like *i*, excepting a loop is formed. Curve the down stroke as little as possible. Theoretically, *e* has a straight down stroke the same as *i*, but it is not objectionable to make a slight curve. Instructions relative to *i* apply to *e*.

Ex. 12: *n* is directly evolved from the preceding exercise. It has three rounding turns and one sharp turn. Down strokes are straight and parallel. Write in groups of eight at the rate of fifty a minute. Use the wide-spacing principle, writing six on a line without lifting the pen.

Ex. 13: *m* is analyzed, studied and practiced in accordance with instructions given for *n*.

t, i, u, w, e, n, m, should be reviewed thoroughly before proceeding farther. Join them, writing crosswise on the page of other writing, thus utilizing worthless paper, and securing another valuable drill.

Ex. 14: Letters in these words have been analyzed. Do not join *O* and *A* to the small letters. Write four lines in a minute. Fill many pages practicing this line.

Ex. 15: Join the capitals to the small letters. Follow previous instructions relative to height, width and slant of each letter, and spacings.

It is presumed that students who have followed instructions diligently are now able to apply the movement properly in all of their writing. During the remainder of the course instructions will be confined to a brief analysis of each form as it is presented.

Ex. 16: Small *x* is composed of the last part of *n*, with a straight line intersecting the down stroke, as shown on the second line. Be careful to make the straight line intersect properly.

Ex. 17: Small *v* is composed of the first part of *n* and the finishing stroke in *w*.

Ex. 18: The initial stroke in *N* is used in eleven capital letters. The oval is quite rounding and is outside of the hook formed by the curve and down stroke. The up stroke in the second part of the letter is a trifle lower than the first part, and retraced very little. Both down strokes are almost straight and parallel. It is the same in width as the small *n*. Write forty-five to the minute.

Ex. 19: *M* is similar to *N*, with a third part added. The height gradually slopes to the right. Write thirty to the minute.

M and *N* may be joined to any small letter. From the standpoint of speed they should be joined, but oftentimes it is desirable to disconnect them.

Ex. 20: The first part of *y* is similar to the first part of *v*, with a lower loop added. The loop is full, the down stroke is rather straight, and the crossing is on the base line.

Ex. 21: The small *z* is directly evolved from *y*. Make the first down stroke straight and slanting the same as the second down stroke.

Ex. 22: Begin small *o* on the line of writing. It is a miniature oval finished like small *w*. Close at the top and finish with a retraced compound curve.

Ex. 23: The beginning stroke of *W* is like the first stroke of *N* and *M*. The second part consists of an upward right curve, downward straight line, and upward left curve. The last stroke is retraced just a trifle. Do not retrace in the second and third strokes.

Ex. 24: *H* is begun like *W* and finished with a downward left curve and small loop. The small loop is made by a horizontal

curve the height of small letters. *H* should be joined to small letters.

Ex. 25: *X* is similar to *H*. The second down stroke touches the first part at half the height of the letter. Make a slight pause on the base line.

Ex. 26: *Q* begins like *X* and ends with a compound curve. The loop it forms with the down stroke is horizontal, and rests upon the base line.

Ex. 27: The second stroke in *K* is compound, starting up and leftward, with a pronounced left curve. The tiny loop should tie with the first down stroke. Make the finishing curve narrow.

Ex. 28: *Z* ends like small *z*, excepting that it forms a small loop on the base line.

Ex. 29: Small *c* begins and ends like *n*. The down stroke begins with a dot, and is curved like the down stroke in *o*. Come to a stop on the base line.

Ex. 30: Small *a* is begun and finished like *c*. The second upward and second downward strokes are straight. The letter should be equal in size to *o*.

Ex. 31: Small *d* is exactly like *a*, with a short loop on its top.

Ex. 32: Small *g* is also like *a*, with an extended loop underneath.

Ex. 33: Small *q* begins like *a* and ends with a lower direct loop. The loop is the same in size as *g*, and closes on the base line.

Ex. 34: The first part of *V* is like *Z*, and it is finished with a compound upward curve. Keep the finishing stroke a trifle lower than the first part.

Ex. 35: *U* starts like *V* and finishes like *A*.

Ex. 36: *Y* begins like *V* and ends like small *y*.

Ex. 37: Small *r* begins and ends like *i*. Make a pause at the shoulder of the letter. It is one-fourth higher than the other minimum letters.

Ex. 38: Small *s* begins and ends like *r*, and is the same in height. The down stroke is a short compound curve. *r* and *s* are peculiar letters, and require special study.

Ex. 39: *j* begins like *i* and ends like *g*.

Ex. 40: *p* begins like *t* and ends like the first part of an inverted *d*. Close the finishing stroke on the base line.

Ex. 41: *P* begins like the straight line exercise and ends with an oval at the top.

Ex. 42: *B* begins like *P*. The two ellipses are the same in size. The small loop connecting the ellipses is directed at about

46

l n h kkkkkk l r h k kkkkkk

47

48

49

h y f fffffff lake balk half

50

51

fell B L Lady S S Sale

52

53

S J T Fame S T T T Tail

54

Lee Sanders Tillie Fillmore

55

56

57

D D D Doll l G G Gaul S I S

58

59

India J J J John Announce

60

Boundary Cinnamon Dominion

61

Encomium Feminine Grinding

62

Haunting Illumine Joinings

63

Kneading Luminous Minuends

64

Nominees Obedient Pointers

Quantity Ruminous Scarcity ⁶⁵

Terminus Untimely Velocity ⁶⁶

Whatever Xanthous Youthful ⁶⁷

Zodiacal Laconian Jeannette

Familiarize yourselves with ⁶⁸

alkaline axillary cajolery ⁶⁹

equipage teaching learning ⁷⁰

Free movement and simple forms ⁷¹

A B C D E F G H I J K L M ⁷²

N O P Q R S T U V W X Y Z ⁷³

11 22 33 44 55 66 77 88 99 00 %o %o %o ⁷⁴

Business men want good writing ⁷⁵

right angles with the main slant of the letter. The finished stroke makes a sharp angle with the second ellipse.

Ex. 43: *R* starts like *P*. The last stroke begins with a small loop that touches the first down stroke, and finishes like *A*.

Ex. 44: The *l* loop begins with a pronounced upward curve and downward straight line, and ends like *i*. Make the loop full and slanting properly.

Ex. 45: *b* begins like *l* and finishes like *w*.

Ex. 46: Small *h* begins like *l* and ends like *n*.

Ex. 47: *k* begins like *l* and ends with a short right curve and combined straight line and left curve. Study the analysis of the finishing part.

Ex. 48: *f* begins like *l* and ends like *q*. Penmen are free to state that the loops are more difficult than all other small letters combined. Practice the joining of *l, b, h, k, f*, until they can be made well and rapidly.

Ex. 49: These words are for extended practice on the loops. Watch height, width, slant and spacing.

Ex. 50: *L* begins with a dot and a slanting, downward, compound curve, and ends like *Q*. It is more difficult than any other capital, and usually requires a great deal of study and practice. The letter is made in two styles. The second style is begun with a horizontal curve as an initial stroke.

Ex. 51: *S* starts like the first up stroke in *l*, and has a downward compound curve like *L*, and ends with a horizontal curve that forms a sharp angle with the downward stroke.

Ex. 52: *T* begins like the latter part of *S*. The stem hook is made by a small loop inside of a right horizontal curve which is placed directly over the main stem.

Ex. 53: *F* is made exactly like *T*, with the closing and crossing added.

Ex. 54: The compound curves *L, S, and T, F*, should be strong and uniform. Study height, width, slant and spacing of all letters in these words.

Ex. 55: *D* begins with a downward compound curve like the latter part of *S*, forms a small horizontal curve on the base line, and ends similarly to *O*. Close the letter at the top, and see to it that the toe and heel both rest on the base line.

Ex. 56: *G* is made like *S*, with the downward stroke crossing horizontally to the right and forming a sharp angle at one-half the height of the letter. It has the same relative width as *H*.

Ex. 57: *I* begins with an indirect upward curve, forms a loop with a downward straight line, and ends like *G*. In order to have a natural slant in the letter, it is necessary to make the first upward curve almost vertical.

Ex. 58: *J* begins like *I* and finishes like *Y*. The lower loop is about half as wide as the upper one.

Ex. 59: Beginning with this exercise and extending to Exercise 72, words containing eight letters each are given, in which all of the capital letters are reviewed. Practice three words on a line. Study and be cautious about slant, width, height and spacings. Uniformity in writing is of vital importance.

Ex. 72: Exercises 59 to 68 gave word practice in which the capital letters were reviewed, and also included nearly all of the small letters. Exercises 68 to 72 are for additional word and sentence practice, and give a review of the remainder of the small letters.

Ex. 73: Fill a page practicing each capital, separately at first. If you are not able to make good capitals, cover many pages in this manner. Practice unceasingly on the entire alphabet as it appears in the text. Work rapidly. If any part of the alphabet is especially difficult, give it an unusual amount of study and practice.

Ex. 74: Business men want good, legible figures. Oftentimes it is necessary to write them rapidly. 4, 7 and 9 are the only figures that cut the line. 2 is a miniature of *Q*. 3 resembles a reversed *E*. The finishing of 5 is like the finishing of 3. The downward stroke in 6 is almost straight. The first stroke in 7 is a compound curve. 8 resembles an inverted *S*. 9 begins like *a* and ends with a downward straight line. Study these figures and practice them with the muscular movement until they can be made satisfactorily.

The Syllabus for Teachers of Penmanship prepared by J. E. Huchingson would be invaluable to the teachers of the state in carrying out this course. Each pupil should have upon his desk J. E. Huchingson's Progressive Lessons in Business Writing. Sold by Herrick Book Co.

POULTRY CULTURE

September. BREEDS AND BREEDING.—Breeds: Mediterranean, Asiatic, American, miscellaneous. Breeding: heredity; line breeding; age of breeders. Records and accounts.

October. POULTRY HOUSES.—Essentials of a good house: open front; fresh-air types. Poultry-house appliances. Poultry yards.

November. DISEASES AND ENEMIES.—Causes and prevention of diseases. Common, local diseases; colds, catarrh, roup, etc. Insect enemies: lice, mites, etc. Other enemies: skunks, magpies, hawks, etc.

December. FEEDS AND FEEDING.—Nutrition: digestive process. Kinds of feed: grain foods, animal foods, vegetable foods.

January. MARKETING EGGS.—Cleaning and grading eggs; special markets or the store.

EXHIBITING.—How to prepare fowls for the show; scoring, judging.

February. INCUBATING AND BROODING.—How the egg is made. Artificial incubation: an ancient art; place for incubator; heat, ventilation, moisture; record cards. Natural incubation: the nests; select the eggs; daily duties.

March. CHICKS.—Coops for hen and chicks; crowding; exercise; feeding.

EGGS.—Preserving eggs for winter use.

April. GROWING AND MARKETING.—Care of growing stock: shade, shelter, storms, feed. Marketing poultry: preparing for market; size to market; retail or wholesale; culling.

BULLETINS SUGGESTED FOR TEXT-BOOKS

BREEDS

Farmers' Bulletin No. 51, "Standard Varieties of Chickens," United States.

Reading Course, Lesson 1, * "Breeds of Chickens," Oregon.

HOUSES AND APPLIANCES

Reading Course, Lesson 2, * "Housing of Chickens," Oregon.

Circular No. 4, "A Colony House," Oregon.

Farmers' Bulletin No. 227, United States.

Bulletin No. 284, "Labor Saving Poultry Appliances," New York.

DISEASES AND ENEMIES

Farmers' Bulletin No. 287, United States.

Farmers' Bulletin No. 309, United States.

Colorado Agricultural College will soon have a bulletin on local diseases.

FEEDS AND FEEDING

Reading Course, Lesson 3, * "Feeding for Eggs," Oregon.

Reading Course, Lesson 17, "Feeding of Laying Hens," New York.

Farmers' Bulletin No. 84, United States.

Farmers' Bulletin No. 186, United States.

Farmers' Bulletin No. 244, United States.

EXHIBITING—SCORING

"Standard of Perfection." This book could probably be had of the American Poultry Association at cost or less.

MARKETING EGGS

Farmers' Bulletin No. 128, United States.

Extension Bulletin No. 8, "Marketing of Eggs," Ohio.

Reading Course, Lesson 20, "Marketing Poultry Products," New York.

INCUBATION AND BROODING

Farmers' Bulletin No. 236, United States.

Reading Course, Lesson 5, * "Incubating and Brooding Chickens," Oregon.

CARE OF LITTLE CHICKS

Farmers' Bulletin No. 237, United States.

Reading Course, Lesson 19, "Raising Chickens," New York.

PRESERVING EGGS

Bulletin No. 55, "Infection and Preserving of Eggs," Storrs.

"Preserving Eggs," by Edgar Warren.

Bulletin No. 67, "Water Glass a Preservation for Eggs," Storrs.

"Brigham's Progressive Poultry Culture," State College of Agriculture, South Dakota.

CARE OF GROWING STOCK

Will be found in above bulletins.

MARKETING POULTRY PRODUCTS

Will be found in above bulletins.

In addition to these bearing directly on the lessons, the following would be found interesting and helpful:

Farmers' Bulletins No. 200, "Turkeys;" No. 117, "Squabs and Geese."

For United States Bulletins, address United States Department of Agriculture, Washington, D. C.; or request your congressman to send them.

For Oregon Bulletins, address Oregon Agricultural Experiment Station, Corvallis, Ore.

For Storrs Bulletins, address Storrs' Agricultural Experiment Station, Storrs, Conn.

For New York Bulletins, address Cornell University Agricultural Experiment Station, Ithaca, N. Y.

For Ohio Bulletins, address Ohio State University, Columbus, Ohio.

* These Bulletins were written especially for boys' and girls' clubs, and could probably be had in numbers at cost of printing and mailing. Arrangements might be made whereby all above bulletins could be had for each scholar.

READING

GENERAL INSTRUCTIONS

Reading is by far the most important subject in education; by it and through it comes knowledge of all things. An enthusiastic teacher will prepare himself as fully as life will permit, finding ever-increasing pleasure in this pursuit. Teaching is a *profession*, and in no profession can one hope to succeed without a wide knowledge of the best books of his profession. Therefore get books and *know* them.

Following is a list of good books for the teacher:

"Teaching the Language Arts," Hinsdale.

"Special Method in Reading for the Grades," McMurray.

"Teaching to Read," Hughes.

"Reading in the Public Schools," Clark.

"Enunciation and Articulation," Boyce.

"How to Tell Stories to Children," Bryant.

"Reading in the Public Schools," Briggs and Coffman.

"Outline Lessons for Classics," English Leaflet Company.

AIM

The teaching of reading should aim for the following definite things:

a. A well-defined knowledge of the mechanics of reading, and the ready application of them.

b. The power to extract quickly the information from the printed page, taking in entire thoughts at a glance.

c. The art of reading aloud in a pleasing voice, with correct pronunciation, articulation and enunciation, and with *natural* expression.

d. A cultivation of a taste for good literature.

e. Ethical culture and general information.

The real reading lessons from the first grade up include three distinct types of work:

a. *Study* reading (intensive), involving preparation increasing in complexity as the grades advance. This should be enough ahead of the pupil to require good, hard work. Fuller explanations are given under Grades V, VI, VII and VIII.

b. *Sight* reading (extensive), requiring the pupil to read easily and intelligently without direct preparation. This should be chosen from books that are easy for him, as the end in view

is fluency and the power to catch the author's meaning almost intuitively.

c. *Silent* reading, cultivating the library habit under supervision. Supplementary readers, library books, and books from home or other sources, are read by early comers before school, by quick workers rewarded in school, and by all at regularly appointed periods.

METHOD

The principles underlying the first-grade work hold good all *through the grades*, and it is recommended that teachers of all grades familiarize themselves with them and make daily application of them. In all things, knowledge comes to us through seeing, hearing and doing; hence the sense-training of the first grade has its value everywhere. To read anything well, one must see the picture, hear the sound, or actually do or imagine the action—he must feel it all. Theoretically, the mechanics of reading are mastered by the end of the fourth year; but in a public school receiving pupils from all places and conditions of life, the teacher will find it worth while to continue systematic drill in them all along the line.

In the first grade the phonic work, with rare exceptions, is confined to lessons apart from the reading, lest the attention be diverted from thoughts to words. In the blend work of the lower grades and the spelling of the upper grades, keep the word as a *whole* before children; for this is the way they will meet it in their reading. By arranging the spelling of the upper grades with a view to continuing the drill on phonics, phonetic families, derivation and analysis of words, together with diacritical markings, syllabication and accent, the teacher will give to his pupils a knowledge of words and their correct sounds which will inevitably bring out more clear, fluent and appreciative readers.

The *sentence, word, phonic* and *synthetic* methods combined seem to bring the best results. These will be presented somewhat in detail under the first grade. The sentence is the unit of thought; therefore pupils are started with a sentence, and in all grades they should be led to the habit of glancing through to the end of the thought before attempting to give it out to others. As mentioned above, the word and phonic drills should not break into the reading itself.

In all grades correlate reading, spelling and language.

Try for *good expression* by the following means:

a. See that the reader has a perfectly clear understanding of the meaning of what he is to read. To help him, use objects, pictures, stories, questions.

b. Have him imagine how things look or sound, and how people feel and why. Let him make believe he is one of the people in the story. Fill out the thought in all directions; create an atmosphere.

c. Ask him to let his *voice* show to his teacher or classmates just how everything was; and to try to look at them when he tells them.

In the first four grades frequently *dramatize* or "play" the story, and occasionally in the upper grades. This must always be done very simply, lest time be wasted.

d. Have pupils tell the entire story in an interesting way for the class. *Tell stories yourself*, and let children reproduce them.

e. Read occasional passages, entire poems or stories to the children in the most interesting, effective way possible, taking care to be always natural.

f. Encourage reading aloud at home.

Try for clear *articulation* and *enunciation*, as follows:

a. Listen without a book yourself, or have one child read to the class. Good sight-reading may often be accomplished with only one book in the class.

b. Say: "I did not understand that. What was it?"

c. Have pupils read sometimes from the front of the room, sometimes from the rear, or at other times from their seats, the teacher moving about to distant parts of the room to see if she can understand.

Do not tell children to talk loudly, and in no wise countenance a rasping voice.

d. Practice vocal drills, or phonic exercises in *all* grades.

Example: Whisper such words as *paint, took, kite, bate*, and repeat, changing the order.

Pronounce several times in a clear, gentle voice, *take, kept, taste, rate, bite, harm, hit, own*, changing the order with each repetition.

Pronounce vowels in changing order.

Call attention to first and last sounds of words.

Repeat such exercises as, "He thrusts his fists against the posts," etc.

To develop a taste for *good literature*:

a. Make the reading lesson a happy time.

b. Call attention to the special beauty and fitness of certain words or passages.

c. Ask pupils to select the finest passages, telling why they judge them to be so.

d. Refer them to other good books which you think they will like.

e. Tell them stories, introducing them to good books.

f. Post library lists from which they may choose if they are going to buy, or use some library.

g. Start a school library, and by every means in your power add to it from time to time.

h. Teach children to reverence and love a good book, and so to take care of it.

i. If books are accessible, have a book review from each child every month or two; have these read aloud and discussed. Pupils will thus introduce one another to good books.

j. Talk about bad books only incidentally, as occasion requires, and briefly; let children forget them.

k. And again, *read aloud* to your pupils, read good things, and read your *level best*.

In concluding hints on method, we emphasize: *Never* allow a pupil to recite a memory gem, tell a story, or read a sentence in any connection whatsoever without clear articulation and enunciation, and correct expression.

In the sixth, seventh and eighth grades subscribe to *Current Events*, or some such paper, to interest pupils in the news of the day.

FIRST GRADE

The work with beginners should be preceded by conversations about things at home with which they are most familiar, getting them to talk freely.

For many reasons, story-telling and dramatization, "playing or acting out," are among the very best helps to teaching reading.

The order of teaching phonograms, blends and family names will depend upon the books used. Those given below are from the "Gordon Readers" and are suggestive. Take the primer or reader to be used and make a list of words. Note down the objects, pictures and other materials you will need. Make cards with phonograms, families and key-words on them for seat-work. Begin phonic lessons the first week, teaching each sound by a little story; see "Education Reader," Book I, and the "Gordon

Manual." Give the sound and its sign, but not its name, as this adds confusion. Beginning with the sentence method, teach two new words a day, gradually increasing to five a day by the second month. As phonograms are formed and blended into families and words, use the words thus acquired for reading in sentences. Do much rapid drill-work in reading the words in different sentences, and in lists on the board and charts. Begin sounding gradually the second month, and increase as knowledge of phonograms increases. Always use script upon the board. Change from script to the book by the third month or sooner, according to the manual followed.

PRESENTATION TO BEGINNERS

Distribute objects to the children.

"What have you?" "I have an apple."

"See me make the chalk say it." The teacher writes it on the board.

"Tell me what it says." "I have an apple."

"What have *you*?" "I have a doll." The teacher writes it.

"Tell me what this says." "I have a doll."

"Find the word that says *apple*." The child points to the word *apple* and pronounces it. Do the same way with *doll*.

The teacher writes *doll* and *apple* in various places on the board, having the children find each and pronounce it.

"Find *I have*." "What does it say?" "I have."

"Tell me again what you have." "Find the sentence that says it."

After this take action lessons, as: *go, run, jump, etc.* If the teacher prefers, she may begin with them.

Whatever book you use, study it through very carefully, making yourself master of the "Manual" or "Directions to Teachers."

Use instructions from several books.

Teach the first third of several primers or readers; return and take the second third of the same books; then finish them. It is preferable to have much easy reading at first. Keep one set for sight-reading; by which we mean, let the child read his sentences without previous direct development, but *not* without thinking each sentence *through to the end* before he tries to tell it (or read it).

Begin sight-reading as soon as books are taken.

First Month.

- I. Teaching of *sight* words *in sentences*.
- II. Phonic work.
 - a. Teaching of sounds and their symbols (in phonograms).
 - b. Teaching of blending sounds learned.
 - c. Teaching of word-families through blending.

We suggest the "Teachers' Manual" which accompanies the "Gordon Readers" as the most complete in all details needed for teaching beginning reading, and a fine book for a teacher in any of the grades to be familiar with. The work in reading, phonics and family names is here mapped out from day to day, with pictures and other excellent devices. The plan following is from this "Manual":

I. Simple phonograms: \tilde{a} , *f*, *l*, *n*, *m*, \tilde{o} , *o*, *r*, *s*, *t*, *w*, *g*, *ch* and *sh*.

II. Blended phonograms.

Initials: *fl*, *fr*, *sl*, *sm*, *sn*, *st*, *sw*, *tr*, *tw*, *shr*.

Family names: *am*, *an*, *ann*, *as*, *ash*, *at*, *atch*, *ant*; *oll*, *om*, *on*, *oss*, *ot*, *off*, *oft*, *ost*, *otch*.

III. Addition of *s* to words and families.

IV. Sight-words: *may*, *I*, *see*, *like*, *run*, *find*, *look*, *baby*, *to*, *play*, *sister*, *my*, *name*, *jump*, *brother*, *this*, *is*, *boy*, *come*.

V. Seat-work.

1. Write known phonograms on the board. Each child has a box or envelope containing cards with phonograms in script large and heavy. He finds the ones which are on the board and arranges his in the same order.
2. Sort into piles, placing duplicates above each other.
3. Write blended phonograms on board. Pupils make these, arrange in order on desks, piling up duplicates.
4. Write sentences containing sight-words. Pupils build sentences with sight-word cards. Allow children to whisper these sounds as they make them.
5. Trace phonograms with coffee. Trace pictures of objects read about.

Second Month.

- I. Simple phonograms: *b, c, d, g, h, i, j, k, p, q, ec.*
- II. Blended phonograms.
 Initials: *bl, cl, gl, pl, br, cr, dr, gr, pr, sc, sk, sp, dw.*
 Family names: *ab, ad, ag, ap, ack, amp, and; ob, od, og, op, ock, omp, ond, out; id, ib, if, ig, im, in, ip, is, it, ich, ick, iff, ift, ilk, ill, ilt, imp, inch, ind, int, ish, iss, ist, itch; eech, ecd, ecf, eek, ecl, cem, cen, eep, eer, ect.*
- III. Placing of initial consonant.
- IV. Sight-words: *rose, ball, leaves, kitty, have, are, little, yes, pretty, with, where, what, for, oh, girl, old.*
 Key-words: *my, me, go, you, find.*
- V. Seat-work.
 1. Continue as in first month.
 2. Place phonograms in large writing on the blackboard for each pupil. He traces copy a number of times, then writes it beside the copy.

Third Month.

- I. Simple phonograms: *ug, th, e, u.*
- II. Blended phonograms.
 Initials: *scr, spl, spr, str, thr, thw,*
 Family names: *aug, ank; eb, ed, em, en, ep, et, eck, eff, eft, egg, ell, elk, elt, emp, ench, end, ent, esh, esk, ess, est, etch, eth; ild, ink, ing; old, oll, olt, ong, onk, ost, oth; ub, ud, ug, um, un, up, ut, uch, uck, uff, uft, ull, ulk, ult, ump, unch, und, ung, unk, unt, ush, uss, ust, utch.*
- III. Dissyllables and compound words.
- IV. Derivatives formed by adding the suffix *-ing* to known words, when such addition does not require a change in the primitive word.
- V. Sight-words: *they, give, live, says, said, many, one, two, read, hear, were, apple, up.*
- VI. Seat-work.
 1. Continue seat-work for first and second months.
 2. Paste upon a strip of cardboard for each child printed letters making his name. Give him a box of letters. He matches the letters and makes his name a number of times upon his desk.
 3. Silent reading on some specified text.

Fourth Month.

- I. Simple phonograms: $\bar{o}o$, \bar{oo} , *ow*, *ou*, *x*.
- II. Blended phonograms.
Family names: *ax*, *ex*, *ix*, *ox*; *aff*, *aft*; *ance*, *anch*, *ant*,
ask, *asp*, *ass*; *ood*, *ook*, *oot*, *ooch*, *ood*, *oof*, *ool*, *oom*,
oon, *oop*, *oor*, *oost*, *oot*, *ooth*; *ow*, *owl*, *own*; *oud*, *ound*,
our, *out*.
- III. Short Italian *a*.
- IV. Suffix *-ed* where a syllable is added, and no change is made
in the primitive word.
- V. Names of the vowels.
- VI. Effect of final *e* upon the next preceding vowel separated
by a single consonant.
- VII. Sight-words: *Papa*, *Mamma*, *write*, *school*, *shine*, *eyes*,
there, *was*, *saw*, *work*, *four*, *horse*, *shoe*, *watch*.
Key-word: *may*.
- VIII. Seat-work.
 1. Extend the name-cards used last month to include the
name of school, town, state, teachers, streets. Have
script on some of the cards.
 2. Write family words in a column on the board. Pupils
build these words on the desk with letters.
 3. Use word-drill cards for study.
 4. Read silently from supplementary readers.

Fifth Month.

- I. Simple phonograms: *v*, *oi*, *oy*.
- II. Blended phonograms.
Endings: *by*, *dy*, *ly*, *my*, *ny*, *py*, *ry*, *sy*, *ty*, *zy*, *y*, *ble*, *dle*,
fle, *gle*, *ple*, *zle*, *tle*.
Family names: *ar*, *arc*, *av*, *ave*, *arb*, *arch*, *ard*, *arf*, *ark*,
arl, *arm*, *arn*, *arp*, *arse*, *arsh*, *art*, *arve*; *er*, *ere*, *eve*,
erb, *erd*, *erk*, *erm*, *ern*, *erse*, *ert*, *erve*; *ir*, *ire*, *iv*, *ive*, *ird*,
irk, *irl*, *irst*, *irt*; *or*, *ore*, *orch*, *ord*, *ork*, *orm*, *orn*, *orp*,
orse, *ort*; *ur*, *ure*, *urd*, *url*, *urn*, *urse*, *urt*, *urve*; *oy*, *oil*,
oin, *oint*, *oise*, *oist*.
- III. Two sounds of *y* not initial; also *i* final.
- IV. Effect of double consonants upon a preceding vowel.
- V. The digraph *ow*.
- VI. The suffix *-er*.

VII. *o* like short *u*.

VIII. Sight-words: *all, walk, know, meadow, could, would, should, laugh, music, Santa Claus, Christmas, young, again.*

IX. Seat-work.

1. Silent reading in Book I and in supplementary reading.
2. Continue exercises of previous months. Have pupils write words and phonograms on the blackboard.
3. Place alphabet in order on desk, choosing script or print from the envelope as teacher directs, or as they are on the board. Require the alphabets, when finished, to be all script or all print.

Sixth Month.

- I. No new phonic facts developed this month. Review thoroughly all previous facts.
- II. Sight-words: *buy, who, guess, word, large, Mrs., caw, view, head, ears, once.*
- III. Review the names of letters used in the spelling lesson.
- IV. Seat-work.
 1. Continue silent reading, also writing.
 2. Sentence-building from word-cards.
 - a. Like sentences on board.
 - b. Made up.

Seventh Month.

- I. Simple phonograms: *y* initial; *a* after *w*; equivalents of *a, i, e, o*; *c* and *g* before *e, i* or *y*.
- II. Blended phonograms: *ed* after any consonant.
- III. Sight-words: *wolf, Alice, lambs, want, door, stalk, heart, through.*
- IV. Seat-work.
Continue work of preceding months.

Eighth Month.

- I. Simple phonograms: *aw, au, iu, ew.*
- II. Blended phonograms: *ar*, preceded by *w*; *or*, preceded by *w*; *ear*.
Family names: *awl, awk, awn, aub, auce, aud, aul, ault, ause*; *ald, all, alk, alt*; *uice, uit.*
- III. Sight-words: *comb, tongue, build, beauty.*
- IV. Suffix *-es*.

V. Seat-work.

1. Silent reading.
2. Cut up stories from old primers; arrange on desk like duplicate pages. Use the pictures also.
3. Copy spelling words.
4. Continue phonogram blend work.

Ninth Month.

- I. Simple phonograms: *augh, ough*.
- II. Blended phonograms: *qu, mb, sten, ften*.
- III. Seat-work.
Review previous work.

At least three readers should be completed in class, and it will usually be found possible to do more in view of the great number of words which the family work and blending presents. Drill thoroughly, but avoid dallying. Allow children to have books to take home to read.

Use games as far as possible in drill-work. (See "Games, Seat-Work and Sense Training Exercises," A. Flanagan & Co.) Here are some suggestions:

FISHING GAME

Children stand in circle. Place cards irregularly upon the floor in center. Three or four children take pointers or sticks and catch fish by naming words as the pointer is placed upon the card. Fish until the pond is empty. The winner then passes the rod to other pupils.

CROSSING THE BROOK

Children stand in circle. Arrange words in circle on floor about one foot apart. One child steps over them, naming them as he steps. If he succeeds in crossing all, he may sit in the seat of honor (a small chair placed near the last word) until the next successful one comes. If he fails, he must return home because he has slipped into the water and has wet feet.

GOOD BOOKS FOR FIRST GRADE

- Gordon's "First Reader;" D. C. Heath & Co.
 "The Cyr Reader;" Ginn & Co.
 "The Art Literature Readers;" Atkinson, Mentzer & Grover.
 "The Bender Primer;" Charles E. Merrill & Co.
 "The Expressive First Reader;" American Book Company.
 "Children's Classics in Dramatic Form;" Houghton, Mifflin & Co.

First Book in "Graded Literature Reading"; Charles H. Merrill & Co.

"The Circus Reader;" Benjamin H. Sanborn & Co.

"The New Education Reader," Book I; American Book Company.

"The Aldine Readers;" Spaulding & Bryce.

SECOND GRADE

a. Continue drill in all phases of phonics taken the first year, basing spelling upon families learned in both first and second years.

b. Add:

Simple phonogram: *ph*.

Blended phonograms: *tion, sion, ous, tious, cious, stle*.

With silent letters: *kn, gn, gu, bu, wr, mn*, and initial silent *h*.

See word lists in "Gordon Manual" for additional phonic facts; also words at head of lessons in readers.

c. Know vowels and consonants as such, and the alphabet in order.

Copy words from readers, using two vowels or three vowels, ending with a vowel, beginning with a consonant, etc.

d. From words select phonograms, and make words.

Find family names in words.

Find words having same family name.

Find words containing double letters.

Note again the short vowel preceding double letters.

Note:

(1) Family names with different sound and same spelling—as: *now, crow; croup, pout; cough, trough, plough, bough, enough*; etc.—through all the family names studied.

(2) Family names having same sound and different spelling: *ite, ight; ay, eigh; ote, oat; o, ow*, etc.

e. Use initial letters on squares for placing before family names for rapid spelling.

f. Pupils should do much sounding out of new words, until at the end of the year they are able to sound almost any new word they meet in their reading.

g. Drill in quick reading of phrases from the board.

h. New lessons must be taught or developed by stories and otherwise as in the first grade, but gradually lessen the amount of help given.

i. Teach pupils to use words in sentences to bring out meanings.

j. Use seat-work and games as suggested under First Grade.

k. Do much story-telling, reproduction and dramatizing.

l. Use "Second Readers;" also, when possible:

"Sunbonnet Babies' Primer;" Rand, McNally & Co.

"Brownie Primer;" A. Flanagan & Co.

"Story of Hiawatha;" Educational Publishing Company.

"Boy Blue and His Friends;" Little, Brown & Co.

"Folk-Lore Reader," II; Atkinson, Mentzer & Co.

Many books given under Grade I are excellent for sight-reading in the second grade. A. Flanagan & Co., Chicago, publish many cheap, paper-covered classics for all grades. These may be found very useful for rural schools.

THIRD GRADE

a. Continue phonic drill in addition to spelling work from phonograms.

b. Sound new words. *Teach* the lesson a certain amount before pupils study it, as in previous grades.

c. Begin very gradually a little dictionary work.

d. Teach diacritical markings, and drill upon them in various ways.

e. Use *only one* at a time in a spelling lesson, except in review; then only one in a word. Use drill-cards, charts, board, voice.

f. Do much story-telling and dramatizing.

g. Remember sight-reading, silent reading, and study-reading.

h. Complete two "Third Readers," and at least two others from this list when possible:

Andersen's "Fairy Tales;" Ginn & Co.

Stevenson's "Child's Garden of Verse;" Rand, McNally & Co.

Mulock, "Little Lame Prince;" A. Flanagan & Co.

"Graded Poetry," Books I and II, III and IV; Charles E. Merrill Company.

"Robinson Crusoe," Educational Publishing Company.

"Animals at Home;" American Book Company.

Aesop's "Fables;" Educational Publishing Company.

FOURTH GRADE

By the time the pupils reach the fourth grade they should be able to study fairly independently. Yet the teacher still needs to "develop" somewhat and give phonic drills on the words of the lessons.

a. Continue phonic work, diacritical markings, syllabication, accent, family words. (See "Guilford Speller," "Gordon Manual" and the "Manley-Bailey Spelling Book.")

b. Drill on articulation and enunciation.

c. Require meanings of some words from the dictionary.

d. Have pupils tell the story in their own words.

e. Have supplementary books for silent reading.

f. Complete one "Fourth Reader" and at least three books from the following list when possible:

"Fifty Famous Stories;" American Book Company.

Cook's "Story of Ulysses;" Public School Publishing Company.

"Myths of the Red Children;" Ginn & Co.

Pyle's "Merry Adventures of Robin Hood;" Charles Scribner's Sons.

Stockton's "Fanciful Tales;" Charles Scribner's Sons.

FIFTH GRADE.

a. Continue phonic drill and syllabication.

b. Drill in use of diacritical markings.

c. Drill for articulation.

d. Require almost independent study now and intelligent use of the dictionary.

e. Aim to familiarize children with classics in complete form; cultivate the dictionary habit, enlarging vocabulary and increasing general knowledge.

f. Use every means possible to make work interesting; pictures, stories, dramatizing (in a very small way). Arouse an interest in outside reading, and by timely and interesting suggestions and talks supervise it.

g. Have single copies of good books on the shelves for reading in spare time.

h. Induce pupils to finish work quickly in order that they may read.

i. Use much poetry in both reading and language, and lead them to observe and enjoy artistic and musical language.

j. Insist on *good* execution of memory work.

k. Use one "Fifth Reader" for drill-work, and select at least three from the following when possible:

Lansing, "Tales of Old England;" Ginn & Co.

"Black Beauty;" Educational Publishing Company.

Hawthorne, "Wonder Book;" Educational Publishing Company.

Mabie, "Norse Stories;" Rand, McNally & Co.

"King of the Golden River;" Ginn & Co.

"Eugene Field Book;" Charles Scribner's Sons.

"Stories of Our Country;" American Book Company.

"Paul Dombey;" Educational Publishing Company.

"David Copperfield" and "Oliver Twist;" American Book Company.

SIXTH GRADE

a. Read silently an entire selection before beginning its study.

b. Give special attention to phrasing, the foundation of which is laid in the sentence method of the first grade, and should be continued through all the grades.

c. In the longer, more complex sentences met in the upper grades, cultivate the habit of glancing through and grouping certain parts of the thought together.

d. Pay due regard to subordination, whereby certain parts taken together lead up in importance to one central or important thought.

e. The quick grasp of thoughts in units is a great aid to smooth sight-reading and rapid silent reading.

f. Interpret a sentence in view of what comes before and after.

g. As occasion arises, sound and syllabicate words.

h. Review systematically diacritical markings.

i. Study word-analysis and synthesis. Do this in the spelling lessons.

j. In this grade analysis need generally go no farther than is necessary to sustain interest and bring out a fair idea of the author's meaning.

k. The year's work should include at least three of the following books, studied well, and as many more as may be used for sight-reading. Bear in mind that *sight-reading* must be easier than studied reading.

l. The *reading* lessons should be *confined from now on to pure literature*.

m. History and travel may here be read as supplementary to other lessons, or as silent reading.

n. Keep one "Reader" as a drill-book. (See fifth-grade books.) Read at least three of the following when possible:

"Tales of the Wayside Inn;" Houghton, Mifflin & Co.

"Miles Standish;" Houghton, Mifflin & Co.

Ruskin's "King of the Golden River;" Houghton, Mifflin & Co.

"Story of the Thirteen Colonies;" American Book Company.

Cooke's "Story of Ulysses;" Public School Publishing Company.

"King Arthur and His Knights;" Rand, McNally & Co.

Church's "Greek Heroes;" Ginn & Co.

SEVENTH GRADE

a. See instructions under Grades VI and VIII.

b. If you find pupils poor readers, take easier work of preceding grades, and first of all interest them. It will be found that the classification of books by grades here given will need to be varied to suit needs of different sets of pupils.

c. The amount of critical analysis should increase from now on. Let it be for the purpose of furnishing sidelights to the beauty and meaning, rather than to dwell upon word-derivations and grammatical dissections; although occasional reference to grammatical relations may be made when it will prove to be a definite aid to getting the meaning. The uppermost idea always must be *getting* and *expressing thought*.

d. Do not neglect drill in mechanics, based on the work of the preceding grades. (See General Instructions.)

e. Read at least three of the following when possible:

"Docas, the Indian Boy of Santa Clara;" D. C. Heath & Co.

"Evangeline;" Houghton, Mifflin & Co.

"Snow Bound;" Houghton, Mifflin & Co.

Church, "Stories from Herodotus;" Ginn & Co.

Dickens, "Christmas Carol;" Educational Publishing Company.

"Stories of King Arthur's Court;" Ginn & Co.

Hawthorne, "Tales of the White Hills;" A. Flanagan & Co.

"Rip Van Winkle" and "Legend of Sleepy Hollow;" Eaton & Co.

Clark's "Stories from the Arabian Nights;" American Book Company.

"The Courtship of Miles Standish;" Houghton, Mifflin & Co.

EIGHTH GRADE

In the eighth year's work some texts are to be analyzed and discussed at length; some are to be read with considerable expedition, leaving the meaning to come as a natural result. "Silas

Marnar" should be discussed at certain points only. "Christmas Carol" requires very little analysis. "Lady of the Lake" and "Merchant of Venice" may be carefully studied, the meaning, spiritual and ethical, being brought out rather than figures of speech, although some appreciation of these should be developed. Some attention may be given to the beauty of sound in "Lady of the Lake," and to the famous quotations in Shakespeare. Analyze and compare characters briefly in passing. A preliminary reading of Church's "Story of the Iliad," Tappan's "Stories of Greek Life" is an invaluable introduction to Pope's "Iliad." Take in class-work at least three of the following when possible:

"The Talisman;" Educational Publishing Company.

"The Man Without a Country;" A. Flanagan & Co.

"Lady of the Lake;" Educational Publishing Company.

"Cricket on the Hearth;" Rand, McNally & Co.

"Jean Valjean," arranged from "Les Miserables;" Educational Publishing Co.

"Stories from Dickens;" Houghton, Mifflin & Co.

"Story of Little Nell," from "Old Curiosity Shop;" American Book Company.

Dickens' "Christmas Carol."

"Enoch Arden."

"Silas Marner."

"Vision of Sir Launfal."

"Merchant of Venice."

ILLUSTRATIVE PLANS

Synopsis of the Treatment of "Miles Standish"

(SIXTH OR SEVENTH GRADE)

1. Read the entire piece for theme.
2. Get the setting of the piece by studying the colonial customs.
 - a. Their social life.
 - b. Their indoor industries.
 - c. Their mode of warfare.
 - d. Their attitude toward Indians.
 - e. Their religious feeling.
 - f. Their hardships.
 - g. The education of the times.

The correct conception of the entire setting is necessary that the reader may see the pictures represented and present them to others in his vocal reading.

3. Divide the piece into its separate unities, getting the theme of each or the thought expressed in the unity.

- a. Each unity or paragraph must be studied intensively, seeing all the pictures separately, studying all the characters separately.
- b. Read out loud so that the hearers will get the thought brought out in the lines. See the pictures; realize the characteristics of the people. The oral reading of "Miles Standish" should bring out in the
 - First unity—The nature of the two men and their relation.
 - Second unity—The test of friendship.
 - Third unity—The struggle of love and friendship.
 - Fourth unity—The faithful fulfillment of the commission and the result.

Illustrative Plan for "Snow Bound"

(SEVENTH OR EIGHTH GRADE)

A study of a home in general, this poem, when subdivided, becomes a fine analysis of character and an appreciation of homely virtues.

Selections from the "Biographical Sketch" and Whittier's "Dedication," read before taking up this study of the poem, will give valuable assistance to an understanding of the environment of the "dear home circle" and the inner workings of their hearts.

Require each pupil to have a notebook in which shall be kept in an orderly way the words requiring study. Individually expect references to be found in the Bible, encyclopedia and dictionary. Assign the entire poem as a silent reading before beginning the analytical study. Afterwards apportion a definite amount to be covered by each day's preparation outside of class-work.

Explain what an idyll is. Touch lightly the introductory quotations, as to meaning and reason for being there. A blackboard analysis will materially aid the study. The poem easily divides itself into these four parts: "The Storm," "The Circle Around the Fire," "After the Storm," "Whittier's Farewell to His Task." These again naturally separate into parts, each having a perfect unity of its own.

1. The Storm:

a. Before the Storm.

The mute and ominous prophecies.

The nightly chores.

Effect of the weather on the inmates of the barn.

The beginning of the storm.

- b. "Snow Bound."
The world unknown.
The fun they had.
Greetings from the prisoned brutes.
Things that gave the peculiar feeling of loneliness to every-
thing.
 - c. The Fire.
Its preparation.
What things made the "coldness visible"?
What things added to the feeling of coziness?
A reflection from the poet's heart.
2. The Circle around the Fire:
- a. Our Father.
His hunting experiences, his haying and his fishing.
 - b. Our Mother.
The Indian hordes.
Her talent.
Her young days:
 The conjuring book.
 Outdoor life.
 The Quaker books.
 - c. Our Uncle.
His teachers and his wisdom.
A contented life.
His nature-stories.
 - d. The dear Aunt.
Love in her life.
Her girlhood memories.
Youthfulness.
 - e. The Elder Sister.
A life of sacrifice.
Her nature.
 - f. Our Youngest and our Dearest.
In Paradise.
The loss in all familiar things.
When the sunset gates unbar.
 - g. The Master of the District School.
His charm with us.
Boyhood.
Boarding around.
Story-telling.

- What kind of a teacher.
As Freedom's young apostle.
- h. The Not-Unfeared, Half-Welcome Guest
Personal appearance.
Striking contrasts of her character.
Her pilgrimages.
A lesson in charity.
- i. Bedtime.
Our mother's last thought.
As sleep stole on.
3. After the Storm:
Breaking roads.
The charm which Eden never lost.
The doctor.
Our reading.
All the world was ours once more.
4. Whittier's Farewell to his Task.
To be read by the teacher and briefly explained.

TEXT-BOOKS

Gordon's New Readers. D. C. Heath & Co.
Baldwin-Bender Readers. American Book Co.
Cyr Readers. Ginn & Co.

WHAT MAY BE FOUND IN THE DICTIONARY

1. The Spelling of Words.
 - a. The preferable form.
 - b. Other allowable forms, if any.
 - c. Obsolete forms varying from present usage (these for reference and not for use).
 - d. Forms recommended by and peculiar to the "Simplified Spelling Board."
2. The Capitalization of Proper Nouns and Adjectives.
3. The Division of Syllables.
4. The Position of the First and Secondary Accents.
5. The Pronunciation of Words. Inclosed in parentheses after the Spelling.
 - a. Preferable pronunciation.
 - b. Other allowable pronunciations, if any.
6. The Diacritical Markings. Over words respelled. Key at bottom of each page.

7. The Parts of Speech. Found after the Pronunciation.
8. The Irregular Plurals of Nouns. Found after the Parts of Speech.
9. The Irregular Forms of Verbs. Found after the Parts of Speech.
10. The Degrees of Adjectives. Found after the Parts of Speech.
11. The Comparisons of Adverbs. Found after the Parts of Speech.
12. The Etymologies (showing the origin of words). Inclosed in brackets following the Parts of Speech.
13. The Definitions of Words Arranged in Their Historical Order, so that the Sense Development is traceable right down to the most modern meaning.
14. Quotations Illustrating the Definitions. Found after the Definitions.
15. Synonyms, Discriminated and Compared. Found after the Definitions.
16. Encyclopedic Information.
 - a. GUIDE TO PRONUNCIATION. Found in Introduction.
 - b. ORTHOGRAPHY AND RULES FOR SPELLING. Found in Introduction.
 - c. HISTORY OF THE ENGLISH LANGUAGE. Found in Introduction.
 - d. NAMES NOTED IN FICTION.
 - e. SCRIPTURE PROPER NAMES.
 - f. ENGLISH CHRISTIAN NAMES.
 - g. CLASSICAL AND MYTHOLOGICAL NAMES.
 - h. HISTORICAL NAMES AND SUBJECTS.
 - i. RELIGIOUS NAMES AND SUBJECTS.
 - j. LATIN AND FOREIGN PHRASES.
 - k. ABBREVIATIONS.
 - l. GEOGRAPHICAL DICTIONARY. Found in the Supplement.
 - m. BIOGRAPHICAL DICTIONARY. Found in the Supplement.
 - n. SIGNS USED IN WRITING AND PRINTING. Found in the Supplement. (Astronomical, Botanical, Chemical, Mathematical, Medical, Meteorological, Miscellaneous, Monetary and Commercial, Musical, Typographical and Proof-Reading.)
 - o. ILLUSTRATIONS, GROUPED ACCORDING TO SUBJECTS. Found in the Supplement.

Reference: Webster's New International and Webster's Academic Dictionaries. American Book Company.

SCIENTIFIC TEMPERANCE

This course in scientific temperance and outline is offered by the Chicago Training School. It is intended to give a comprehensive review of the most important phases of the present temperance movement, together with the social and moral issues involved.

The course is planned to cover a period of four months, and the work presented falls naturally into four divisions, as follows: (1) physiological; (2) social and moral; (3) political and economic; (4) corrective—agencies and organizations.

The course is closely related to the other courses in the department of social service, giving the student, by its broad and sympathetic treatment, the true relation of the liquor question to social problems in general.

I. Preparatory reviews in—

1. Anatomy.
2. Physiology.
3. Psychology.
4. Eugenics.

II. Alcoholism.

1. The effects of alcohol upon the physical organization.
 - a. The alimentary tract.
 - (1) Food value.
 - (2) Poison effect.
 - b. The circulatory system.
 - c. Muscles.
 - d. Nerves.
 - e. Lungs.
 - f. Generative system.
 - g. Special organs.
 - (1) Heart, kidneys, etc.
 - (2) Organs of sense.
2. Its effect upon mental operations.
 - a. General efficiency.
 - b. The judgment.
 - c. Concentration.
 - d. Accuracy.
 - e. Memory.

3. Its effects, social and moral.
 - a. Lowering of ideals.
 - (1) In the family.
 - (2) In the neighborhood.
 - b. Menace to public health.
 - (1) In general.
 - (2) To mothers and children.
 - c. Pauperism.
 - d. Crime.

III. Temperance pedagogy.

1. Use of text, chart and lecture.
2. Use of illustrative experiments, tests, etc.

IV. Political and economic aspect of the liquor problem.

The saloon in politics.

2. The brewer in municipal politics.
3. The liquor problem in its legislative aspects.
 - a. Federal action.
 - b. State action.
 - (1) Regulation.
 - (2) Prohibition.
 - c. Local option.
4. The economics of prohibition.
 - a. As to employment of capital.
 - b. As to relations between capitalists and wage-earners.
 - c. As to national revenues.
5. A study of Denver as a typical city; liquor and immorality.

V. Corrective agencies.

1. Educative.
 - a. In public schools.
 - b. In general literature.
 - c. Through clubs and organizations.
2. Legislative.
 - a. Federal.
 - b. State.
 - c. Local.
3. Substitutive.
 - a. Coffee-houses and other meeting-places.
 - b. Clubs, etc.
 - c. Amusement centers.
 - d. Religious centers.

VI. Topics for written work.

1. Alcohol and tuberculosis.
2. Alcohol and the laborer.
3. Alcohol and the child.
4. Alcohol and social impurity.
5. The public schools and scientific temperance instruction.
6. National policies.
7. Alcohol and the public health.
8. Political influence of the saloon.
9. Personal liberty—public obligation.
10. Alcohol a poison.
11. Alcohol and crime.
12. Alcohol and tobacco.

PAMPHLETS AND SUGGESTED TEXT-BOOKS

“Alcohol and Health,” Edith Smith Davis; four pamphlets, published by N. W. C. T. U., Evanston, Ill.

“Alcohol and the Human Body;” Horsley & Sturge.

“Does it Pay?” N. W. C. T. U., Evanston, Ill.

SEWING

The specific aim of a sewing course should be to interest the students in their school-work by relating it to their home.

Start the girl upon some article within her powers, rather than keep her on abstract exercises until she can do them perfectly. Every girl should have some article or several articles which she herself needs or which are needed at home, and from the first these ought to furnish the basis of the work.

Every home can furnish an abundance of actual sewing and darning as the basis of school-work, and the parents will feel a new interest in the school when they find how closely the work is related to the home.

Compositions on cotton, flax, wool, weaving, etc., may be correlated with this work; also problems in arithmetic based upon the cutting of articles from a certain amount of material, the cost of garments, etc., thus bringing a number of subjects in close relation with the everyday home life.

SEWING BASKET should contain a pair of shears, a thimble, a paper of assorted needles, a spool of No. 60 white and a spool of red basting-thread, a tape-line, a paper of medium-sized pins, and an emery bag.

POSITION.—Sit erect, well back in the seat, both feet on the floor. Do not lean over the work, but hold the work up to the eyes. Do not fasten the work to the knee, as a stooping position soon becomes a habit.

GENERAL DIRECTIONS.—Buy the different makes of paper patterns so that the pupil may learn to read and use a pattern intelligently. Teach economic placing and cutting.

Place the thimble upon the second finger of the right hand.

Measure the thread from shoulder to shoulder.

BASTING.—Put the needle through both pieces of cloth about one-eighth inch from the right side and one-eighth inch from the edge.

Do not baste on the line where you expect to stitch, but as near it as possible.

Take up one-fourth of an inch and skip one-fourth. In loose basting a long stitch and two short ones may be used.

RUNNING STITCH.—Hold the work in the left hand between the thumb and forefinger, and with the right hand take small stitches of even length.

Use the wrist motion.

Conceal the knot on the wrong side. Fasten the thread by passing the needle through the wrong side and taking two back-stitches.

OVERCASTING.—The purpose of overcasting is to keep raw edges of cloth from raveling.

Trim off edges after the seam has been run.

Begin at the left and work to the right.

Use slanting, loose stitches, twice as far apart as they are deep.

Do not overcast a selvedge edge. Care should be taken not to draw the edges of the cloth.

OVERHANDING.—This is used in sewing together selvedge edges or folded edges.

The seam is held between the thumb and forefinger of the left hand. Commence at the right to sew. Put the needle through both edges of the seam at right angles to the seam, the needle pointed to the chest. Do not take the stitches too deep. Careful basting is necessary.

HEMMING.—Turn down about one-eighth inch along the side to be hemmed. Crease it with the thumb and forefinger. Bend the hem over the desired width. Turn the edge of the cloth before turning the hem. It is well to use a gauge of the required width. Begin at the right to hem. Take up a few threads of the cloth and a few threads of the fold, and draw the needle through. Put the needle in almost straight with the hem. Take up as little cloth as possible.

BACKSTITCHING.—This form of stitching is used when strength is required. It resembles machine-sewing.

Take two stitches in the same place when starting to fasten the thread. Do not use a knot.

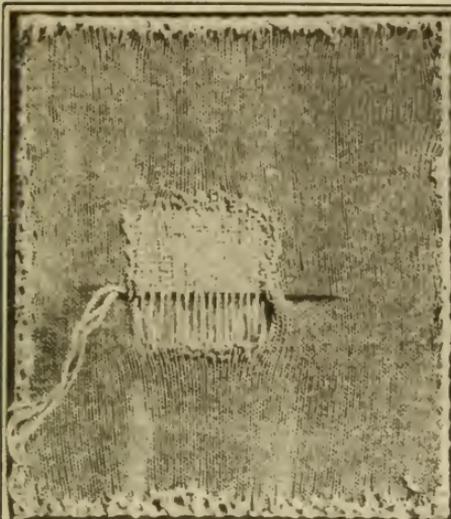
Advance the needle a stitch's length in front of the first stitch, then put the needle back in the same and advance the needle again.

COMBINATION STITCH.—This stitch consists of three little running stitches and a back-stitch over the last running stitch. It is a little stronger than the running stitch.

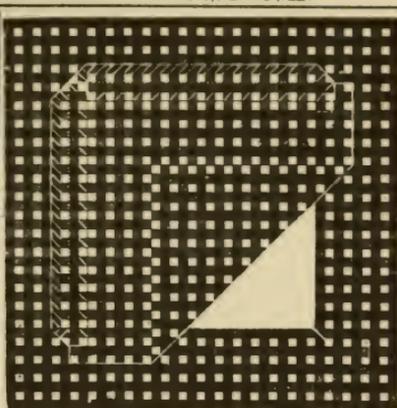
FRENCH SEAM.—You have learned all the stitches needed for French seam. Baste; run the seam; turn the seam to the wrong side; crease on the stitching with thumb-nail and forefinger of the right hand; baste along the edge to hold the seam in place;

INDUSTRIAL ARTS

Courtesy of NATIONAL SYSTEM OF INDUSTRIAL EDUCATION, PLANO, ILL.



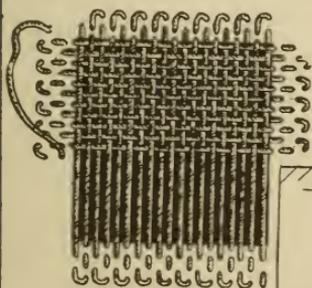
PATCHING



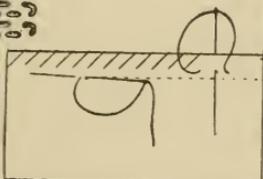
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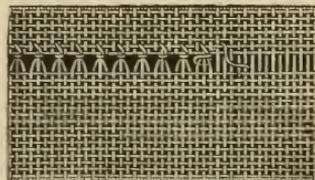
RUNNING STITCH GATHERING



DARNING



OVERCASTING BACKSTITCHING

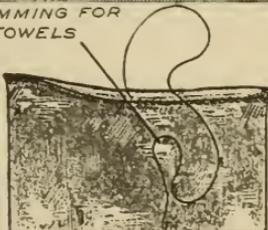


HEMMING FOR TOWELS

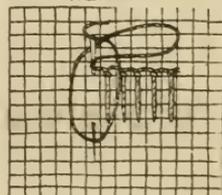


UNIFORM FOR COOKING CLASS.

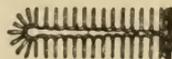
1. Apron - 2. Cap - 3. Towel - 4. Holder - 5. Bag for carrying uniform.



HEMMING



BUTTON HOLE



BUTTON HOLE

backstitch the seam; begin stitching far enough away from the turned edge so that the raw edge will not show on the right side.

BUTTON-HOLES.—Button-holes require a great deal of practice; allow the girls to practice on them at 'odd times. Cut a slit straight with the threads of the cloth. Determine how deep a stitch is necessary so that the threads will not pull out. The first stitch begins one thread beyond the end of the slit. Place the needle into the slit under the lower edge of the button-hole and draw the needle half-way through; with the needle pointing toward the chest, take up the double thread at the eye of the needle and place it under the point, passing from right to left; draw the needle and thread out, and from you, so that the twist comes to the edge of the slit; repeat; do not draw thread too tight. At the opposite side of the button-hole from where you started, spread the stitches like the sticks of a fan. Five stitches will work around the end, the third stitch being straight with the button-hole; gradually turn the button-hole while turning the corner until the opposite side is parallel with the forefinger; button-hole the opposite side, and stop when you have reached the point opposite the first stitch. Put the needle down through the first stitch taken, bringing it up on the opposite side through the last stitch. Draw the stitch tight, bringing the sides close together. To make the bar, sew four of these stitches across the end of the button-hole; then, slipping the needle under these four stitches, work button-hole stitches very closely together across the bar, having the purl or twist toward the button-hole. Put the needle down through the cloth very close to the last stitch, and fasten on the wrong side.

PATCHING.—All the worn parts which surround the parts to be patched should be cut away.

Have the warp threads of the patch run with the warp threads of the garment. Match checks, stripes or figures; clip off the corners of the patch diagonally about one-eighth inch; crease down the edge of the patch where it is to join the goods, and baste one fold edge of the patch to the folded edge of the goods; overhand the edge of one side to the patch, beginning well into the corner; remove basting and crease out the seam with the forefinger and the thumb-nail; crease down edges, baste and overhand each of the three remaining sides of the patch. Overcast the raw edges on the wrong side of the patch.

STOCKING-DARNING.—Darn on the wrong side; square hole for the legs, round hole for heel and toe. Cut away the parts that

are badly worn or weak; hold the stocking so that the ribs will be lengthwise, and begin at the right side about one-half inch from the hole; put in the warp threads; begin one-half inch below the lower part of the hole to put in the cross-threads or woof threads. Loops should be left at the end of each row to allow for shrinkage. Give special attention to the edge of the hole, passing first over and then under the edge to avoid making a ridge.

GATHERING.—Place notch in center of edge to be gathered about one-eighth inch from the edge; fasten the thread at the right side and fill the needle with small stitches; slide the stitches back off the needle when the needle is filled. When you have gathered once across, remove the needle and leave the thread on the left side unfastened. Thread the needle again, and, starting at the right side about one-eighth inch below the first gathering, run another gathering. Remove needle, and draw up the gathering threads quite closely; fasten the gathering threads by placing a pin at the end of the gathering and winding the loose ends of the threads around it.

PUTTING ON A BAND.—Cut band on the length of the goods. Place pin in center of band; remove the pin holding the gathers as directed above. Spread the gathers to reach within one-fourth inch of the edges of band; pin the edge of the band and the material gathered, and baste together; sew, using the backstitch, holding the gathers toward you; turn in the edge of band and fold over to cover the gathers, and hem down; turn in and overhand the ends and raw edges of the band.

SHEETS.—Regular sheeting can be bought. If regular sheeting is not used, overhand together the selvedge edges of two pieces of muslin. Hem at the top is usually from two and one-half to three and one-half inches in width; at the foot, from one to one and one-half inches. In making pillow-slips, sew the seams, using two running stitches and a backstitch.

FLANNEL SEAMS.—Place together the right sides of two pieces of material, and baste one-eighth inch from the edge; stitch one-fourth inch from the edge with two running stitches and a backstitch; open the seam and press it flat; make herringbone stitch over the raw edges at each side.

Herringbone stitch is a cross-stitch used to finish raw edge of flannel and other heavy materials. The stitch consists of single, alternating running stitches made first to the right and then to the left, working from you; point the needle toward you in

taking up a stitch, but work away from you; do not take too deep a stitch; the stitches on each side must be in straight rows.

PLACKET FOR UNDERSKIRTS.—On the left-hand side of the opening make a narrow hem; turn the hem toward the front, or, in other words, hem on the right side of the material instead of the wrong side; on the right-hand side of the opening make a deep hem, hemming on the wrong side of goods; place the wide hem over the narrow one, and finish at the bottom with two rows of stitching.

PLACKET FOR DRESS SKIRT.—Leave ten inches for opening; tear piece of cloth with the warp, twenty-two inches long and two inches wide; baste this piece all around the opening; stitch; on the right-hand side of the opening fold the piece over, crease through the center, and baste along seam to cover raw edge. This forms extension piece. On the left-hand side of opening crease the piece along the center, and turn the fold over on the skirt and baste to the skirt. It is desirable to cut out one thickness of the cloth. This placket is difficult at first. Practice folding on paper.

SPELLING

Since upon a knowledge of words and the ready recognition of them depends the acquisition of information in all lines, it is very important that definitely planned, thorough work in this subject be done *every day*. For this reason we recommend that the teacher, at least, shall have a *good spelling-book*. It not only offers systematic work, but is also a great time-saver.

From the first grade up special attention must be given to *sounds and values of letters*, to *syllabication*, to *correct pronunciation*, to *word-building and word-analysis*, the latter starting in the first grade with the blending of sounds into words and word-families, and continuing through the upper grades with the study of roots, prefixes and suffixes, in the derivation of words.

Always select words whose meaning is or can be brought within the child's experience.

Insist on exact pronunciation and clear articulation. Call into use the eye, the ear, the hand and the voice.

When words are placed upon the board for children to spell, write them as *units*, as they will be afterwards. Indicate syllables, if desired, by a slight, unobtrusive mark.

Require words to be spelled by syllables, occasionally pronouncing syllables.

In all lessons, spell, incidentally, difficult words which are important.

Let the spelling lessons, as far as possible, correlate with the other lessons, not losing sight of a definite central idea in the *spelling plan*. The spelling lesson should very decidedly build to the reading lesson.

FIRST YEAR

After the phonograms used in the first family have been learned, begin the formal work in spelling. Take up ten words a week, repeating the drill from day to day, adding something each day, as suggested below. Thus, aside from the sight-words learned in the reading lesson, forty new words are learned and spelled every month by the use of the word-families. We give below a suggestion as to the method of procedure.

First Day. Teach by the blending or synthetic method the *an* family, telling a little story to connect them, as:

"Today we are going to learn about a family whose name is *an*. Your family name is Smith and yours is Brown, and this

family name is *an*. *An* is the father. There are several children in this family. One is named *c-an, can*; then there is *N-an, Nan*; *D-an, Dan*; *p-an, pan*; *f-an, fan*; *r-an, ran*; *m-an, man*; *t-an, tan*; *v-an, van*."

Give only the *sounds*, not names of letters.

Drill thoroughly on the pronunciation of the sounds and words, and their recognition, repeatedly changing the order. Use this work in seat-work and in games for the day. For seat-work, let pupils build words of this family on their desks, as they see them on the board, whispering the sounds and words as they place them. For games we suggest:

CROSSING THE BROOK.—The words are placed on cards at irregular intervals on the floor. The child steps over each, calling its name and taking the card. If he fails to call a word correctly, he has wet his feet and must go back, letting someone else try.

FISHING GAME.—Place word-cards on the floor in the center of a circle formed by the children. Let them point in turn to a word, calling its name and taking the card if the word is called correctly. The one who catches the most fish wins the game.

WORD GAME.—"Who wants to be *n*?" (Giving the sound.) Choose a child. Let him take his place in the front, holding up a card with this sound on it. "Who wants to be *a*?" "*n*?" After they are all placed, each in order tells his name. Why, what word does that make? Then children guess the word.

Second Day. Drill again on pronunciation and sounding of the same words. Copy them on the board for each child of the class, letting him trace over the letters with the crayon, sounding to himself as he does so. For seat-work, let him trace over the same words written large on cards, or written with wet crayon on the desk. He may trace with seeds, coffee or pencil.

Third Day. Drill on the same words for pronunciation and sounding. Spell them from the board with the children. Review seat-work and games and board-work, bringing in the *spelling* now.

Fourth Day. Drill on sounding, pronunciation and spelling. Have pupils copy on board and spell to themselves as they write. Continue seat-work and games bearing on these words.

Fifth Day. Use pictures, actions and other suggestions for the words, and require children to spell from memory.

On this day do board-work and seat-work from memory.

Second Week. Take up another very simple family as, for instance, the *at* family. However, this may be determined largely by the manual followed in the reading lesson.

<i>a-t, at</i>	<i>N-at, Nat</i>
<i>b-at, bat</i>	<i>p-at, pat</i>
<i>f-at, fat</i>	<i>r-at, rat</i>
<i>h-at, hat</i>	<i>s-at, sat</i>
<i>m-at, mat</i>	<i>v-at, vat</i>

Review previous words, a very few at a time.

Third Week. From now on take up a new family each week, reviewing frequently. Keep a list of words taken, so that in the second year's work unnecessary repetitions may be avoided.

SECOND YEAR

Continue teaching ten words a week as in the first grade, using the more difficult phonograms arising in the second-grade reading lessons arranged by the course of study. Review frequently.

THIRD YEAR

From now on a spelling-book is of great value. Begin a systematic course of training in diacritical markings, taking them up very simply and attractively by using poetry whenever it is available, showing how these various sounds give beauty to the lines. (The "Guilford Speller" is particularly good for this work; also Rand, McNally's "Speller and Word Book.") Take long and short vowels first.

Take words grouped around a common interest, whether of sound or meaning.

Continue word-building and *sounding*.

Teach syllabication.

Teach the application of common prefixes and suffixes, as: *re, un, mis, less, er, ed, let*.

Teach simple synonyms and antonyms.

Take five words a day the first half of the year, increasing to ten in the latter half. Use words within the child's understanding. Have oral and written spelling every day.

TESTS.—Give pupils a picture; let them write all the words which the picture suggests to them.

Given a word, let pupils make as many words from it as they can. Make these competitive games.

FOURTH YEAR

Continue systematic drill on *all phonic facts* learned in previous grades.

Drill on diacritical markings, taking only one sound to a lesson.

Drill on syllabication and accent. Without giving names, take monosyllables, dissyllables and trisyllables.

Review previous prefixes and suffixes, adding *in, ab, ad, en, ful, like, ly, some*. Use them in word-building and word-analysis.

Take more difficult work in antonyms and synonyms. Here a good speller gives information as to the best selections to be made.

Teach homonyms — as *bare, bear*, etc. — correlating spelling with language lessons. Begin the teaching of the few rules which a child should know, as:

a. The effect of final silent *e* on the vowel directly preceding the consonant which it follows, as *rate, mute*, etc.

b. Effect of doubling a letter.

c. Dropping final *e* before a syllable beginning with a vowel, as in *liking, likable*, etc.

Take ten words a day, reviewing on Friday.

FIFTH AND SIXTH YEARS

Continue drill in sounding, syllabication, accent, word-analysis and word-building.

Review previous prefixes and suffixes learned. Teach the names: *roots, prefixes* and *suffixes*; also *monosyllables, dissyllables, trisyllables* and *polysyllables*.

Review the prefixes and suffixes learned, and add to them *semi, circum, con* or *cum, pre, e* or *ex, able, ant, or, ion*, and similar ones.

Repeat work in diacritical markings, using poetry for teaching the sounds.

Review previous synonyms, antonyms and homonyms, adding to them from the spelling- and language-book used.

Review rules learned, and add:

a. Rules for doubling a letter. (See Sixth and Eighth Years.)

b. Changing of *y* to *i*.

c. *c* and *g* soft before *e, i* and *y*.

d. *c* and *g* hard before *a* and *o*.

SEVENTH AND EIGHTH YEARS

Devote some time to a brief history of the English language, leading to an appreciation of the force of the Anglo-Saxon, Latin and Greek words, as well as those arising from other sources. This can be done in the language lessons with a great saving of time.

Continue a consistent study of diacritical markings, syllabication and accent.

Continue sounding words. Even in the eighth grade pupils will be found whose knowledge of the sounds and values of letters is deficient; moreover, the sounding of words in the spelling lessons will very greatly improve *pronunciation and articulation* in the reading lessons.

Word-building and word-analysis may be carried to a very interesting extent in these grades, especially after some work has been done in the history of the language. New roots, prefixes and suffixes may be learned as being Anglo-Saxon, Latin, Greek, etc., and words may be built or analyzed in view of this knowledge. Words grow in significance; words never seen before are pronounced and interpreted without difficulty; the choice of words in speaking and writing is more apt; and thus efficiency in spelling is greatly increased.

Homonyms, antonyms, synonyms and words whose meaning centers around a common interest are reviewed from previous grades, and others added requiring greater maturity of understanding.

When studying sounds and diacritical markings of letters, it is well to adapt words from other lessons. Work on one or two sounds only in one lesson. Take ten or twenty words a day (as the situation warrants), and review Friday; but take spelling and word-study systematically every day.

Before leaving these grades, the pupil should by the *inductive* method become master of the few simple rules which have a wide bearing on spelling, as:

a. Singular nouns ending in *y* preceded by a consonant change *y* to *i* and add *es* to form plural.

b. Singular nouns ending in *y* preceded by a vowel form the plural by adding *s* to the singular.

c. Words ending in silent *e* drop the *e* before taking on a new syllable beginning with a vowel; as, *cultivate*, *cultivator*; unless it be necessary to retain the *e* to keep the sound of the preceding

consonant, as in *changeable*, or to retain the character of the word, as in *hoe, hoeing*.

d. Words ending in a silent *e* retain the *e* when taking on a syllable beginning with a consonant; as, *move, movement*.

e. In monosyllables and words accented on the last syllable, a final consonant preceded by a single vowel is doubled before a suffix beginning with a vowel; as, *run, running; occur, occurring*.

f. The preceding rule does not apply when the word ends with a double consonant, or when the consonant is preceded by two vowels; as, *weak, weaken*.

Teach vowels, consonants, digraphs, diphthongs, triphthongs, and the use of equivalent letters.

See that the pupils can spell, pronounce and abbreviate properly the names of all the United States; see also that they can spell the counties and cities of Colorado.

TEXT-BOOKS

Hunt's Progressive. American Book Co.

Richard's Primary Speller. D. C. Heath & Co.

Arton's Descriptive Speller. Ginn & Co.

RECOMMENDATIONS FOR A STATE COURSE OF STUDY FOR RURAL HIGH SCHOOLS

I. Where there is but one teacher in the high school the course should be limited to two years, with the following studies:

English, two years, including literature, rhetoric and composition.

Algebra, to quadratics, one year.

Plane geometry, five books, one year.

Science, two years: physiography and elementary agriculture, first year; sanitation and hygiene, practical botany, second year.

History and civics, one and one-half years: ancient history, English history, first year; civics, half of second year.

Bookkeeping and business arithmetic, half of second year.

PROGRAM

A. M.		P. M.	
9:00- 9:10	Opening exercises	1:30-2:05	Science I
9:10- 9:50	Algebra	2:05-2:45	History II
9:50-10:30	Geometry	2:45-2:50	Recess
10:30-10:40	Recess	2:50-3:25	English I
10:40-11:20	History I	3:25-4:00	English II
11:20-12:00	Science II		

SUGGESTIONS

Omit opening exercises, and recess once a week for music, or alternate music and drawing.

Once a week omit English II to give time for manual work, which should continue after school, giving at least ninety minutes altogether.

Once a week omit English I for literary exercises, including musical numbers.

It may be found better to take an hour at noon, if pupils bring lunch, for manual work, instead of taking time after school.

Manual work should consist of simple bench-work, domestic science, agriculture. All these may be taught to all pupils, each for a third of a year, or the first two may be taught concurrently to boys and girls respectively. The agriculture should be taught in the spring, and is understood to be the practical application of the studies in physiography and botany.

II. It is a serious question whether language other than English should be taught in a high school having only two teachers; and, as a rule, two teachers will find it wise not to attempt more than a three-year course in high school. If unusual conditions exist which make a four-year course possible, the course can be planned by teachers and board in consultation with county and state superintendents.

To the above course add the following studies for a three-year course:

English, one year.

American history, with a review of civics, one year.

Physics, one year.

Algebra, through quadratics, involution and evolution and ratio and proportion, one-half year.

Review of English grammar and arithmetic, one-half year.

SUGGESTIONS

Manual work should be graded a little higher for the third-year pupils who have had the earlier manual work. Pupils who have had two years' training may do valuable work both for themselves and for the school guiding the work of the younger pupils, under the teacher's direction.

If seems best for a class of pupils, because they expect to go to a four-year high school for the last year, Latin may be substituted for the third year of English. This will enable the pupils to get two years of Latin in a four-year course. As a rule, only three years of English is required to secure a diploma in a four-year high school.

III. For the fourth year in high school add the following:

English or chemistry.

Four years of Latin.

SUGGESTIONS

The introduction of Latin, which should be begun in the first and must be begun by the third year, may necessitate a redistribution of subjects among all classes.

A program for a three- and four-year course can not be arranged without knowing what combination of subjects each teacher is to have. The four-year course contemplates at least three teachers.

Recitation periods should be at least forty-five minutes long, and manual training and laboratory periods ninety minutes.

Fifteen points' credit—that is, credit for carrying and passing each of three years in four full-year subjects (two half-year subjects to count as a full-year subject), and one year in three full-year subjects—should be the requirement for graduation in a four-year course. Sometimes it is wise for a pupil entering high school to take only three subjects the first year. A thorough grounding in the fundamentals of these three is worth much more than barely getting through with four—a record which often means failure later on. On the other hand, if a pupil carrying four studies should fail in one at some time in his course, the single failure need not prevent his graduating with his class.

Another fact about the fifteen-point requirement is that a very strong pupil who, on account of advanced age or other sufficient reason, ought not to spend four years in high school, by taking five studies a year could graduate in three years.

REQUIRED STUDIES

English, and at least three years of that, should be required of all for graduation. The other twelve points should be elective. Pupils preparing for special work in college or in life, or in both, will be limited in their election. The teacher or principal should see that, unless there are adequate reasons in the temperament or ability of the pupil, each one should have, besides three years of English, two years of mathematics, one year of history and one year of science. A course as well balanced as possible is to be desired. But in any case where any study in such a course does not satisfy the needs of the child at the time, and gives little or no promise of satisfying his future needs, that study should not be required of that child.

Finally, it is the work of the high school to train boys and girls into men and women. This is indeed the work of the whole public-school system; the only sense in which it is peculiarly the work of the high school is that at the high-school age the boys and girls are coming nearer to manhood and womanhood. Manhood and womanhood manifest itself in doing as well as one can, better today than yesterday, the work that one finds to do. Ordinarily, such manhood and womanhood is attained by doing the work assigned in school. And yet, "God," says Lawrence Sterne, "tempers the wind to the shorn lamb." If this is true, it justifies the teacher in tempering the course of study to the limitations and to the endowments of the child.

TEACHERS' READING CIRCLE—1912-1913

COLORADO READING CIRCLE

Organized under the Direction of the State Teachers' Association

MEMBERS OF BOARD

HELEN M. WIXSON
State Capitol Building, Denver

RALPH S. PITTS
130 Grant Street, Denver

PEARL L. MOORE
Fort Collins

GEORGE L. HESS
First National Bank Building, Denver

The Teachers' Reading Circle is a permanent part of the state school system. It is performing a work of its own, and every progressive teacher should read the books adopted. In order to improve, we must read with a definite purpose in view, and by reading the books of the Reading Circle teachers will not only improve, but they will increase their professional interest and enthusiasm.

The Reading Circle Board appeals to the county and city superintendents and principals, and to the teachers generally, to unite in furthering this means of growth and improvement.

An outline will be furnished each member of the Reading Circle by the state superintendent. County superintendents shall award the certificates of reading to all members of the circle who return satisfactory answers to the questions issued on each book.

The board would suggest that the county superintendents make the reading of these books a part of the professional work required for the renewal of teachers' certificates.

COUNTY SUPERINTENDENTS' CO-OPERATION

We here express our sincere appreciation of the co-operation and support that has been shown the Reading Circle work by the county superintendents. We solicit a continuance of your kindness, because the books offered are just such books as you should be pleased to urge your teachers to read.

We hope you will take time at your institute to explain this work and to urge your teachers to buy the books.

TEACHERS' READING CIRCLE BOOKS, 1912-1913

White's School Management and Moral Training.

Scott's Social Education.

Halligan's Fundamentals of Agriculture.

These books are subject to yearly change.

THE COLORADO SCHOOL JOURNAL

The Colorado School Journal for a number of years has given space to the Teachers' Reading Circle.

The board desires here to recognize the courtesy thus extended and to announce that, in view of the fact that the same kind offer has been made for the future, the articles on Reading Circle work will continue. These articles are helpful to the many patrons of the *Journal* and the Reading Circle.

PUPILS' READING CIRCLE BOOKS

Among the books selected for the Pupils' Reading Circle many old favorites will be found, with some valuable additions. These books have been carefully selected, with the hope that school directors may purchase them and add them to the libraries of our schools. We also give a suggested library list, which we recommend.

INFORMATION ABOUT THE READING CIRCLE

For circulars, and for further information in regard to the Reading Circle and its work, address

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,
DENVER, COLORADO.

TRAVELING LIBRARIES

The Colorado Traveling Library Commission will provide books for the free use of small libraries, shipped in strong, wooden case, the only expense to the school district being the payment of the necessary freight or express charges. Teachers or school officers, desiring to secure the use of one of these traveling libraries, should address the

SECRETARY OF THE COLORADO TRAVELING LIBRARY COMMISSION,
STATE CAPITOL,

DENVER, COLORADO.

SCHOOL LIBRARIES

This course of study should be supplemented by good dictionaries and other reference-books.

The extent of the equipment depends upon the size of the school and nationality of the pupils, as well as upon the funds available for the purpose.

A good reference library may be started at small expense, as publishers make a special rate for school libraries, and the books to be obtained are reliable and attractive.

Publications of the United States government can be obtained free of charge through our representatives at Washington. Pamphlets issued by the bureaus of the United States Department of Agriculture may be obtained free of charge by application to the bureau issuing them.

Many railroads and steamship companies, as well as the various chambers of commerce, distribute illustrated advertising literature, to be obtained for the asking, that is of great value in geography classes. Some of the information contained in this advertising matter is difficult to find elsewhere. To begin one of these valuable collections, consult the advertisements of the various railroads and steamship lines, and write to the chambers of commerce of different towns and cities.

State publications may be obtained on application.

Throughout this course numerous lists of books are recommended. It will not be possible for schools to secure all of these, but teachers can accomplish much in this direction, if additional books are purchased each year.

A list of carefully selected books is given, so that teachers and directors may be aided in making a choice of books for their libraries. If no library exists in your school, establish one this year, and thus enroll among the progressive schools which seek to enlarge their opportunities.

PUPILS' READING CIRCLE BOOKS—1912-1913

PRICES F. O. B. DENVER

FIRST GROUP

First and Second Grades

Rhymes and Stories, M. F. Lansing (Ginn & Co.).....	\$0.32
The Bender Primer, Ida C. Bender (Charles E. Merrill & Co.).....	.27
Hero Folk of Ancient Britain, Sara E. Wiltse (Ginn & Co.).....	.41
Somebody's Little Girl, Martha Young (Hinds, Noble & Eldredge).....	.50

\$1.50

SECOND GROUP

Third and Fourth Grades

Children of the Cliff, Wiley & Edick (D. Appleton & Co.).....	\$0.27
Robinson Crusoe, retold, James Baldwin (American Book Company).....	.32
The Jungle Book, Rudyard Kipling (The Century Co.).....	1.12
Old Stories of the East, James Baldwin (American Book Company).....	.41

\$2.12

THIRD GROUP

Fifth and Sixth Grades

Heroes and Greathearts, John T. Dale (D. C. Heath & Co.).....	\$0.54
Tales of Shakespeare, Charles and Mary Lamb (Ginn & Co.).....	.36
Tan and Teckle, Charles Lee Bryson (Fleming H. Revell).....	.68
Stories of Brave Dogs, edited by M. H. Carter (The Century Company).....	.58
Cave, Mound and Lake Dwellers, Florence Holbrook (D. C. Heath & Co.).....	.36

\$2.52

FOURTH GROUP

Seventh and Eighth Grades

The Perfect Tribute, Mary Shipman Andrews (Charles Scribner's Sons).....	\$0.45
Abraham Lincoln, James Baldwin (American Book Company).....	.54
A Dickens Reader, Ella M. Powers (Houghton, Mifflin & Co.).....	.36
Pathbreakers from River to Ocean, Grace Raymond Hebbard (Riverside Press).....	.68
The Quest of the Four-Leaved Clover, Walter Taylor Field (Ginn & Co.).....	.36
Jacqueline of the Carrier Pigeons, Augusta H. Seaman (Sturgis & Walton).....	.77
Arabian Nights, M. Clark (American Book Company).....	.41
Source Reader No. 3, A. B. Hart (The Macmillan Company).....	.54

\$4.11

These books are subject to yearly change.

BOYS' AND GIRLS' CLUBS

ORGANIZATION

The organization of boys' and girls' clubs is simple. It is as follows:

SCHOOL DISTRICT CLUBS

The teacher is the manager of the club.

The officers are generally a president, vice-president and secretary.

The club should be a joint club of boys and girls together, generally known as The School Improvement Club.

The object of a club is to stimulate an interest in some particular line of work pertaining to the home and school life of the pupils.

A boys' club is generally an experiment club for work in some particular line in agriculture or manual training. A girls' club is usually a home culture club organized for some special line of work in domestic art, such as cooking, sewing or flower culture.

The names and addresses of the club members should be sent by the teacher to the county superintendent, and he should be informed of the nature of the work in which members are interested.

The work of the club is done largely at home, out of school hours, and during the summer vacation.

The time and character of the meetings, programs and exhibits of work done should be arranged by the teacher according to the nature of the work undertaken.

COUNTY ORGANIZATION

The county superintendent is the manager.

The clubs are generally known as Boys' Experiment Clubs, and Girls' Home Culture Clubs or Domestic Science Clubs.

A county meeting for organization is generally held to which teachers are asked to send elected delegates from their respective districts.

Officers are elected as in the district clubs.

The work taken up depends upon the agricultural and home interests of the county.

STATE ORGANIZATION

The state superintendent is manager of the state organization.

The officers are elected as in the county and district clubs.

The state manager works largely through the county managers. Full particulars are given on application to the state superintendent.

FLAG RITUAL

PREPARED BY DR. JOHN GRASSE

The following patriotic service is to be committed to memory and used upon all patriotic anniversaries and occasions by the elementary and high schools. The extent and frequency of its use in the elementary grades will be determined by the principal.

First—Color-bearer enters room carrying the flag. The pupils all rise to their feet and remain standing until the flag leaves the room.

(It is suggested that as much form as possible be given to the matter of bringing the flag into the room and taking it out again. It is more impressive to have a color guard, properly drilled, accompany the color-bearer, and all enter the room to the tap of a drum or the music of a piano. If there is a drummer or a trumpeter among the pupils, the assembly may be sounded in the hall before the exercises begin. One color guard can be used to do the work for all the grammar- or high-school grades in the building.)

Second—Salute the flag: "We give our hands, our heads, and our hearts, to our country and to our flag."

(At the command "Salute the flag," the regular army flag salute is given by raising the right hand briskly to the forehead above the right eye, and then bringing the arm to the side.)

Third—Questions and Answers.

Q.: Why do we salute the flag?

A.: Because we desire to honor it.

Q.: Why do we honor it?

A.: Because it stands for liberty, justice and equal opportunities for all those who live under its folds.

Q.: How can we best show our devotion to the flag?

A.: By becoming law-abiding and honest citizens of our country.

Q.: Who are the enemies to our flag?

A.: Every person who strikes at our flag by force of arms or by breaking the laws that have been made to preserve our liberties. Those who violate a public trust are even more dangerous enemies than those who openly fire upon our flag.

OUR DUTY

Q.: What are our duties as citizens?

A.: Always to defend the honor of the flag at the ballot box; never to sell or buy votes, or permit the election laws to be broken

if we can prevent; not to remain silent if we know of dishonesty in public affairs; but to put forth every effort for the punishment of those who are guilty of such crimes.

Above all, to remember that we are American citizens, whose duty it is to place the welfare of our country above greed or ambition.

Fourth—Singing of “America.”

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