KING'S GEOGRAPHIES

ELEMENTARY GEOGRAPHY

LOTHROP PUBLISHING COMPANY

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JAPANESE CHILDREN

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A TEXT-BOOK FOR CHILDREN

BY

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PREFACE

SCIENCE declares that the brain develops through the senses and by action. Sensations lead to movement. A child sees an object and at once desires to approach or take it. By seeing, hearing, tasting, touching, and moving, the child's brain grows slowly in the power to think and reason. Reasoning power, however, comes later than that of observation.

Sense knowledge is gained by the mind of the child coming in contact with objects directly and not through the medium of another mind. Spencer says in his "Education," "A child's restless observation, instead of being ignored or checked, should be diligently administered to, and made as accurate and complete as possible." Sully says, "First-hand knowledge of things through personal inspection is worth far more than any second-hand account of them by description."

In the report of the "Committee of Ten" are found these words: —

"Observation should go before all other forms of geographical study and prepare the way for them; its object being (1) to develop the power and habit of geographic observation, (2) to give the pupils true and vivid basal ideas, and (3) to arouse the spirit of inquiry and thirst for geographical knowledge."

The report of the New England Superintendents' Committee on Geography contains the following: —

"The teacher needs to keep constantly in mind that ideas gained from local objects and relations are the vital condition for imagining distant conditions.

"Pictures are used to recall past experiences with nature and human life and to stimulate to new thought."

The natural order, then, for children to pursue in the study of geography is: —

1. Field work, or observation of natural phenomena about the home and the schoolhouse, together with study of pictures and oral recitation.

2. More field work, with reading and writing about the objects observed, or about similar objects.

3. Careful study, with use of comparison and reasoning to arrive at geographical truths; more reading, longer excursions, followed by illustrated written work.

In other words, object and concrete study should precede the study of definitions and abstract and didactic statements. In order to know about the world abroad, children must first know from observation the world at home. Observation and the study of pictures will help the child's imagination.

The first steps, observation and field work, should be made prominent in the first year of the geography course; the second steps, in the second year; the third steps, during subsequent years. In this arrangement, careful attention has been paid to the children's activities.

Hitherto, in the preparation of primary and elementary geographies, these fundamental principles of child growth have been somewhat systematically ignored. Little difference has been made in style and material between the elementary and the advanced geographies. In fact, the first book has usually been less interesting to children than the second, because it has been made more condensed and abstract. Is it any wonder, then, that children have not often learned from text-books to like this charming study?

The geographical reader, however, has presented the subject in the concrete, more in strict agreement with children's minds and taste, and hence has become very popular.

After thirty years' study of children in school and at home, and after much experimenting in teaching geography, the author ventures to place before the public an elementary book prepared from the child's standpoint and in accordance with his growth and nature. The hope is that it may make children love geography — not hate it.

Here home, concrete, and journey geography are made prominent features. A field, a park, a hill, a river, a prairie, is visited, described, and pictured by the camera,

and made real to the children, as a basis of further study, by an actual lesson in the field with the teacher.

Children naturally prefer types to generalities; therefore a lesson is devoted to a typical mountain, river, coast-line, and valley, in place of general descriptions of such natural objects.

Children are also fond of the personal element and the story form; for this reason a real teacher and real classes are employed in the text. For the same reason the style in Part IV, or in the journeys, is that of the traveller telling his experiences. This method of presentation will be found to help the memory wonderfully, because interest is enlisted.

The almost total absence of small type has made it necessary to increase the size of the book by a few pages, but only the usual amount of matter is presented. By the use of large type this is given in a more attractive and useful form. Judicious selection has been necessary. The selections have been made in the interest of the children rather than of adults.

To help teachers and pupils in needed economy of time, to increase the power of understanding, and to make the work of learning easier, geography is here systematically correlated with nature study and composition in easy language and field lessons.

The author and publishers have spared neither pains nor expense with the illustrations, because the children are so dependent upon them for what they learn in this subject. The pictures have been made large in order that they may be the more fully seen and studied under the guidance of the teacher.

After careful consideration, the best half-tone process has been selected, for the reason that it presents the appearance of nature more accurately than the wood-engraving process. The illustrations are made from photographs, more than half of which were taken by the author especially for this book. Photographs of children and adults of many different nationalities are frequently introduced. Photographs are here, for the first time in a geography, exclusively used as a basis for the pictures of wild animals. The natural love of children for color is ministered to in the handsome colored plates which embellish the work.

Attention is called to the number and excellence of the maps made by the well-known engravers, the Matthews-Northrup Co. of Buffalo, N.Y. The clearness and softness of tone meet all reasonable expectations. The political maps clearly show the slopes by the increasing thickness of the lines representing the rivers, and they show the elevations by the shading. Generous space has been given to the great cities of the world, and, to aid the children in their imaginary journeys to these cities, excellent outline maps have been made a feature of the book.

Great care has been exercised that statements should be accurate and up to date. So many books and articles have been consulted in the preparation of this book that it is practically impossible to give credit where it belongs. The material, which has been freely used, is here acknowledged, in a general way, with sincere gratitude.

The author has been very fortunate in the kind and generous help rendered him in the preparation of this volume.

Manuscript and proof have been read and criticised by such well-known educators as, —

Mr. M. T. Pritchard, Everett School, Boston.

Mr. J. C. Lyford, Winslow Grammar School, Worcester, Mass.

Miss Mary C. Mellyn, Boston Normal School.

Professor William C. Moore, State Normal School, Salem, Mass.

Mr. Albert E. King, Brooklyn High School, N.Y.

Professor Edward M. Lehnerts, Editor of the *Journal of Geography*, and Instructor in Geography, State Normal School, Winona, Minn.

Assistance has been rendered by such practical teachers as Miss Abbie G. Abbott, Miss Lucy Hamlin, and Miss Lucy H. Littlefield, who have taught geography as herein described.

Mrs. Gratia Cobb King has been, throughout, the unfailing helper and wise critic.

Acknowledgment is here made of indebtedness to the Santa Fé Railroad, the American Baptist Missionary Union, Boston, and Miss Emma E. Harvey of Council Grove, Kan., for the use of photographs; also to S. R. Stoddard of Glens Falls, N.Y., for the use of copyrighted photographs.

TABLE OF CONTENTS

PART I

HOME GEOGRAPHY BY OBSERVATION

PART II

GEOGRAPHY THROUGH TYPE FORMS

PART III

THE EARTH AS A WHOLE

PART IV

JOURNEY GEOGRAPHY

IN NORTH AMERICA

IN SOUTH AMERICA

IN EUROPE

IN AFRICA

IN ASIA AND AUSTRALIA

DIRECTIONS TO TEACHERS

This book is so simple in its construction and appeals in such a natural way to the children that it needs no manual to tell experienced teachers how to use it. A few hints, however, may be helpful to young teachers.

In General. — This book may be used for both reading and study. Let the children read a lesson and then tell orally, in their own language, what they have read. In this exercise allow the children to substitute their own teacher's name for that of Miss Hale. Encourage them to examine the pictures, and to use their imagination as they read. The pictures will naturally form good topics for talk and discussion. All of the large pictures, as well as the few specially marked, may be used for picture studies.

Constantly compare the descriptions and pictures of home and type forms with the forms found around the schoolhouse where this book is used. The similarities and the differences will be easily noted, especially if teacher and class visit the home scenes and carefully observe the conditions.

The intelligence of the teacher is relied upon to explain, in a few cases, new words, terms, and diagrams.

A few map questions are given to aid the teacher in making others. Encourage the children to make map questions.

The teacher is strongly urged to carry on the language work with every lesson, thereby economizing time, fixing facts in memory by means of reproduction, and giving the children something to do.

The language lesson is sometimes omitted in order to give the teacher an opportunity to introduce her own lesson.

Though the lessons are arranged in what seems the most logical order, teachers should not hesitate to change the order to suit the season or locality.

Part I. — Lessons 1, 2. If no park or field is convenient to the schoolhouse, a road or part of a street will answer. Trees are excellent objects for outdoor study and observation.

Many of the maps, profiles, and diagrams have purposely been made very simple as models for the first year's work of this grade.

3. It is an excellent practice to have the children point in various directions; to point to their homes and tell the direction; to the church, town-hall, etc.

5. It will help the children to understand a profile if the teacher will illustrate a section with clay, or moulding sand, an apple, an orange, or a potato.

6. Italics are occasionally used for new words and for parts which some teachers may desire to have memorized.

7, 8. It is hoped that the teacher will perform the simple experiments herein described.

9. The teacher is advised to take only a part of her class at one time on the rainy-day excursion.

10. The weather chart should at first be simplified by omitting some of the columns. The teacher will do well to have the chart, for the first week, kept on the blackboard under her supervision.

11. The teacher may take up each different part of this lesson in its proper season. The diagrams illustrating the effect of the rays of the sun at different angles may need a word of explanation from the teacher.

12. When taking a class to a city or a village, be careful not to undertake too much in one day.

14. If the ocean cannot be reached, a lake or a pond makes a good substitute.

Part II. — Lesson 15. After reading about the trip to the mountain, the class will be eager to climb some neighboring elevation and make notes on the way.

16. Any body of moving water will be worth studying if no large river is near at hand.

Other type forms, as a bay, an island, a plateau, a ridge, a plain, or an ocean, may be found near the school and easily observed.

Part III. — If the teacher will perform before the class the various experiments mentioned in this part, it will greatly increase the interest of the pupils. The attention of the class should frequently be called to the figures, maps, and pictures used in these lessons. Encourage the children to draw as many of the figures as possible.

Part IV. — Require the children to consult the map while following these journeys; to tell what they have learned as they read a paragraph or part of a lesson; and to write out a summary of the lesson after the reading and study. Thus their attention and activity will be exercised and the statements will be readily retained. Encourage the children to use their imagination and to follow the travellers in their various journeys by land and sea.

HOME GEOGRAPHY BY OBSERVATION

PART I

1. THE PARK

THE children in Miss Hale's class in school were always glad when she told them they might put away their books and go with her for a lesson out of doors. One June day she took them to a large park in the city not far from the school. Each child had a blank-book in which to take notes and make sketches. A short ride in the cars brought them to the park. How green and beautiful it was after the dusty streets! Miss Hale told them that it was owned and kept in order by the city, so that the people could enjoy the grass and trees and breathe the pure air.

"You see," said Miss Hale, "with what care the ground is laid out to make it beautiful to look at and also useful. Paths run in and out among the trees. Think why they are made. Here and there we shall find a drinking fountain." When the children were walk-

Trees in the Park

ing over a low piece of ground, Miss Hale pointed out some higher places beyond. "That difference in the ground is very common in most parks, streets, and other parts of the earth," she said. "Come with me to the higher part and notice how the ground slopes up to it.

"Let us climb to the top and see the fine view of the park. You will be able to see the houses on its very edge." Large trees grew on this hill, and when they reached the highest point Miss Hale showed them the little pond in the distance, where some of them sailed their boats. John said he thought views were always prettier if they had water in them. That very afternoon children were sailing their boats across this pond and playing on the edge of it. A large boy came near the pond and threw a stick into the water; immediately his Newfoundland dog jumped in and swam out for the stick, which he brought to his master. Then the children all talked about the usefulness of water as well as its beauty.

Fountain and Trees

Flowers and Shrubbery

With a little help from the teacher the pupils found several kinds of trees around the pond, and in other parts of the park. There were elms and maples and a few chestnuts.

Leaving the trees, they came to a fountain among flowering shrubs. Here they had a little talk about flowers. They learned the names of some of them and made a fine page in their books, telling about the flowers, and making drawings of them and their leaves. Where a few weeks ago tulips and hyacinths were blooming, they now found handsome beds of pansies, roses, geraniums, and other summer flowers. They also drew branches of the shrubs to show how they grew. As they were walking they frightened a bird from the bushes and spent some time trying to find its nest. Miss Hale said it was a cat-bird, and all the children heard its cry, which is something like a cat's. There were some robins and many sparrows and blackbirds in the park.

"We have been observing today," said Miss Hale, "*a part of the surface of the earth and the life upon it.* There is much more to learn about these things. Most of the food which man needs comes from animals, trees, and plants. From cattle we get our meat, and the hen gives us eggs; trees furnish fruit, and the seeds of plants like wheat supply flour from which bread is made."

On their return through the park to the car, the class came to a statue placed there in honor of the soldiers who fought in the Civil War. They also noticed what the people were doing to enjoy themselves in this lovely spot.

LANGUAGE LESSON

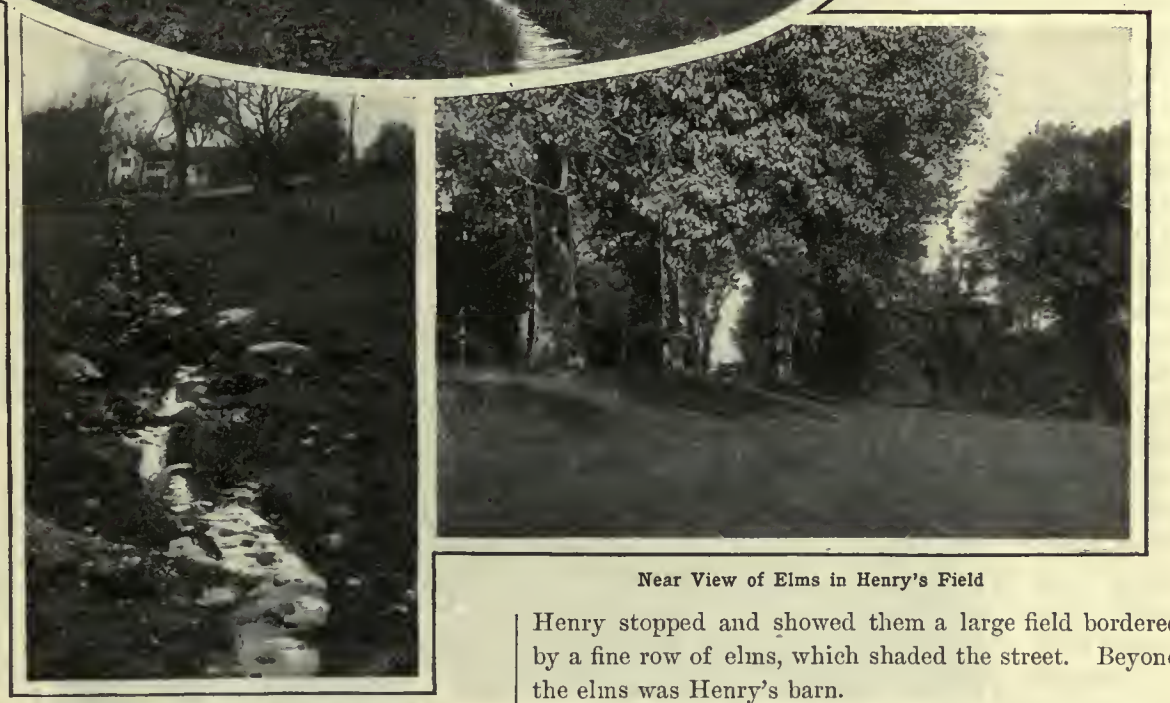
Write answers to these questions: —

How did the children reach the park?
How did it look to them?
Why do parks have paths?
Where were the trees?
Tell about the height of different parts of the park.
Did the children find any water? Tell about it.
What kinds of trees and flowers do you think they found?
What statue did they see? What birds did they find?
Do you think the class enjoyed the trip?
Tell what you see in the pictures, and name those on the first page.

FIELD WORK

Write a short account of a park near your school which you have visited.

HENRY'S FIELD: Elms on left and in background, Brook in centre, Slope and Divide on right, and Slope on left



Near View of Elms in Henry's Field

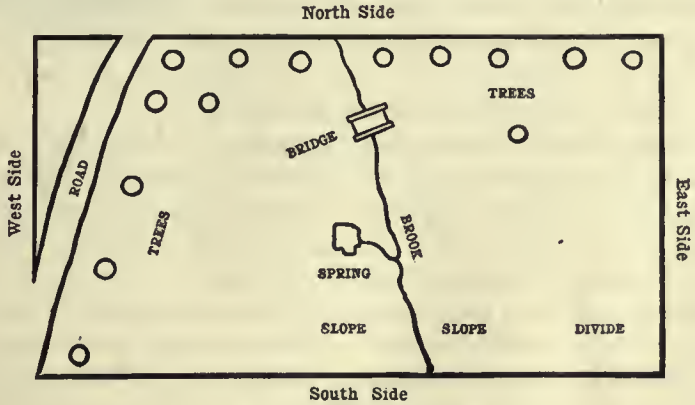
Near View of Brook and Cascades

2. HENRY'S FIELD

One day Miss Hale took the children for a short walk after school. She carried her camera, and promised to take some pictures. Henry, one of the class, wished to show them his field; so he led the way down Main Street toward his home. When they came to a place where the street ran along the side of a hill, Henry stopped and showed them a large field bordered by a fine row of elms, which shaded the street. Beyond the elms was Henry's barn.

"You all know," said Miss Hale, "that this open space is called a *field*. Some of you have often played ball here. This field is a part of the surface or outside of the earth, and we must try to learn something about it." Then she asked them to think of some differences between the field and the park. Here are the ones Henry gave: —

"The grass in the park was cut very short, and the ground was rolled to make it smooth. In this field the grass is not cut, and the ground is uneven and rough. We do not



Map of Henry's Field

find walks laid out in the field, and there are not so many trees and shrubs as in the park. The trees are not trimmed, and no flowers are planted in the field."

"If the field were moist or marshy land," said Miss Hale, "and level, it would be called in some places a *meadow*. A field may be level, or it may be like this one, with many ups and downs in it, and even run up on the side of a hill. We expect to find grass in a meadow, while in a field we may also find grass, or, in its place, crops of grain or potatoes. This field has grass now in all parts of it. The land slopes so much that we can see nearly every part of it from this one corner where we stand." Henry said it was oblong in shape. "I see a brook flowing through the centre," said John, "and near the fence on one side is a group of trees. The cows will stand under them, when the sun is hot, to keep cool." Look at the pictures of the trees and the map of the field.

Henry's Barn

A Meadow

The Spring

The Falls

They all had a good run over to the brook, and Miss Hale followed them. They found it in the lowest part of the field, and the land sloped down to it on each side. Miss Hale said a low place between higher ones was called a *valley*. "Then," said Mary, "the brook runs through a valley." "When it rains," said Miss Hale, "the water flows down into the brook from both sides, and that is the way the brook is fed. See how it moves along between its grassy sides or banks, and flows around the large stones and over the small ones. In some places it makes little pools and almost stands still. It runs faster where the land slopes much, and slower where it is more nearly level. If you followed it, you would find it joining another large brook in the field yonder. The bottom of the stream is called its *bed*. You can see that the brook is constantly changing its direction or *course*, now turning to the right, now to the left. This is because it meets some hard thing like a stone in its path and turns aside to get around it, as a boy might. When a stream flows through flat land it turns in a way to make the letter S. In some places the bed is soft mud, in others gravel and sand, with a few hard stones."

The children found a pool of water somewhat higher up than the brook, which was very clear and filled a little basin a foot or more deep. All around it the grass was green, and wild flowers grew near by. Miss Hale showed them that the basin could not hold all the water. "Some of it runs out," said she. "Where does it go?"

"It runs down to the brook," said a little girl, and they all saw it flowing. Miss Hale then told them that the water came up out of the earth, and the pool was called a *spring*. It is also called a spring when the water bubbles up out of the ground and runs away without

making a pool. "The cows have been here to drink," Miss Hale said. "You can see their tracks all around. The little stream flowing from the pool is a *branch* of the brook."

Next the children walked to a place where the water fell down over some large stones, making what is called a *water-fall*. If the water did not fall so straight and so suddenly, but instead went more gradually down over the stones, it would make, not a fall, but a *cascade*. All crossed over now to the other side of the brook, and walked up to the higher part of the field. Here they could again see that the land sloped toward the brook from both sides, so that the rainwater must run into it. Miss Hale then found a place where the land sloped away from the brook, making the rain flow into another stream. The land or ridge separating two streams is called a *water-parting* or *divide*.

They had a lesson on the trees around them, and you should have seen the sketches they made!

The teacher pointed out the different parts of a tree — its roots under the ground, the trunk large and straight, the bark for covering, the branches, the twigs or little branches, and then the leaves which once were only tiny buds. She told them about the sap which in springtime runs up through little pipes or tubes under the bark out to the smallest leaf, and feeds the whole tree through the spring and summer. The sap runs back again to the roots in the fall. The solid part of the tree under the bark is the wood which makes lumber. Standing under one of the tall elms the children noticed that the large branches came out from the trunk low down, grew upward, and formed a spreading or umbrella-like top, the boughs drooping over in graceful curves. The leaves were simple, unequal-sided, and not very large. The bark was rather rough, especially on the trunk. The elm was the tallest of the three trees.

Elm and Maple in Summer

Elm and Maple in Winter

The oriole likes the elm tree for his hanging nest because the branches are long and slender and swing in the wind, thus protecting his home from enemies. He is very gay in his black and yellow feathers and may be seen darting in and out among the elm leaves, whistling gayly all the time.

As the class drew near the maple tree, they noticed that the branches grew up in a way to make the tree less spreading than the elm, and more egg-shaped. The small end of the egg is usually uppermost. The direction and growth of the branches of trees may easily be seen in winter when the leaves have fallen. The maple leaf they found to be pointed at the end and to have several lobes and sharp notches. The bark of the maple was fairly smooth.

Nuts are the seeds of trees or shrubs. Mary said the seeds of the oak were called acorns. John told how the squirrels like acorns and the nuts of the chestnut tree. Seeds of trees are not always called nuts. The seeds of elms and maples have wings to make them fly about. The maple may easily be grown from the seed, but the growth is slow.

The robin loves the maple tree and very often builds his nest there, safely out of sight among the thick leaves. Early every morning he wakes and sings a sweet, happy song.

Miss Hale then said, "In the spring maple sugar is made from the sweet sap of the maple. The leaves of the red maple turn to bright colors in the autumn, and make the scenery in many parts of the eastern states very beautiful. Many trees like those we see in this park shed their leaves in the fall.

"Those having needle-like leaves which keep green all the year are called evergreens. The commonest of these are pines, hemlocks, firs, and cedars.

"There are in some parts of the world trees several hundred feet high, and so large that a house can be built

on a single trunk when it is sawed off. There are trees whose leaves grow only at the top of the trunk, and each of these leaves is large enough to give shade to a dozen children.

"You will be told about trees that supply clothing, medicine, bread, pudding, milk, and soap. We have many kinds of fruit trees, besides all the different plants which furnish us food and clothing. You will learn more about these as you go on in the study.

"Trees and plants, like animals, need good food. This food is found in rich loam. They also need water, air, sunshine, and heat. Most plants and trees do not grow all through the year. They do their work in spring and summer, and rest in winter. Such trees drop their leaves in the fall, and their branches are bare until the warm sun makes the sap run up from the roots in the spring. Then the trees begin to grow again and put forth leaves."

So the children studied the field, which is a part of the surface of the earth, and learned many things about it. This kind of study is called *Geography*, which means a description of the surface of the earth as the home of plants, animals, and man.

FIELD WORK

Answer these questions about another field, brook, short street, or road which you have seen: —

How did you reach the place?

What did you see there?

What can you tell about the grass? The trees? The stones? The animals? The birds? The people?

What was around the field?

Make a drawing of your field, street, or brook.

3. DIRECTION

The next day Miss Hale went into the yard before nine o'clock, and called her geography class about her. She asked them to lead her to the side of the building upon which the sun was shining most brightly. When they reached that side they pointed toward the sun, and then away from the sun.

Then the teacher asked the children to face the sun and raise their arms from the side, and point with each hand, noticing toward what object in the yard each hand pointed. The side of the schoolhouse where they stood was called "the rising-sun side." They noticed

John's Shadow at Nine o'Clock

John's Shadow at Twelve o'Clock

The Shadows at Noon of a Tree and a Boy Taller than John

LANGUAGE LESSON

Write about the field, and use these words: —

After school, route, row of trees, field, meadow, surface, slope, shape, group of trees, brook, valley, spring, course of the brook, another slope, water-parting, game, Henry's barn.

Study the pictures.

Call your story "My Trip to Henry's Field."

Tell about two trees growing near your school.

Copy the drawing or map of Henry's field.

the direction of the shadows cast by the trees and posts at this time. John stood alone, and the children noticed that his shadow was in a line with the shadow of the tree. Miss Hale took a photograph of John and his shadow.

Afterward, in the schoolroom, the teacher asked each pupil to point toward the rising sun. Then she said, "*The direction toward the rising sun is always called East.*"

Not true but twice in a year.

The pupils who lived in that direction from the schoolhouse were asked to point toward their homes, and several did so. Miss Hale then wrote East on the side of the room nearest the rising sun.

At recess the children noticed that the sun was higher in the sky.

A little before twelve o'clock the class went out into the yard again, and found that they could not see the sun very well from the east side of the building, where they were in the morning, so they moved to the side where the sun shone most clearly and directly.

Sun casting Shadow at Noon

Again John stood where the sun shone brightly, and the children noticed the change in the direction of his shadow and that of the tree. John's shadow was a little shorter.

All the pupils pointed in the direction that the shadow pointed.

"On which side of John, with regard to the sun, is his shadow?"

"On the side opposite the sun."

"Point in that direction and remember this:

"*The direction in which the shadow falls at noon in the northern part of the world is called North. The direction toward the sun at noon is called South.*"

The next day, at noon, Miss Hale placed an upright stick on a desk where the sun shone. The children noticed that the shadow it cast in the room pointed north and south. The direction of the shadow — north and south—Miss Hale marked on the floor with chalk.

At the close of school in the afternoon the children were asked to observe through which window the sun was shining, and they pointed from their seats toward the sun.

"*The direction toward the setting sun is called West,*" said Miss Hale.

She then drew a line at right angles across the chalk line on the floor, and as the children directed she wrote the words East, West, North, and South on the lines.

Mary stood on the chalk cross, facing the setting sun, and raised her arms and pointed. As she did so she said, "My right arm points to the north and my left to the south."

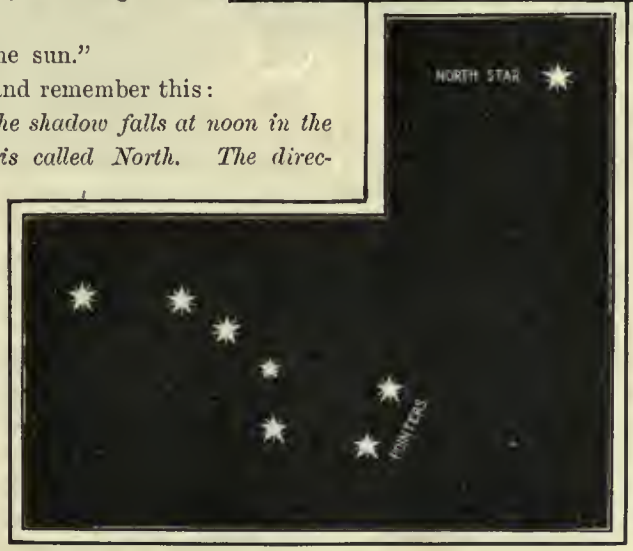
Other children did the same.

These words, East, West, North, South, were also written on the proper sides of the room.

Then Miss Hale asked her pupils to tell how

Class pointing toward the Setting Sun

to find these directions in a strange place at night. They could not tell her, so she told them to ask some one at home to show them, on a clear night, the group of stars called the "Dipper," and how two stars in that group, called the "pointers," always point toward a bright star known as the "North Star."



The Dipper and North Star

"*Let us remember, if we face the North Star at night, that we are looking toward the North.*"

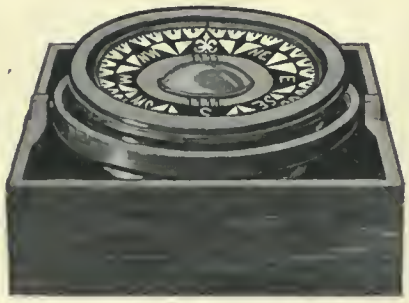
"How can we tell the direction when neither the sun nor the stars shine?"

"By the use of this instrument," replied Miss Hale, "in which the needle always points nearly north and

Pocket Compass

south; that is, in about the same direction as the shadow-line at noon. This little instrument is called a compass, and it is used on all ships to help the sailors find the direction in which to sail the ship. In the pocket compass the needle is over the card; in the mariner's, under it.

"Children, these four directions and the directions between, as North-west, South-east, etc., are called 'the points of the compass.'"



Mariner's Compass

FIELD WORK

The children were given these questions to answer: —

1. On which side of your house does the sun shine in the morning before breakfast?
2. Does it then shine into your room?
3. Into what room does it shine at noon?
4. On which side of the house does the sun shine about five o'clock?
5. Do you like to have the sun shine into your room? Why?
6. If you stand facing east and raise your arms, how will they point?

4. THE SCHOOLHOUSE

One afternoon Miss Hale said to the children, "Let us take this schoolhouse as a model building and study it in order to describe it exactly. Each one will write a short composition about it. To help you in the study I will put upon the blackboard these guiding words:" —

1. Place. 2. Looks on the outside. 3. Material. 4. Plan of the inside. 5. Uses.

In a few days the compositions were handed in, and Mary Scott's was considered the best. Here it is for you to read: —

OUR SCHOOLHOUSE

MARY SCOTT

Our schoolhouse is on a hill on the edge of a great city. It stands at the corner of Main and Cross streets. The electric cars run by the door every few minutes.

My father says the style of the schoolhouse is Colonial. It is made of pressed bricks, with granite and marble trimmings. It is two stories high and has a steep roof covered with slate. On the top of the roof is a large cupola, which can be seen for a long distance.

The yard is large, and most of it is behind the building away from the main street. There is one elm tree in front of the school and several maples in other parts of the yard.

The first floor is divided into a hall, running through the building, and four rooms, one on each corner. Two iron stairways lead to the four rooms on the second floor. These rooms are twenty-four feet wide and thirty-six feet long. All the rooms are heated by steam. In each room there are forty-eight desks for the scholars and a large desk for the teacher.

Beside each room is a clothes-room and two closets. Large windows give us plenty of light even on a dark afternoon. There are blackboards made of slate on every wall.

Some of the teachers have beautiful plants in the sunny windows. My teacher has, besides her plants, many pictures hanging on the walls. The picture I like the best is of a flock of sheep under some trees. The motto in our room is, "Try, try again."

Every school day about four hundred boys and girls go to our school. They are arranged in six classes. We are taught by different teachers in different subjects. This plan we all like because we learn faster.

LANGUAGE LESSON

Describe your own schoolhouse, by answering these questions: —

1. Where is your schoolhouse situated?
2. How many trees in the yard, and what kind?
3. Is the yard large or small?
4. Of what material is the schoolhouse built?
5. How many floors are there?
6. How many rooms on each floor?
7. What is the appearance of the room you are in?
8. Are the other rooms like yours?
9. Do you have an assembly room?
10. What other interesting things can you tell?
11. Why do you like your schoolhouse?
12. How could it be made better?

5. NEAR-BY HILLS

"To-day," Miss Hale said, "let us visit some of the *hills* near the schoolhouse."

The class went first to the nearest hill back of the school. They reached this elevation by going up Cross Street, just beyond the eastern end of the schoolhouse. The teacher called their attention to the ascent or *slope* of the street as they went along; in some places the ground ascended more rapidly than in others. In one or two places the street was almost level. In a few

The Schoolhouse

minutes they reached the top. Here they found a street running along the top of the hill at right angles to Cross Street. It seemed to be exactly on the ridge, as the land descended from it on opposite sides. Standing there, they could easily see which slope was the longer. It was the side farthest from the schoolhouse.

The street on the top or summit of this hill was called Nichols Street, and it had on each side many fine residences and ample grounds. Between these residences the class could see on one side below them the roof of the schoolhouse, and on the other side the long slope which had few houses upon it, the bay, and wooded heights beyond.

"Standing on this street, children, you can easily see how some of the water, when it rains, would find its way down the short slope toward the schoolhouse; and all the water falling on the other side of the street and back of those houses away from the school, or on the longer side, would run in the opposite direction.

"*An elevation of land like this hill, dividing the flow of the rain-water, is called a water-parting, water-shed, or divide.* How many remember the divide in Henry's field? This divide is much higher."

The class then followed Nichols Street toward the south, and found that it ran into a low valley between the first hill and the second one visited. Miss Hale showed the class how to represent the valley and two

One of the Rooms

hills by a simple outline or profile drawing, as given on page 11.

Passing across the valley, the class came to the lower part or base of the second hill, called Codman Hill. As this hill had fewer houses upon it, they could examine its features all the better. It was much harder to climb and much higher than the first hill. They approached it from its longer side or slope. This slope is shown in the picture (page 11). A large, level place was found on the highest part or summit. This gave them a very good idea of an *elevated plain* or *plateau*.

Some of the class had a dispute about the height of the hill, and so referred it to their teacher, who replied, "According to the state map, this hill is about 120 feet high, or nearly twice the height of the first hill."

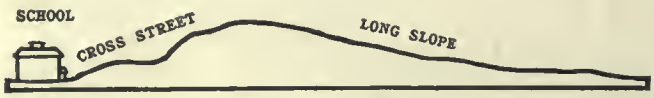
From the summit, broad views could be seen in different directions. The finest view was toward the south,

Cross Street: up Hill

across a broad valley in which were many houses, rich estates, fine roads, many trees, and a long lake.

Beyond the beautiful valley rose, against the sky, a number of hills one after the other, so as to make a chain or range of hills or mountains.

"That series or chain of hills, across the valley, is about four times as high as this hill, and yet the elevations are called hills only. They look much like most



Profile of the First Hill

mountains. You will notice that the tops of the hills are not sharp or pointed, but are rounded, as are most mountain peaks. You may draw the outline of the summit of the chain, or its *profile*. (See page 11.)

"Those lower places between some of the hills are the parts where you would naturally try to cross the chain, and if there are roads over those hills, they will be found in the lower parts of the chain. Such places are called *notches* or *passes*.

"The tops of the hills in the chain seem to touch the sky, and to be in the shape of a curve.

Nichols Street: approaching the Valley

"Point with your finger to the place where the earth and sky seem to meet. Then, as you turn round, trace this meeting line through its whole length. What kind of line have you traced?

"The line where the earth and sky seem to meet, on a plain or at sea, is called the horizon. Here the true horizon is shut off by the hills."

Gentle Slope

View from Top of Hill

The class then went down the other side of the hill, and found it to be very steep and to lead down into a small valley containing a pond and a grove of trees.

Long Slope

Profile of the Second Hill

LANGUAGE AND FIELD WORK

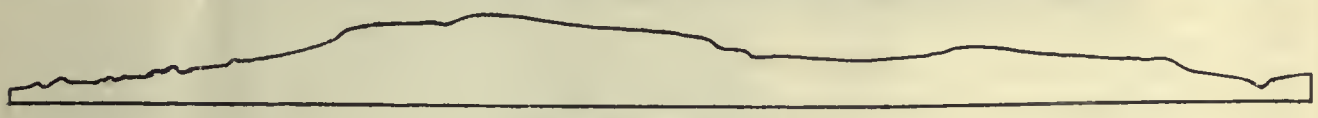
Visit a valley, a hill, or any elevation not far from the schoolhouse, and answer these and other questions: —

1. Where is the hill? In what part of the town? 2. How did you get to it?
3. Is it a high hill? 4. Are the sides steep?
5. Is one steeper than the other?
6. What grows on the sides? On top?
7. What can you see from the top?
8. Can you see your schoolhouse?
9. Can you see your home?
10. What other hills are not far away?
11. What is the name of this hill?

Answer similar questions about a valley.

Make a drawing of the hill or the valley.

Chain of Hills seen across the Valley



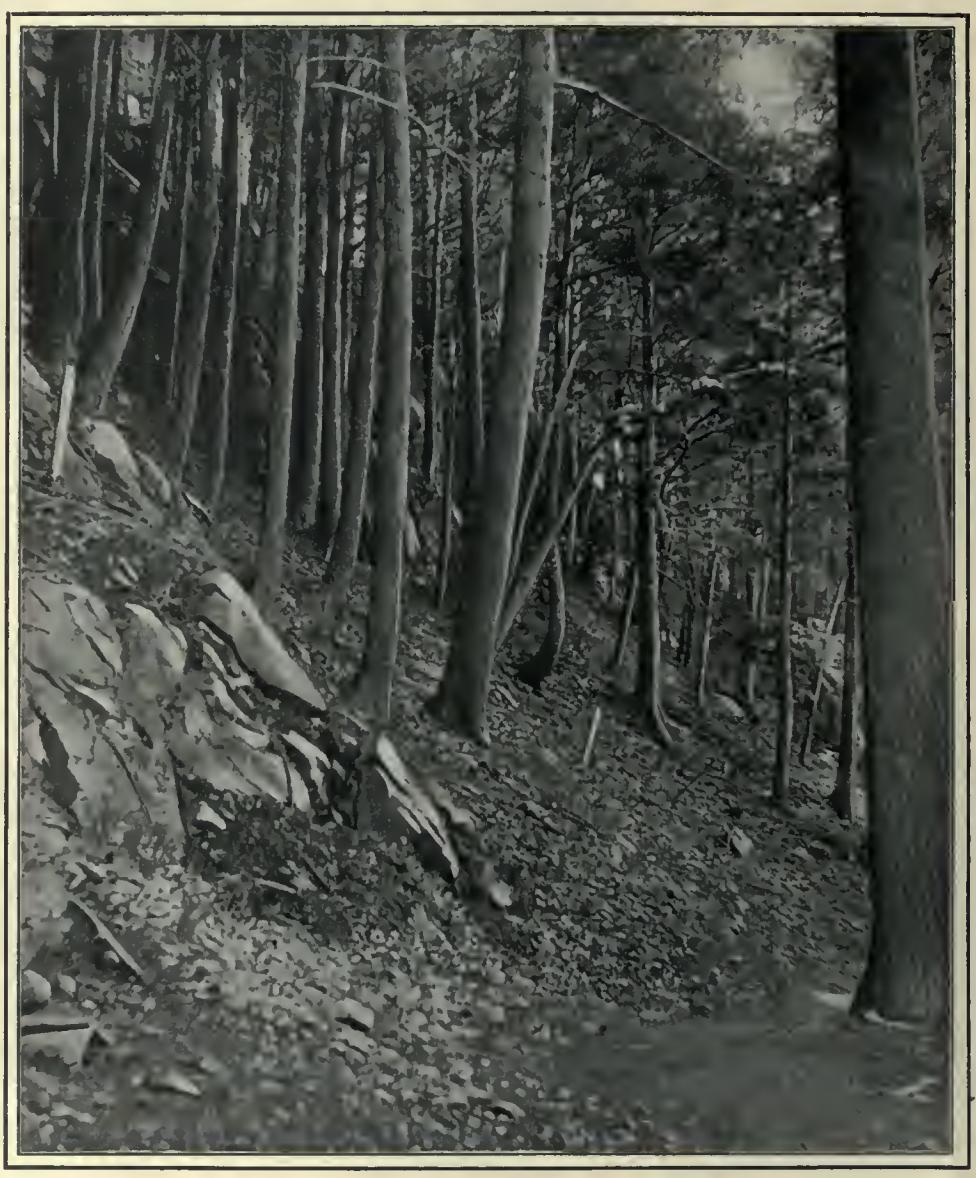
Profile of the Chain of Hills

6. A TRIP TO ANOTHER PARK

The next Saturday the class went in a special car to the large City Park to see and study still more Land and Water Forms. One of the boys had a pocket compass, and showed how north could be found at any time.

1. Land Forms. — Near the entrance to the park they noticed a little valley, and in this valley an irregular hollow almost circular in shape. It was formed like a large dish, and so the teacher said: "This hollow is a good illustration of a river *Basin*, which is the area drained by a river. It, however, lacks the water usually found in a large river basin. Imagine a little brook in it and the picture will be more complete. Most valleys containing rivers are longer than they are wide." The next picture shows one side of the large valley.

1. PICTURE STUDY



The Side of Hemlock Hill: One Side of the Valley

Look carefully at this picture, and then answer these questions: —

1. In what part of the picture do you see the most trees?
2. Why do not more trees grow in the foreground?
3. Where are there some trees like these near your school?
4. Are these trees evergreens?
5. What can you learn about hemlock trees from the picture?
6. Are the pieces of stone which are broken off sharp and pointed, or smooth and round?
7. Where have you seen a hill with so steep a slope?
8. Mention some differences between this group of trees and any group near your home.

Entrance to the Park, or the Two Valleys

A short distance from the basin they found several small valleys leading into a large one, and then they reached the place where two valleys came together like the two parts of the letter V. The right-hand valley contained the entrance to the park.

In the other valley was a large field so level and soft and damp as to be properly called a *meadow*. One corner of the meadow is seen in the lower left-hand part of the picture. The sides of the large valley were very steep on the left and much less so on the right; and yet the side that was less steep seemed to be the higher. The valley sloped gently toward them as they walked through it.

Winding Valley

The teacher led the class up the main valley, and they discovered that it was not straight, but winding in its course and varying in width. A good road ran through it, many kinds of trees grew on its sides, and a brook flowed beside the road.

The children and teacher climbed to the top of one side of the valley. This top was called Hemlock Hill. From this point they

discovered another valley away to the south, and in the distance the same chain of hills, or mountains, that was seen from Codman Hill. This hill was covered with evergreen trees. These trees were hemlocks, and gave the name to the hill.

Other valleys were seen between the surrounding hills, and their teacher told them that a real river basin included many different valleys running in different directions and having many different slopes.

2. **Land and Water Forms.** — In another part of the park they visited a large body of fresh water. They could see across it to the bridge and trees on the other side. Miss Hale told the children that she had gone entirely around this body of water, and that the part they could not see looked very much like the portion near them.

"*It is a Pond or a body of fresh water surrounded by land. A much larger body of water would be called a Lake.*"

The Top of Hemlock Hill

A Pond

Some of the children sat upon the sloping banks and others stood on the edge of the water; that is, upon the *shore*, which is *where the land and water meet.*

The pupils noticed that the shore-line was neither straight nor curved for a long distance, but curved for a short distance and then straight; that is, *irregular.*

In one place, the shore curved into the land and formed a *Bay*, which is *a portion of water partly surrounded by land.*

Not far from the bay the land ran out into the water, and beyond this point there was a small piece of land covered with grass and trees, which seemed to be the home of ducks and numerous other birds. The children wished to go to it, and their teacher asked them to find the way. They tried to do so, and finally, after several attempts, concluded that this piece of land had water on all sides of it and could be reached only in a boat.

"*A piece of land*, like this," said Miss Hale, "*entirely surrounded by water, is called an Island.*

"Now look again at the piece of land near you. Is the water all around it?" "No."

"*A portion of land almost surrounded by water is called a Peninsula.*

"*A small, pointed part, like that at the end of the peninsula, extending out into the water, is commonly called a Point or Cape.*

"There are two common type forms we have not seen to-day. I will illustrate them on this muddy part of the

A Peninsula, a Bay, and a Cape

An Island in the Springtime

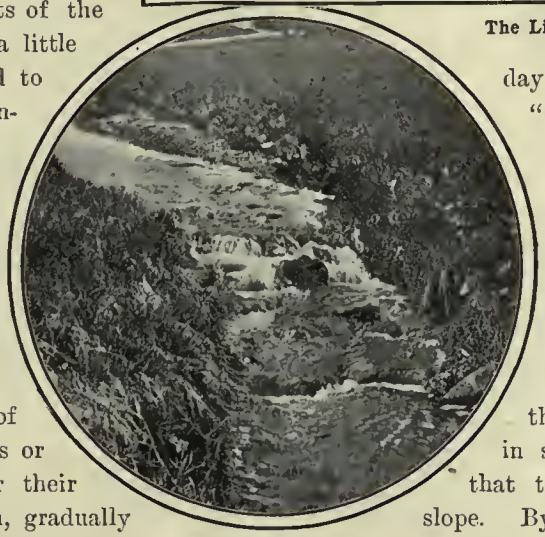
Miss Hale continued: "Imagine the rain falling all around you, and what would happen? Why, many little streams would be formed and would run down the sides of the surrounding hills toward the lowest parts of the valley. A stream would come down this road, and grow larger and larger as it advanced. To protect the road on account of the wearing power of water in motion, the stream of water must be turned off, and made to flow into the river. Sooner or later much of the water from the clouds would find its way into the little river because, as you perceive, the river flows through the lowest part of the valley. The size of the river would thus be greatly increased by the rain. I was here a few weeks ago, after a heavy rain, and the amount of water in this stream was much greater than it is to-

shore. You can see such forms on any rainy day if you keep your eyes open. I now make an *Isthmus. It is a narrow strip of land joining two larger bodies of land.* An isthmus has water on two sides. (See page 40.)

"*A narrow strip of water joining two larger bodies of water is called a Strait.*" A Strait has land on both sides." (See page 40.)

3. **A Little River.** — On their way home they stopped to study the big brook or the little river. Miss Hale told them about the *Source*, or the beginning of the stream higher up in the woods beyond the limits of the park. "It seems to start from a little pool or spring near two trees, and to follow the slope of the land downward toward this valley. The little brook runs out of the woods, through a large field that slopes only a little, around a small hill, across a road, into another field, through yonder piece of woods, and then into this valley. Its *course* or route all this time is downward, following the slope of the land. Several smaller brooks or branches and little springs pour their supply of water into this stream, gradually increasing its size. These brooks unite somewhat in the manner of branches upon a tree."

The Little River in the Winding Valley



The Cascades

day, and the water was very muddy. "When you stand as now, *facing down the stream toward its mouth, which is where it joins another body of water, the left bank is on your left, and the right bank is on your right hand.*"

Going farther down the river, they began to study it more carefully. First, the children noticed that the water flowed more swiftly in some places than in others, and that the motion depended upon the slope. By throwing in little sticks and watching them, they discovered that the sticks often moved faster in or near the centre of the

A Waterfall

stream, or where the water was deepest. In one place the little river bent like the letter Z.

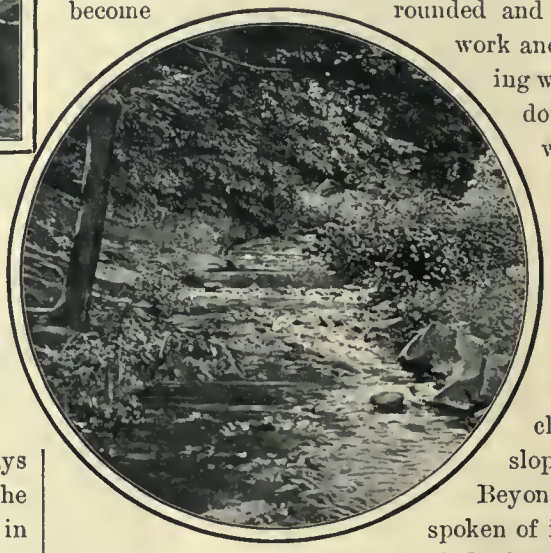
"The onward movement of the water is called its *current. That part of the stream which moves fastest is sometimes called the main current.*"

Secondly, the class noticed that the river had in several places worn away its banks so as to make deep bays or inlets. These had in time grown till the course of the stream had become more and more curving, the water in some cases carrying the matter from one bank to the opposite bank farther down-stream. *A little river in the course of time widens and deepens the valley through which it flows, carrying the soil and heavy materials farther down toward the sea.* Thus they learned again about the wearing power of moving water.

Some of the children picked up stones in the *bed* or bottom of the river, and found them rounded and very smooth. The teacher picked up on the banks at the foot of a big cliff stones of similar size, color, and formation, which were very sharp and pointed.

"Why is there this difference?"

"Because the water has turned over the stones in its bed and knocked them against one another till they have become rounded and smooth. This work and that of carrying waste are largely done when the water is very high in the spring of the year."



The Brook under the Trees

Several pretty falls were seen at the foot of the cliffs where the slope was greater. Beyond the meadow spoken of in the first part of the lesson, the teacher and her pupils found the *Mouth* of this river, where its waters joined another river.

Playing Ball in the Park

The Mouth of a river is where it flows into the ocean or some other body of water.

In one part of the park the larger boys were playing ball and having a pleasant time. Miss Hale and her class stopped to watch them.

FIELD WORK

Describe your own park in reference to Land and Water Forms, or describe some fields in the vicinity of your home where water is found.

PICTURE STUDY

Observe the pictures in this chapter, and describe each one by asking and answering questions similar to those on page 12.

7. AIR IN MOTION

Wind is a source of much wonder to children, but *wind is simply air in motion.* It is set in motion by heat. Light a kerosene lamp and hold a feather over the chimney; the feather moves, showing that particles of hot air are moving upward. Turn the lamp up till it smokes, then the black sooty matter may be seen going upward, borne by the hot air.

The fire in a fireplace shows the sparks, tongues of flame, and smoke rolling up the chimney. The hot air

Movement of Smoke and Hot Air

expands, becomes lighter, and is forced up by the cold air in the room rushing in to take its place. From every stove that burns wood or coal, from every bonfire out of doors, smoke may be seen moving upward. Smoke often ascends to a great height, marking on its way the column of hot air.

Miss Hale held a thin paper bag over the lamp till it was filled with warm air. She let it go and it rose to the ceiling, pushed up by colder air, just as a cork is pushed up when placed under water.

The sun heats the earth unequally, and by so doing heats the air more in some parts than in others. The heated air expands and becomes lighter, and the cold air near by then pushes the warm expanded air upward and takes its place. This heated air moves from the warm parts, pushed away by the in-coming cold air. The warm air moves from the warmer parts of the earth toward the colder parts, and the cold air moves in the opposite direction. Currents of air are thus constantly set in motion. *These movements of air are called winds.*

LANGUAGE LESSON

1. Tell what is said about the lamp; the fireplace; the paper bag.
2. Write several things you have seen a gentle wind do; a very strong wind.
3. In what direction does the wind most often blow where you live?

8. THE GREAT RAIN CIRCLE

One day, at the close of school, Miss Hale poured some water into a bottle and corked it up tightly. She placed the same amount of water in a plate on her desk. The children saw the water as they filed past. In the morning they found that all the water had disappeared from the plate, but the amount of water in the bottle remained the same. Miss Hale then sprinkled water from the bottle upon the floor, and in a short time it had disappeared.

"The reason of this," said the teacher, "is that the water in the plate and upon the floor has gone into the air in the shape of invisible moisture which is called *vapor*, but the water in the bottle could not reach the air. The process by which water is changed into vapor is called by the long word *evaporation*, which comes, you see, from the word *vapor*.

"Evaporation is going on all about us. When clothes dry, the water in them changes to vapor and disappears for the time being in the air. Great quantities of vapor are constantly entering the air from the ponds, lakes, rivers, and other great bodies of water, especially

from the ocean, the largest body of water. If water is heated, it *evaporates* or becomes vapor much faster than if it remains cold. The greater the heat the greater the evaporation; hence the warm portions of the earth, those near the equator, produce enormous amounts of vapor which, in many cases, is carried by the winds over the land."

The teacher one day brought a pitcher of ice-water into the room. The pupils soon noticed that the outside of the pitcher was covered with moisture. As the moisture could not come through the sides of the pitcher, the teacher told them, it must come from the air. The coldness of the sides of the pitcher chilled the vapor in the air and turned it into the visible drops of water which are seen in the picture. This process is called by the long name *condensation*. The children repeated the experiment by breathing warm moist air upon a cold mirror, a window-pane, and upon pieces of iron, slate, and dark marble. The same thing takes place, their teacher told them, when a fog strikes the cold trees and buildings, and water drips from the branches and eaves.

Moisture on Pitcher

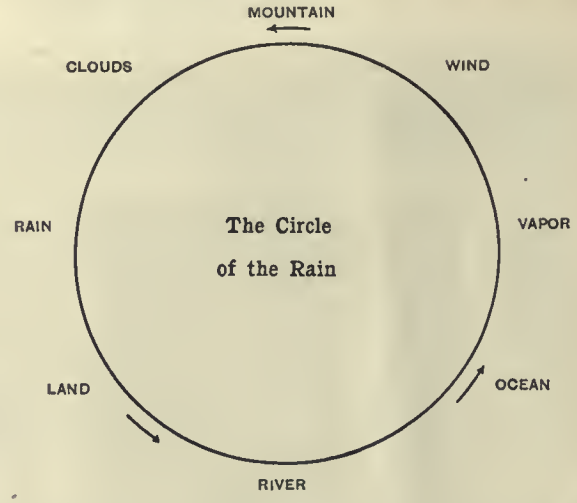
The teacher then took the class into the basement, and the janitor filled the room with steam. When this hot, moist air came in contact with the very cold zinc air-box or pipe from outside, the vapor was condensed.

Cold-air Pipes

Clouds cooled by Mountain; Rain caused; Sun breaking through Clouds

This condensed vapor showed itself in large drops of water on the zinc cold-air box and then fell off upon the floor. The children thus saw a little shower of rain.

In like manner, when warm currents of moist air strike cold currents of air or a cold mountain-top, the temperature of the vapor is lowered, the particles of moisture come nearer together, and the vapor becomes visible in the shape of clouds. The vapor in the clouds is more and more condensed until rain falls from them



upon the earth and refreshes it. These raindrops fall, and the water from them comes together in little rills which form streamlets, — tiny streams, — which at last unite with many more to make rivers. The rivers flow into the ocean. The ocean gives up some of its water as vapor. This vapor, which is warm, is carried away over the land and brought in contact with a cold mountain-top; clouds are formed, and rain is again produced.

This circle of water never ceases to keep in motion. As fast as the rivers bring the water back to the ocean, the water leaves the ocean in vapor which becomes rain or fresh water. Salt is left in the ocean and also in lakes which have no outlets.

LANGUAGE LESSON

1. Do you know a stream that flows into a pond, a lake, or another river?
2. What is the difference between a brook in summer and in winter?
3. Can you feel moisture in the air?
4. How is water changed when it is heated?
5. Are fogs common where you live?
6. When do clothes dry the fastest? Why?
7. Tell what good the rain does. What harm.

9. THE UMBRELLA PARTY

One rainy morning, Miss Hale asked the children to keep on their rubbers, cloaks, and hats, for they would have their lesson in geography out of doors. At nine o'clock the children walked out into the rain. Some of them were photographed before they started.

First she asked them to observe the water dripping from each umbrella, then to look on the outside of some other umbrella and see where it was the wettest. "On the edge," all replied. The teacher then held her umbrella upside down and let the water fall upon it in that position. The water soon collected at the bottom. She then asked Mary and John to place their umbrellas so that they would overlap her own, and see what would take place. The water which now dropped into her umbrella was greatly increased because it came from three umbrellas instead of one, or because the surface on which the rain fell was made larger.

A Little Stream in the Street

A Part of the Umbrella Party

In the yard they saw the water collect in little hollows or basins. "At first, children," Miss Hale remarked, "the water soaks into the ground directly, but afterward it collects in these little hollow places just as it did inside the umbrella."

The teacher next took her class to a short, gently sloping street near the school. There they saw the rain-water flowing toward them, forming tiny streams which were winding their way down the slope or into small pools, and in many places uniting to form larger streams. The *source* of the water was the clouds.

Finally, two larger streams on each side of the street were formed; and, within two rods, the two united into one stream of water about six inches wide. Soon the stream turned suddenly to the right, crossed the earth sidewalk, and flowed down a steep slope into an empty lot.

In crossing the sidewalk, the moving water had washed away a good deal of earth and worn out a good-sized channel, showing several small stones, over which the muddy water dashed, making pretty cascades and falls. In the vacant lot, the water

collected in a large pool. "*The smaller stream flowing into the larger is called* a *branch* or *tributary*," said Miss Hale.

Travelling a little farther up the street, the class reached the highest part, or the *water-parting*. (This is plainly shown beyond the centre of the picture.)

Cascades

Then they could see from under their umbrellas some of the water gathering and running down the slope of the street which they had just come up. The rest of the water, forming a second stream, flowed slowly away from them, in the opposite direction, down a shorter and steeper slope into the gutter of the next street.

Leaving the first street, the teacher led the class to a sloping street farther away. They noticed how wet the ground was from the rain, and how the water at the top of the street soon began to flow toward the gutters in very little streams. It did so because the gutter was very much lower than the middle of the street. As the class went slowly down the street they saw new tiny streams sending more water into the gutter from the highest part of the road-bed, and also now and then from the sidewalk. In a very short distance the gutter stream became several inches in width.

The water in the gutter was not very clear, and Miss Hale asked them to look sharply for the cause. With eyes wide open, under their dripping umbrellas, the boys and girls examined every part of the street for the reason for the muddy water. When they came to a place in the street where some repairs had lately been made, they noticed that the water from this part was decidedly yellow in color, like the new earth. George asked, "Does the water get its color and muddy appearance from the ground?"

"*Yes*," replied his teacher, "*water carries along with itself more or less earthy matter or waste, and other substances, too.*"

Soon the pupils came where the water had increased in the gutter so much that it made a considerable noise. The amount was swelled still more when a stream or *branch* entered the gutter stream from the road-bed. Looking across to the other side of the street they saw that the water there was stopped in its flow and had formed a small pool. Then it changed its course and flowed downward across the street, cutting a channel in the road-bed several inches deep and fifteen inches wide, according to Henry's measurements.

Water cutting a Channel in the Street

Water-parting in the Street

Much earth and stone had been carried by the water down the hill a rod or more. Some of the sand had been left on the sidewalk. Some of the earth was also scattered along the gutter for a long distance.

As the slope increased the stream grew wider and deeper. *It carried along twigs, leaves, and bits of wood. Some of these were piled up against the stones in the gutter, forming a dam and keeping the water back till it rose high enough to flow around the outside of the dam.*

In one place some stones had been left in the gutter, and the water, swiftly passing between them, made a little example of a gorge.

In another place the water rushed over some stones embedded in the gutter and washed away the soft earth below, thus making fine falls. The children named these "Hale Falls."

Where the street was fairly level, the water spread out more and ran much more slowly.

Not far from the falls the children reached the foot of the slope and found the water spread out in a V-shaped pool. Here the water hardly moved. John, with his large rubber boots, kicked away the little stones, sticks, and leaves forming the dam, and the water moved off rapidly. The children were surprised to see the layer of soft mud covering the earth where the water had stood.

Mud dropped when Water stood in a Little Pool

Water-made Dams of Leaves and Sticks

In talking over the trip in the schoolroom the children found that they had learned these facts: —

"*Water always runs down hill.*" "*It flows the way the land slopes.*" "*Water carries away earth or waste, removes sticks, and sometimes stones.*"

"*Water sometimes cuts channels in the earth and hollows out rocks.*"

"*Soft mud is dropped wherever muddy water remains quiet.*"

"*Falls are formed when water runs over stones from a higher to a lower level.*"

Out of doors on a rainy day we can see, on a small scale, a river, its branches, falls, a pool, a channel, a gorge. We can also observe the power of water in *wearing*, *cutting*, and *carrying*.

LANGUAGE AND FIELD WORK

Take a similar walk in the rain and tell what you saw.

10. OBSERVATIONS OF THE WEATHER

"In different parts of the year there are changes from day to day, due to the direction of the wind, to heat or cold, rain, snow, or sunshine. *The condition of the air at any one time in respect to these points we call the weather, and its condition for a long time is called climate.*

"You will find it very easy and pleasant, children, to observe these changes during the year, and make a record of them. We can do so with the help of our eyes and the use of a few simple instruments.

"One of these instruments is made up of a glass bulb and tube containing a liquid called mercury, which expands quickly when heat comes near it."

Mary brought to her teacher from the side of the room this instrument, called everywhere a "thermometer."

Mary with the Thermometer

"It tells us," said Miss Hale, "about the amount of heat or cold in the air, in water, or wherever it is placed."

In the air it showed about 70° of heat. Then John placed the thermometer in some ice-water, and the tube of mercury went down below 40°.

"Please remember that water freezes at 32°, and that it is so marked on the side of this instrument."

Each pupil also kept his or her own record in a large blank-book.

These records were made twice a day while school was in session. Some of the observations made, and facts recorded by the class, were the following, taken from their charts: —

Date	Therm. at 8:30 A.M. and 1:45 P.M.	Direction of Wind	Amount of Wind	Sky	Rain or Snow	Beginning and Ending of Rain or Snow	Dew or Frost	Amount of Rain or Snow	Length of Day	Moon	Remarks
Sept. 15	56° 77°	N.W.	Gentle	Clear	Fair		Dew		12 h. 33 m.		Very warm at noon.
Sept. 16	60° 66°	W.	Gentle	Cloudy	Rain	12:30 P.M. to 4:20		Considerable	12 h. 30 m.		Showers in P.M. Cold for the season, but sun very bright.
Sept. 17	54° 70°	N.W.	Moderate	Clear					12 h. 27 m.		
Sept. 18	50° 64°	W.	Gentle	Clear			Frost		12 h. 24 m.		Clear bright sun.
Sept. 19	49° 65°	W.	Gentle	Cloudy, then Clear			Dew		12 h. 21 m.	○	Moon full and very bright.
Oct. 13	60° 69°	W.	Gentle	Cloudy	Little rain	12:40 P.M. to 1:06 P.M.	Frost	Slight	11 h. 14 m.	☽	Leaves begin to turn.
Nov. 21	60° 65°	S.W.	Light	Cloudy	Shower	10 A.M. to 10:20		Slight	9 h. 44 m.	☽	Warm, very dark and damp.
Dec. 22	20° 21°	West	Moderate	Cloudy					9 h. 4 m.	☾	Damp and chilly.
Jan. 31	28° 33°	N.E.	Gentle	Cloudy	Snow	3 P.M. Jan. 31 to 12 M. Feb. 1		18 inches snow	10 h. 4 m.	○	A very great snow storm stops travel. No school Feb. 1.
April 10	43° 49°	N.	Strong	Cloudy	Showers	11:30 12:40		.25 inch	13 h. 6 m.	●	
June 6	65° 91°		None	Clear	Fair				15 h. 9 m.	●	Much suffering from the great heat.

Weather Chart: Some of the Observations recorded by the Class

Lucy then put the thermometer on her warm arm, and told the class how fast the mercury rose toward 90°.

"The other day the doctor put his little thermometer under my arm and said that it was 98°."

"The normal heat of the blood," said Miss Hale, "is about 98°; hence that is marked on this thermometer as Blood Heat."

A thermometer placed in boiling water will show a temperature of 212°.

After these experiments the thermometer was hung up on the outside casing of a north window, where the class could see it from the yard and also from the schoolroom, and daily observations were made and recorded by the children, in a chart upon the blackboard, of the temperature, the direction of the wind, the appearance of the sky, whether it rained or snowed, or was fair, cloudy, or sunny.

OBSERVATIONAL WORK

Make a similar weather chart and record the weather twice a day. Compare the facts thus noted.

11. THE FOUR SEASONS

Autumn. — By means of the daily observations referred to in the previous lesson the class learned many important facts. They noticed the position of the *sun* in the morning, at noon, and at sunset. Most of them marked carefully the first and last position by two points: (1) where they stood to observe; (2) the place where the sun was on the horizon.

Their next observation was, "the lower the sun, the longer the shadows." They saw the noon shadow growing longer from September to December as the sun became lower and lower in the sky, or as it went farther

and farther to the south. They also observed that the point of rising and setting gradually moved farther south, and at the same time the days became shorter.

On September 21 the sun rose about 6 A.M. and set not far from 6 P.M., making the day twelve hours and a few minutes in length. In October the days were much shorter, and on November 30 the time between sunrise and sunset had decreased until it was but nine hours and twenty minutes.

A Suburb in Winter

At night they noticed the different shapes of the moon and its apparent movement from east to west.

The class also learned that the mercury in the thermometer usually stood highest at noon.

"The reason," said Miss Hale, "that it is warmer from ten to two nearly every day, is because at that time the rays of the sun are pouring down upon us vertically, or straight down.

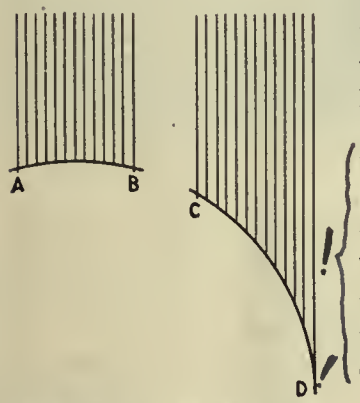


Diagram showing that Rays of the Sun are spread over a Greater Area at Sunrise or Sunset, when they fall at a Slant, than at Noon, when they come Straight Down

"Suppose about thirteen rays fall upon a line one foot long, that is, from A to B, when the rays are vertical. The same number of rays, when they come at a slant, or are very sloping, will extend from C to D, or over a space two feet in length; consequently any part of the line AB will receive twice as much heat as an equal part of the line CD."

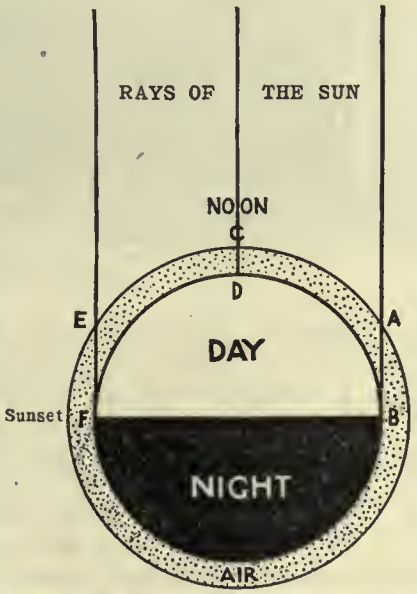


Diagram showing that the Rays of the Sun pass through less Air at Noon than in the Morning or at Night

"Then why is it warmer at two than at twelve?"

"Because there is a heaping up of heat, and it is greatest about two hours after the sun is the highest and the rays are the most direct.

"As the earth turns round, the place which is at B at sunrise reaches D at noon, and F at sunset. The distances marked by the lines AB and EF are each greater than the distance shown by the line CD.

2. PICTURE STUDY

Falling Leaves — Autumn

Look carefully at this picture, and then answer these questions: —

1. What time of the year does this picture suggest?
2. By what signs is the season shown?
3. What kind of trees appear in the picture?
4. Name five different things to be seen.
5. Name as many more as you can.
6. Are there any houses on this street? Where?
7. Is the street level or sloping?
8. Is the street paved or unpaved?
9. Tell something about the age of the trees.
10. What is lacking in the picture?
11. Do you think that this street is in a city, a village, or the country? Why?
12. What things in the picture are the work of man?

"The rays of the sun strike through the air in a slanting direction at sunrise and sunset, and so pass through more air than at noon, when they go straight through the air at its least thickness. The greater the thickness of dusty and smoky air passed through by the rays, the less heat and light reach the earth. This is one reason why it is warmest and brightest in the middle of the day. Another reason is, that the same number of rays which fall upon a small area at noon are spread over a much greater area at sunrise or sunset, when they reach the earth at a slant."

This reminded the class how much man owes to the sun.

Winter. — The days grew shorter and shorter till about December 21, when the shortest day of the year was reached, and its length measured only nine hours and four minutes.

"The reason," explained Miss Hale, "that it is so much colder in winter than in summer, is the same as that given for the greater coolness in the morning and evening.

"The sun is farther south and lower in the sky all day, and so sends its rays more slopingly upon our part of the earth and warms it less. Then the day, or the time when the sun shines, is much shorter than the night, and our

Winter Sport: Boys and Girls Skating

By reading their notes of observation as a review, the class learned that autumn is noted for (*a*) the coming of the frost, (*b*) the turning of the color in vegetation from green to many shades of red, brown, and yellow, (*c*) the falling of the leaves, and (*d*) the ripening of fruits and vegetables.

"During autumn," said Miss Hale, "the farmer harvests his crops of potatoes, apples, vegetables, and corn. In the South cotton is picked. (See Lesson 37.) He is very fortunate if he succeeds in gathering his products before the long rains come and injure them. What are some of the childreu's pleasures during this season?" "Gathering nuts, picking autumn leaves, foot-ball."

portion of the earth loses more heat than it receives. The coldest days, however, come later than the time of the shortest day. January was this year our coldest month, as it generally is.

"With this increased cold," said the teacher, "there is, instead of rain and fog, a new element, frozen vapor or *snow*. We learned in a previous lesson that water freezes at thirty-two degrees, hence the snow generally comes when the temperature is about thirty-two degrees or perhaps much below. Parts of the earth that are always warmer than this never have any snow."

DIRECTION TO TEACHERS: Each part in this lesson may be taken in its appropriate season instead of the four parts being taken at one time.

Winter Pastime — Boys Coasting

"Snow in many places in the country is not only beautiful but very useful for travelling and sledding. It forms a warm covering for the earth and protects vegetation and keeps the dust from blowing. But, in the large cities, snow is in the way and often proves a hardship to man and beast.

"Cutting ice and logging in the North, gathering the oranges and other fruits in the South, are kinds of business carried on in this season of the year.

"Are your sports the same in winter as in autumn?"

"No. The low temperature gives us new pleasures in skating, coasting, snowballing, and sleigh-riding."

Spring. — The class noticed that after February the increase in the sunshiny part of the twenty-four hours and the greater height of the sun in the sky diminished the cold and gradually increased the warmth. With longer days came higher temperatures. On March 21, the day was again about twelve hours in length. By May 1, it had increased to fourteen hours.

The children also observed that snow came less frequently and rain more often. When the snow fell, it usually came in larger flakes and was more quickly melted, especially in the middle of the day. Several times the melting snow would freeze in the evening, icicles would form upon the roofs, and little rivers of ice would form on the streets and roads.

"All this melting and freezing of snow," remarked their teacher, "is a fair illustration of the great ice rivers and their causes. These rivers are found in cold and mountainous countries. They are called *glaciers*.

"Icicles are usually made by the melting of snow on the roof, or other elevated place, and by the water running down into air cold enough (thirty-two degrees) to change it to ice.

"Where have you seen icicles most frequently?" "On the south or sunny side of the house." "Because it is warm enough to melt the snow in those places where the sun's rays fall more vertically and for a longer time each day, and because the cold north or northwest winds do not strike the south side and thus drive off the warm air as fast as it is heated."

One boy said that he had frequently seen the cattle, sheep, and hens get together in the sun on the south side of the barn.

Spring Pastime — Boys playing Marbles

WINTER

AMERICAN COLORTYPE CO., N. Y. & CHI.

"When it is cold, on which side of a wall, north or south, do boys like to stand?"

"The south side."

"In these cases the barn and the fence turn off the cold air and allow the air near the protecting wall to become gradually warmed. In these sheltered and protected spots, the snow melts and the grass and flowers spring up early. But the best illustrations of a protecting wall are trees, hills, and mountains. Southern Europe and Asia are thus protected by chains of lofty mountains from the icy winds of the north and become delightful winter resorts.

Getting in the Oats

"The warmer days find the farmer busy with his ploughing and planting. The boys fill their pockets with marbles and hunt up balls, and the girls bring out jumping ropes and hoops."

Summer. — Longer and longer grew the days as recorded on the weather blanks. June 21 was the longest day — 15 hours, 17 minutes. Then the noon shadow was the shortest, as the sun was the highest in the sky and rose farthest north, making the longest path in the sky from sunrise to sunset. The class observed that as the days grew longer the nights grew shorter, and thus the sun was shining on the earth and warming it up for a long time each day. The arch the sun made in the sky was much higher than the one made in December.

"The heat given out by the sun during these long days," remarked Miss Hale, "is much greater than what is lost during the short nights, and so it accumulates or heaps up, and in July and August we have our hot season, after the very longest day in June. What is the effect of the heat and rain upon the vegetation?"

"They make the grass, grain, and leaves grow, the flowers bloom, the apples and nuts become larger and larger."

"What month is called the month of roses?"

"June."

"What else have you noticed about summer?"

"Showers, and thunder and lightning are common."

"Rainbows are seen after the showers."

"The heat is sometimes so great as to be dangerous to man and animals."

"Then thin clothing is comfortable."

"What kind of work is done in summer and not in other seasons?"

"Gathering hay, wheat, and oats."

"What summer sports are enjoyed?"

"Lawn-tennis," replied one child.

"Golf," "base-ball," "bathing," "swimming," "boating," "sailing," added others.

LANGUAGE LESSON

1. Why do you like winter?
2. Which season seems best for games?
3. Why do people of the cities go away in summer?
4. Where did you go last summer?
5. Tell about going in bathing.
6. What kind of fruit do you like best, and why?
7. Have you ever been out berrying or gathering nuts?
8. Tell about your skating, or a sleigh-ride.
9. What is your favorite game, and why?

12. A GREAT CITY

Some of the boys and girls were taken by their teacher one day to visit a large city near which they lived. They

A Street in the Suburbs

took the trolley car early in the morning, for they meant to spend all the time they could in sight-seeing. How they hurried along! They soon passed open fields where cows and horses were quietly grazing, and here and there a strip of woodland.

Steam Roller

Now they were on a bridge crossing the river, and again high up over a marsh.

In going from the suburb to the city, they saw in one place workmen making a roadbed, and they learned that the modern road is made by first placing large stones at the bottom and pressing these down by means of a steam roller, which passes over them many times; then another layer of broken stones, smaller in size, is laid over the first layer and pressed down. These layers are made thicker in the middle of the road in order to round up the bed and cause the rain-water to flow readily into the gutter. The different layers are composed of smaller and smaller sized stones, and last of all a layer of gravel or crushed stone is placed on top and carefully rolled down. Roads made in this way cost about $3000 per mile. They are called "macadamized" roads, after their inventor, Mr. Macadam, a Scotchman.

Farther on the road changed to the paved street, with brick or artificial stone sidewalks. The part of the street used by carriages was filled in with blocks of stone, wood, or asphalt. The teacher told her class that different cities used different materials, being influenced more or less by the climate and cost. Boston likes the granite blocks. In Chicago, Philadelphia, Washington, and Buffalo, many of the wide streets are covered with asphalt.

The streets became more and more crowded, the houses nearer and nearer together. At last rows of brick houses all alike began to appear, then long streets lined with buildings. In the roadways were many trolley cars, heavy teams, and more and more people moving about on the pavements. They were in the big city.

The people came into the city by the steam railroads and by the elevated road, as well as by electric surface cars.

Their trolley car reached the end of its route near the centre of the city. The teacher took her pupils first to see the City Hall. This was a magnificent building where all the business of the city was transacted. In it were many finely furnished offices; for here the Mayor, the City Treasurer, and other officials had their quarters, and here the

Repairing the Street

Where the Stones are Crushed

city council met every week for business. They walked through some of the marble corridors and up the elegant staircases, visiting the handsome rooms and halls. An elevator carried them to the top of the great tower, from which they looked out over acres and acres of house-tops, tree-tops, chimneys, towers, and church spires, and saw hills and rivers in the distance.

But they could not spend more time here; and as the Post Office was close by, they walked to it, noticing on their way that the city was laid out in squares or "blocks," as they are called. The sidewalks were of brick or artificial stone, and very hard they seemed, compared with the gravel and plank walks of the village. They saw one large store after another on the streets through which they passed. Some of the buildings were so tall it made their heads and necks ache to try to count the stories in them.

A City Hall

Elevated Railroad

One of these "sky-scrapers" was being built, its great steel frame rising to a dizzy height above them. Their teacher showed them how it was all bolted together, and they were much interested in the great numbers of workmen busy on different parts of the structure. In putting up these tall buildings, the frame is first erected. The floors are made to rest on the frame, and the outer stone or brick walls are fastened to it, and so kept in place. Before it is covered the frame looks somewhat like a steel bridge, standing upright on one end. Usually it contains from ten to twenty stories.

The children were delighted to go inside a finished "sky-scraper," and ride to the highest floor in the elevator. It was a considerable journey. If it were not for the elevator such buildings would not be erected. Some of them have through the day as many as five thousand people in them. But for the lack of room in the centre of towns, and the high price of land there, "sky-scrapers" would probably never have been thought of.

Building a Sky-scraper

Once more on the street, the children were soon busily looking at the beautiful store windows and the stream of people shopping. So far they had seen only the business centre of the city, and yet there were several large old churches here too, with ancient burial grounds that seemed out of place in all the hurry and bustle. Now the Post Office came in sight. It was a fine stone building, occupying a large part of a square. The centre of it was a large, well-lighted room opening on wide corridors by means of small windows. At some windows clerks were placed to weigh letters and packages and tell what

postage they required; at others, stamps were sold.

Two boys in the group bought postal cards, addressed them at a desk which they found ready with ink and pens, and each wrote a message to a friend. Then they dropped them into a slot placed there for letters and postal cards, from which they fell into a box and were put into a mail bag and sent to the proper place. Next they spent a few minutes in the money-order room, where clerks were busy paying out and sending away money-orders.

A finished Sky-scraper

Fire-bells were heard, and the children found on going to the door that an engine house was across the way. Such houses are placed in all portions of cities so that fires may be quickly stopped. Everything is ready in them for an instant start when an alarm is given.

In Germany firemen wait to put on uniforms before answering a call. Not so in America, where horses are always ready to rush into their harnesses and the men to put on waterproof suits and hats and leave almost on the minute of the alarm for the scene of the fire. The shining engines, the bright red ladders, the well-kept, prancing horses, the rushing hose wagons, and the jangling bells interested the boys and girls for some time. The fire was far away, and when the noise and excitement were over they were all ready for luncheon. This they were to have in the largest department store in town.

In a few moments they reached the place and were taken in the elevators to the upper floor. Here was a large room, furnished with small tables, neatly set, and many lunch counters. Waiters in white aprons were going rapidly to and fro with trays full of dishes. The children were soon seated at the table, and how good the luncheon tasted!

When they were rested and ready to go, they wished to see all they could in the big store. As it occupied the greater part of a block, and was several stories high, they could visit only a small portion of it. They wished to find the book department, and in going saw a clothing department, a store in itself.

A Busy Scene near the Post Office

Mary and Alice had money to buy books. For fifteen cents each bought a well-known story book. The salesman made out a slip of paper for each sale, telling what book was bought, its price, and how much money was given him for it. He then put book, money, and slip into a box and sent them to the room where change was made. As the books were to be sent home, he next wrote the name and address of each little girl; soon the box came back and in it the change and the slips, showing that the books were paid for. When these were handed to Mary and Alice, the books were given to a little boy who took them to a counter near by to be wrapped up.

As the children wished to know all about the journey of the little books through the store, they followed the boy and saw them neatly done up in brown paper with the names and addresses of the girls on the outside. Next they went with another boy to the basement, where he put the books on a long table in a big room, with hundreds of other packages. A man behind the table was sorting the bundles, throwing them into different pens according to the directions on them.

Interior of a Department Store: One of the Departments

Now came the driver of a delivery wagon, who placed them on his wagon ready to carry them to their owners. This part of the store was like a large express office. Think how many people handled the books before they reached the homes of Mary and Alice.

As the class left the basement they saw long counters full of kitchen goods and other household ware, stoves and heaters, trunks and bags.

But they had not yet seen all the sights upstairs. They wished to see the crockery, the ladies' and children's suits, the toys. On one whole floor they found nothing but furniture and carpets for sale. There were sixty departments, or sixty stores, all under one roof, besides comfortable waiting rooms, dining rooms, and a writing room. The teacher told them about a store she had visited which had a nursery where mothers could leave their children and have them cared for while they shopped.

An army of workers are employed in a great house like this. Every department has its buyer. The floor-walkers direct sales and see that those employed attend to business. There are hundreds of salesmen and women, boys and girls to carry bundles and money, men and women to wrap goods, to attend to their delivery, and to make change. One man spends his time in directing the decorations of the windows and the interior of the store, in order to display goods and attract customers. Frequent entertainments are provided to draw people to the great store. At this time there was a collection of fine pictures which the children enjoyed.

The little sight-seers were now tired, so they rode in the street cars to the market, which they were eager to visit. It was in a long, narrow building, the first floor of which was divided into separate avenues opening into each other. Along each avenue were stalls for butchers and provision dealers where, every market day, they stood in their white cotton clothes to sell their goods. In one part of the market, garden vegetables were for sale; in another, meats and poultry; in another, game and fish, and in another, butter, cheese, and eggs. Some stalls were full of plants and flowers. All these good things that they saw made the children hungry.

In the early morning the place swarms with provision dealers, who come to buy for their stores in various parts of town. Later, men, women, and children come to buy food for the day or several days. Here they find the freshest and best, and here prices are lower than elsewhere. One man bought a barrel of apples and ordered it carried to his home. Another bought chickens and put them in his bag. Women with large baskets bought meat and vegetables, and carried them home on the car. At one end of the market was a grocery store,

where tea, rice, coffee, sugar, and such things were for sale.

They learned there, and afterwards from their teacher, that *oranges* are brought to the market from California, Jamaica, and Florida. *Lemons* come principally from California; *bananas*, from the West Indies. *Meat* is sent chiefly from the great slaughter-houses in Chicago. Most of the *fish* is caught along the Atlantic shore and especially on the Newfoundland Banks. *Eggs* come in from country towns and the Middle West; *green vegetables* and *potatoes* from suburban farms. In winter these vegetables are brought from the South, and from hot-houses near the cities.

Rice comes from the Southern states. *Flour* comes principally from Minneapolis in the Northwest. *Salt* is

A Busy Scene at the Market

sent from the western part of New York state, and from Michigan.

Spices, such as cloves, ginger, and allspice, come from the hot countries on the other side of the world called the "East Indies." *Tea* is shipped to this country from China, Formosa, and Japan in Asia.

Coffee comes from Brazil, far away to the south, Central America, Mexico, and Java, a big island halfway round the earth from the United States.

Now it was time for teacher and pupils to return to their homes. They went back by the steam cars from the Union Station. It was full of people going and coming. Some were hurrying along carrying heavy bags, fearing they should lose a train. Men in uniform were busy announcing trains and directing strangers, and porters rushed about with hands full of baggage.

It had been a full day for the little party of boys and girls. They had seen and learned much in their visit to the city, and especially had they learned that we are all greatly dependent upon others for a regular supply of food and clothing. Thousands of men and women are toiling near home and far away to furnish us with sugar, tea, coffee, flour, meat, shoes, coats, and dresses.

LANGUAGE LESSON

Write on one or more of these subjects: —

1. A trip to your own city, or the one nearest you.
2. Street cars of the city.
3. Your city water-works.
4. Street lighting.
5. Important buildings: City Hall, Court House, churches.
6. City parks and squares.
7. Main streets.
8. Important kinds of business in your city.

13. SOIL

Kinds and their Qualities. — Miss Hale asked two of the boys to dig a hole in the yard for a post, and to bring her, in pails, the material thus obtained. They did so, and each pupil received for study two kinds of earth.

First they examined the kind of earth under the grass, and found it to be dark brown in color, and when moistened, a little sticky. When rubbed on a piece of glass some particles scratched the glass. Several pupils found in their portion little pieces of leaves, twigs, and roots, evidently the remains of plants. There was less of the remains of plants than of the other matter.

The teacher put some of the earth in a bottle and filled the latter with water. After shaking the bottle the water became muddy, but soon part of the material settled at the bottom. Other parts were much slower in settling, showing that the earth was composed of various kinds of matter. *Earthy matter is called soil.*

A pail was half filled with this dark earth, and water was poured upon it. The water readily ran through to the bottom of the pail. The teacher then showed some very dark soil from a bog, made up largely of dead leaves and the like. This kind of soil held water too well for plants to flourish in it. Good soil has

a considerable amount of sand in it, and water does not stand on it.

"Such soil as this dark earth," said Miss Hale, "is commonly called *loam*." In the yard the boys found it to be about six inches deep, but on the prairies of the West it is often over two feet deep, and much darker in color.

The soil under the loam was next studied. In it they found few evidences of plant remains, but pebbles of various shapes, some broken in pieces; very small, sharp, and shining particles, and some pieces that were soft and sticky.

When water was poured upon it the water went through to the bottom, as in the case of the loam. This kind of earth is known as *gravel*.

Arthur brought to the teacher from his home a pailful of another kind of soil, consisting of small, bright, shiny, sharp grains, all about the same size. The children found that these grains would scratch glass readily, which showed that they were very hard. When placed in a bottle of water, the grains quickly fell to the bottom after shaking, showing that they were heavy. Water which was poured upon this material soaked through it rapidly. Most of the children knew the right name for this soil, which was *sand*.

Then a fourth kind of soil was shown by the teacher, and when she poured water upon it, the water did not run through it as in the case of the others. The children wet some of it and found it to be soft, greasy, and sticky. When placed in the fire it turned a red color. When placed in water and shaken, this soil mixed readily with the water, but it was hours before it sank to the bottom and left the water clear. This showed that it was lighter than the sand.

A Pile of Loam in a Street

A Sand Bank from which Sand is being removed

"This soil is called *clay*, certain kinds of which are used in making bricks and porcelain."

Sources of the Soil. — From what source does the soil come? Not a very easy question to answer. The teacher gave the children pieces of broken slate and sandstone, and asked them to rub the pieces together and let the results fall on paper. They did so and were surprised to find that they thus produced very small pieces of stone, and even dust which looked like the soil dug from the hole in the yard.

Not long afterward the class visited a great mass of rock forming a high cliff, and at the base they found a great amount of broken, sharp-edged rock, gravel, and soil, containing the same material as the cliff.

The earthworms take the soil into their bodies, grind the coarser pieces together until they become very fine, and then the worms raise this fine earth to the surface. By moving about in the earth they keep the mass light and full of openings for the water and the roots of plants. Ants help in the work also.

A Stone Quarry

Trees growing between Rocks

These experiments and observations helped the class to understand Miss Hale when she said, "All four kinds of soil, — loam, gravel, sand, and clay, — have been made by nature from stone by rubbing together; by the action of moving water, which grinds stones against one another; by frost, by water freezing in the cracks of the stones and then breaking them apart, or breaking off little pieces; by the action of air and the weather. Trees and other plants sometimes grow between rocks and split them open.

"The damper the air and the greater the changes of heat and cold, the faster the rock crumbles to pieces. Some rocks are acted upon much faster than others. The softer the rock the more rapid the wearing away.

"A rock formed of little pieces of crystal, thin scales, and broken pieces thrown together in a confused mass, is called *granite*, and is very hard. It is fire-formed and does not waste away rapidly.

"But the pieces of sandstone you just rubbed together are made up of small grains, every one worn and rounded as if rolled in water. It is, you see, a much softer rock, and consequently it crumbles very readily.

"Even softer than sandstone is *chalk*, which when rubbed on the blackboard leaves always a good broad mark. This kind of stone is made largely of very small shells and bits of broken shell, and it was doubtless formed at the bottom of the sea in which once lived the little shell-creatures.

"*Coal* is a kind of rock formed by nature out of leaves and other vegetable matter, under great depth and pressure of water.

"By earthquakes and uplifts and folding, the common rocks have been changed from their buried positions

Good Soil for Corn and Other Vegetation

beneath the water, and raised so as to form the dry land, hills, and mountains, on which animals and man can live."

Uses of the Soil. — The next day the children planted some seeds in the four kinds of soil and in a mixture of clay and sand. They afterward learned that the seeds planted in the loam grew best. Those planted in the mixture of sand and clay grew very well; but those put in gravel, clay, or sand alone did not grow well at all.

Miss Hale explained the reasons: "The loam allows the water to go to every part, and plants need water. It also has in it a large quantity of plant-food, from decayed vegetation and other sources, to nourish the new plants.

"Sand alone allows the water to pass through so rapidly that the food supply is quickly worked down into the sub-soil, out of reach of the plants; but the roots of plants can readily find their way through the sand in search of this food. Sand keeps the warmth from the sun better even than loam, so that some plants, like the water-melon, grow very well on sandy soil. Nearly all soils that are good for plants have more or less sand in them.

"Clay, on the other hand, holds the water on its upper surface and is so hard that the tiny roots of plants cannot easily penetrate it. When sand is mixed with clay the water moves through it easily and the two, mixed together with plant-food, make a good soil.

"The fields in different parts of the country contain soil of many varieties. The better the mixture of sand, clay, and loam, the better for most kinds of vegetable growth; but different kinds of plants require different kinds of soil. He is a wise farmer who learns what crops are best for his particular farm.

"What a dreary world this would be if the rocks had not crumbled to pieces in the past and if they were not doing so now. If there were no soil there could be no vegetation, and consequently no animal or human life. The whole world would be as dead as the moon. These thoughts may help us to have greater respect for the dust upon which we tread so carelessly."

FIELD WORK

Collect different kinds of earth from a garden, and try to learn what kind of soil you have around your house.

14. A TRIP TO THE SEASIDE

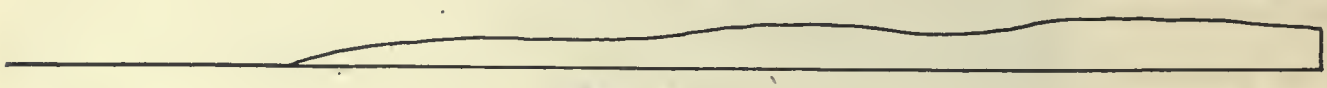
Miss Hale went with her geography class to the seaside on a pleasant school day in September. The class gathered together on a long wharf in the lower part of the city. Here they saw boxes and barrels of provisions and fruit all ready to be carried to places along the coast where people live in the hot summer. As the class waited on the wharf for their boat, they saw ferryboats, steam tugs, and coal barges moving about in the harbor. A large

The Wharf from which the Steamer started

steamer, not far away, made careful preparation for a trip to Europe. Two tugs assisted this "ocean greyhound" out into the channel and down the harbor. There was a crowd of people on board the steamer.

The Long Beach. — The principal attraction of the day to the children was the *long beach*. Upon reaching it, Miss Hale gave the class a long recess, and they broke up into groups and ran and chased one another over the sand and pebbles. How attractive and delightful it all was! Some of the boys took off their shoes and stockings and waded into the water. Then several of the girls imitated the boys, and taking hold of hands ran into the sea and splashed and kicked about to their hearts' delight.

Houses built upon Drumlins



Profile of the Drumlins

As the boat on which the class were taking their ride went down the harbor, they passed large schooners and yachts at anchor; they also passed forts and lighthouses on islands, and summer residences among the trees and green grass on the shore.

The Long Beach, with Drumlins at the Left and Right in the Distance

In one place Miss Hale called their attention to the outline of the land against the sky, as seen from the steamer, showing the piled-up sand and gravel hills or *drumlins*. The sky-line here represented three drumlins with straight spaces between.

At a given signal they all gathered around Miss Hale, who, during the recess, had been busy taking pictures with her camera. She called their attention first to the *glint* and *gleam* of the water as reflected in the bright sunshine, "which," she said, "in addition to its restless movement, makes the ocean so charming to every one." "Has the water come in farther on the beach or gone out since we arrived?" Most of the children thought it had "gone out." "That is true," she said, "and those who noticed it have observed most carefully. It is slowly receding, or moving out."

The Tide. — Miss Hale explained that "the *rise and fall of the water, called the tide*, equals about eight feet in this vicinity. 'In some places along the coast it is greater, in some less. High tide comes twice in the twenty-four hours. Each time it is about one hour later than the day before."

Low Tide

The three pictures in this lesson, called "Low Tide," "Half Tide," and "High Tide," will give you a good idea of the tide and its effect upon the scenery along the coast. The three pictures are three different views of the same place. If you look closely you will see that the remarkable difference in the scenery in these pictures is simply the result of the difference in the height of the water.

Notice how high out of water the rock in the foreground stands at low tide; how much of it is hidden at half tide; and that merely the top of it can be seen at high tide. Notice also that you can see more of the pier at the left of the picture at half tide than at high tide, and that you can see more of it still at low tide. The same comparison may be made by observing the forked post to which the boat at the left is moored.

After high tide little pools of water are often left standing in hollows in the rocks and in spaces between them. In these places delicate sea weeds and beautiful sea animals may frequently be seen and studied.

The cause of the tides is the attraction of the moon for the water. The study of the exact way in which this works will come in a later year of your geography course.

When the children had first noticed that the water was receding, or that the "tide was going out," Miss Hale had placed a stone at the edge of the water so that the class might observe the movement. The stone was soon left high and dry, and the water retreated from it steadily as long as they were there to watch it.

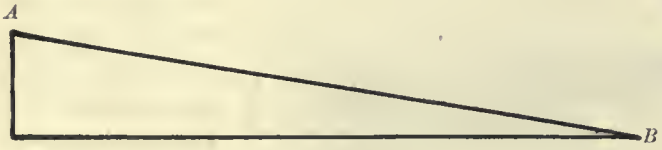
Half Tide

High Tide, about Six Hours later than Low Tide

Surf. — "All day long," said Miss Hale, "the water is in constant motion as you have seen it to-day. The *principal motion is a rolling in and breaking on the shore, called the surf.* The tide, with the surf movement, wears away the coast and makes it smoother, grinds and breaks the rocks into pebbles and sand, and rounds and smooths the pebbles."

Water dashing against the Rocks, or Surf

The children were told to notice the beach. It was not alike in all parts and would not be represented in outline by a smooth, even line from *A* to *B* gently sloping seaward thus: —



but by a line like this: —

At 1 was a wide band of very dry sand; at 2 was often seen a band of rounded stones or salt water; at 3 was a barrier of sand thrown up in some storm. At 4 was the smooth, hard, wet, sloping sand. At 5 was the surf when the tide was out. At high tide the water came up to 1.

Several children showed Miss Hale the lace-like fringe marked upon the wet sand in a small, white line by the waves.

The children now began to gather specimens from the beach and, after showing them to Miss Hale, put them in their paper bags. In a short time they collected all they could carry, — pebbles in large quantities, pebbles of all colors and sizes, smooth, rough, round, and flat; also crabs, clams, starfishes, shells, and seaweed.

Lace-like Fringe made by the Waves

Bathing. — While the children were gathering their specimens, they saw many persons, old and young, go down in bathing suits to play and swim in the cold water. Groups of children formed a ring and danced and splashed about, laughing and shouting.

Pupils showing Specimens to their Teacher

The Rocks. — It was now time for luncheon, and the teacher led the class from the sandy beach to the high rocks farther south. Here comfortable seats were found, and the luncheon was greatly enjoyed by hungry boys and girls. Fresh water was obtained from the spring among the rocks.

Rocks where the Children ate their Luncheon

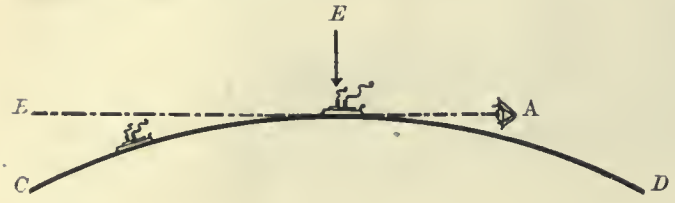
From the rocks, various points along the coast were seen. Two pretty islands were not far away to the left. Capes and projections ran out into the sea.

Surface of the Ocean. — The horizon line was seen better here and more like a curve than before. Following it partly around, it was easy to believe that the surface of the ocean is spherical in form, and if the ocean, then the great land forms, and the whole earth must be shaped like a ball or an orange.

It was a good day to be at the shore, for the summer drill of the war-ships was in progress. War-ships have to drill as well as soldiers. Early in the afternoon a procession of these vessels moved by in a single column and passed out to sea. At last nothing could be seen of the one in the lead but its smoke on the horizon. The smoke-stack of the next one was in sight, but not the ship itself. The hull of the third could be seen, in part, and still more of the hull of the fourth. Only the ships in the rear and nearest to the children were seen as a whole. They asked Miss Hale why this was so.

Children watching the Battle-ships disappear: a Proof that the Earth is Round

"When we look at the horizon it seems curved, suggesting that the surface of the water may be spherical. If that be true, then the steamer farthest away would probably be mostly below the range of the eye, because we can see in straight lines only. I can illustrate what I mean by a drawing thus: —



"The curved line *CD* represents the spherical surface of the water; if we place the eye at *A*, then *AB* will represent the line of vision. The disappearance of ships as they sail away past the point shown by the arrow at *E*, which is the horizon, is a good proof of the roundness of the earth."

In one place the beach consisted of small, round pebbles; in another there were great boulders, which could be seen very plainly at low tide.

In other places they saw rounded hills or *drumlins*, of sand and gravel, and climbed upon them. Some of these were broken off on the sea side by the furious action of the ever breaking water.

One island was near enough to the shore to form between it and the main land a *strait*. *A strait is a narrow passage of water connecting two large bodies of water.*

In another place the shore was connected with a small piece of land by a long, narrow strip of land forming an *isthmus*. *An isthmus is a narrow neck of land connecting two larger bodies of land.*

This was a day rich in varied experiences, and the class went home tired, but with a better idea of coast lines, of the shore, beach, and surf. Standing by a pond or lake, they had learned, one may see a shore, a beach, movements of the water called waves, an island, isthmus, strait, pebbles, and weeds.

A Strait

Coast Line. — The children were greatly interested in the afternoon in studying the *shore*, or coast line, and in learning the variety of forms, shapes, and appearances it presented. First they saw the smooth beach and the simple, gentle curve; then, near by, the hard, broken, and pointed rocks on which they ate their luncheon. Did the sand and pebbles come from the rocks? Why should the pebbles be smooth, instead of sharp like the rocks?

The low, smooth, sandy beach, they learned, was like much of the Atlantic coast, the high rocky part being similar to that found in so many places along the New England coast.

LANGUAGE LESSON

1. Write a story about a wreck.
2. Describe the shore.
3. Describe the beach.
4. If you have been to other beaches, or have read about them, tell what you know about them.
5. Tell about the movement of the salt water called the surf.
6. Give a reason for believing that the earth is round.

An Isthmus

7. Tell why we enjoy surf-bathing.
8. Tell how a large ocean steamer is often taken down the harbor.
9. Describe a wharf and tell what may be seen on it.
10. Describe an isthmus and a strait.

The Presidential Range

GEOGRAPHY THROUGH TYPE FORMS

PART II

15. A MOUNTAIN — MOUNT WASHINGTON

Miss Hale said that Nellie might tell the class about her trip to Mount Washington. This is what Nellie said: —

White Mountains. — "Last summer I visited the White Mountains in New Hampshire. (See map, page 107.) In going there we went first over a level part of the country, then through several valleys, around high hills, and across several rivers. As we advanced farther from the coast and the cities, the land became more and more like pasture-land and less used for crops. The hills slowly changed to mountains. The cars seemed to be going up grade and to move much more slowly. At last we passed between high mountains which stood near each other, leaving room for river and road only. This narrow place was called 'Crawford Notch.'

"We reached the large hotel in the afternoon. From the windows of our room we could see the long line of mountains called the 'Presidential Range.' This name is given to them because several of the peaks are named after presidents of the United States. Mount Washington is in the centre of this range, and it is the highest of them all — the highest peak in New England.

"At sunset the mountains reflected the pink rays of the setting sun.

"The next day was clear, and the great mountain was without a cloud. We rode several miles from the hotel to the base of the mountain. From the car we saw deep forests, one lovely fall of water, and several small streams, and caught now and then a view of the great

Crawford Notch

peaks, which grew grander and more and more distinct as we approached.

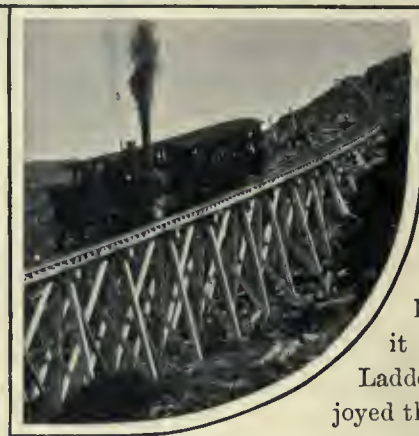
The Ascent. — "We changed cars near the foot or base of Mount Washington. As we had plenty of time before the next train started, we looked about. The view of the range here is very fine. At a distance it seems like a wall of granite rising against the horizon. Nearer, it appears sharp on the top, very steep, and partly covered with forests. There are deep valleys on its sides called ravines.

"Do not think that the side of Mount Washington is straight and smooth, like the sloping roof of a house. It is cut up into terraces, knobs, deep ravines, and gullies. In many places it is covered with coarse dirt and boulders. The distance from the base to the top is about three miles, over which a cog railroad runs. There is only one car, which an engine pushes from behind. At first we could see nothing on account of the evergreen trees that cover the base of the mountain.

"In steep places the car inclined so much that we felt we should be dropped out. Every quarter of a mile, however, there came a level space.

View from the Base of Mount Washington

The Cog Railroad



Engine on Jacob's Ladder

Mountain Vegetation. — "One of the first signs that we were a great distance up was the fact that the trees were smaller. About two-thirds of the way up, scarcely any trees were to be seen. Soon there were only low bushes, coarse grasses, and mosses. In one place we passed on a long trestle over a valley. The track is here so steep that it is called 'Jacob's Ladder.' We greatly enjoyed the views as we went up. They became grander and grander, the higher we climbed. I never saw so much of the earth at once as I did from Mount Washington.

"We found ourselves by and by on a level with many of the peaks. I saw the earth below as if it were a map — mountain ranges with valleys between, villages nestling among the hills, lakes here and there, green fields and winding rivers, roads that at this height seemed paths — all spread out on what seemed a flat surface. I could see the Ammonoosuc Valley stretching away west to the Green Mountains in Vermont. To the right was the summit of Mount Washington, and below

it a great yawning gulf. The buildings on top were now very distinct. Farther away were the peaks of Jefferson and Adams, with their heads almost in the clouds.

Mount Monroe from the Ammonoosuc Valley

"It was as if we were climbing a ladder to the top of the mountain. The higher we went, the broader the view, for the day was very clear. The horizon sank farther and farther below us and made a more and more perfect circle. Looking at it, I could easily believe that the earth was round.

The Summit. — "At the summit we all stepped out. Nothing could be seen on the mountain-top except stones and small boulders piled up in great confusion. There was no gravel, and not loam enough to fill a flower-pot. It is much colder there than at the foot of the mountain, and snow remains a long time.

"Mamma says that mountain-tops are often broad and level, — not pointed, as we think. On that of Mount Washington there is plenty of room for a number of buildings. From the observatory we had a magnificent view of a wilderness of peaks. Eastward, we could see the Atlantic, and in other directions for many miles into other states and Canada. There is an electric light on the summit which is visible one hundred miles away.

Sometimes the temperature is mild and springlike on the mountain; but it is more apt to be cold and windy. Small buildings are chained down to keep them from being blown away. While we were up there it blew harder and harder, and grew so cold that we needed all our wraps. How glad we were to go into the hotel with its warm rooms and a good dinner waiting for us! It was strange to find this comfortable place up among the rocks and peaks."

Miss Hale thanked Nellie for her interesting talk, and asked her to show the children the pictures she had taken of the White Mountains. Then Miss Hale said: —

Walking Down. — "When I visited Mount Washington, my friends and I walked back from the summit to our hotel so as to see more of the mountain. We started on the southern path, going down a steep ledge which brought us to Mount Monroe. Here we had a fine view of Mount Washington, and could realize its height. Not far away lay the Lakes of the Clouds, five thousand feet above the sea. Here and there we saw a waterfall. Once we walked some distance along a narrow, nearly level ridge, where the views were very beautiful. We could look off just as if we were standing on the ridge-pole of a house. Soon we had to climb up again in order to find a good way down the mountain. This often occurs in mountain climbing.

One of the Waterfalls

"Great drops of rain began to fall as we reached the woods on Mount Clinton, two-thirds of the way down. A shower was upon us. Lightning flashed, thunder rolled,

echoed, and reëchoed among the peaks; tall trees bent before the blast. Before we reached the nearest hotel we were all wet through, but mountain climbers must expect this, and no one complained. It had been a wonderful day, and we had learned much about a mountain.

Mountain Systems. — "In this region you see many mountain chains, hundreds of peaks, valleys, mountain streams, and waterfalls, and here and there a small lake. All these have been named. It would take a lifetime to explore them all, for they extend thirty miles from east to west, and forty-five miles from north to south. Such a collection of ranges, chains, peaks, and valleys we call a *mountain system* — but this is a very small system.

"On the map of New Hampshire, page 107, see how few lines are used to represent this system, well-known and visited every summer by many people. Notice how little space is given on the map of the United States, page 99, to the White Mountains, compared with that occupied by the ranges of mountains running along the Atlantic coast. This last is the great Appalachian Mountain System, and this, you will see by the map, is small, compared with the system along the Pacific Ocean, on the other side of the country."

LANGUAGE LESSON

Give an account of your ascent of some hill or mountain, or tell what you can of the trips just described.

Write about Mount Washington as if you had been there, using the pictures given in the lesson.

1. What is a mountain system?
2. How does the land appear when you approach a mountain?
3. Is a mountain a divide?
4. Of what use are mountains?

16. A RIVER — THE HUDSON

Mountains are very frequently the home or *source* of rivers, and so we turn now to a river which has its beginning among the great hills. In New York State is found an interesting river called the Hudson (see map on this page). Many people know it and love its beauties. Let me tell you about a trip which a party of friends once took from its source to its mouth.

Source. — One day they found themselves by a lake on a high mountain side, far from the haunts of men. Their guide told them that the little lake was called the "Tear of the Clouds," because its blue waters seem to drop from the clouds. The Indians called the mountain "Cleaver of the Sky," because it is so high and sharp. It is now known as Mount Marcy. It was named after a noted New York statesman. The little lake is four thousand feet above the river's mouth, and is the *source* of the noble Hudson River.

The party made its way around this lake, and in doing so, found a little brook flowing into it — a brook so small that they could easily step across it. On the other side of the lake was the out-

The Hudson River, from its Source to its Mouth

let, a stream which they followed a little way, noticing its rapid movements over the rocks.

Not far away from the lake were other streams. One of these cut deep channels through the solid rock where the slope was steep enough to cause a rapid current; another was so wide that the party had to cross it on a log.

Some time was spent on the *upper course* of the Hudson. Farther down they came again to the little brook from the "Tear of the Clouds" and found that it flowed into "Opalescent River," so called because its colors are in many places like those of an opal. This river unites with streams flowing from other lakes, and forms the north branch of the Hudson. Some of these lakes are surrounded by deep forests in which are many kinds of wild animals, as squirrels, wolves, foxes, deer, and black bears.

Tributaries and Falls. — A few days later these friends were travelling over the Blue Mountain region, — a land of lakes and brooks, — and then on toward the southeast, crossing stream after stream which united to swell the volume of the Hudson in its *middle course*. The last five miles of this trip were through a narrow valley beside the Hudson, where they could frequently see the waters dashing over the rocks in rapids and cascades.

Tear of the Clouds

Near the railroad station at North Creek, the river began its work of carrying logs to the mills below. (See cut, page 46.) In one place it rushed through a long, narrow defile. Several miles below this, it received a large tributary from the east, and fifteen miles farther down another and larger branch came in from the west. These additions bring so much water that the Hudson becomes a strong and powerful stream, and the logs are carried rapidly down to the saw-mills which are situated wherever falls are found.

The Mountains where the Hudson and Other Rivers rise

Opalescent River

One of the most beautiful of these falls is Glens Falls. It is well worth while to stand on the bridge below these falls and watch the water dashing and foaming, shooting and lashing, roaring and splashing, over the ledges of rock where once swarthy Indians came to hunt and fish. Glens Falls marks the dividing point between the rough and wild portion of the river and the peaceful scenery below.

The general direction or *course* of the

North Creek: near the Railroad

Hudson is from north to south. Before reaching Glens Falls, where it descends seventy feet over black limestone rock, it flows a short distance due east. A few miles below the falls it turns abruptly toward the south again.

By and by our friends could see from the car windows a great river leaping over a ledge of rocks and falling down in a wide, white sheet of water. It was the mighty Mohawk, coming from the west, and bringing to the Hudson enough water to double its volume.

Cities. — Two large cities were soon reached, Troy on the left or eastern bank, and Albany on the right or western bank. As these cities are built on small hills, they can readily be seen across the river. Albany is the larger of the two cities, and contains an elegant and costly statehouse, or State Capitol. The banks of the river here are very abrupt, and some of the streets in the city are very steep. This city has grown rapidly since the Erie Canal was finished. Several railroads centre here and some cross the river by an iron bridge.

The *lower course*, which is the navigable part of the river, begins at Troy. Here the travellers secured seats in the bow of a large steamer from which they could see both sides of the river. They noticed, as they glided swiftly along, that the banks of the river were at first well-wooded and almost in their natural state. The scenery here was not interesting. Now and then they passed some height where sheep or cattle were grazing, or sighted a village among the trees.

Scenery. — When they had gone about thirty miles they began to see hills of considerable size, and then, on the right, mountains. These, however, were often concealed from view by the banks of the river or the foot-hills. Fine residences and summer houses became more numerous. Cliffs, points, and wooded heights were passed, one after the other. On the eastern side they saw a large, deep bay in which Fulton built the *Clermont*, the first practical steamboat.

The constantly changing width of the river adds very much to its beauty. About halfway to New York, at Poughkeepsie, the river is wider than usual, and here the boat glided under a fine iron railroad bridge. Below the bridge the river became narrower and the banks much higher. Upon one of the steep banks stood a city of

Glens Falls: Water falling over Limestone

some size called Newburgh. In the Revolutionary War Washington once had his headquarters in this city. The stone house is still standing.

The Highlands. — Below Newburgh the most picturesque part of the river, called the Highlands of the Hudson, was reached. Here the river cuts across a great natural barrier and forces its way onward toward the sea. As the steamer approached the entrance to the Highlands, it seemed as if it were going through a gate into some beautiful place beyond. This opening or gate is between Mount Breakneck on the east, and on the west the bold, stern peak, called by the poet Willis "Storm King."

Iron Railroad Bridge at Poughkeepsie

Storm King

Idlewild, a bit of charming country, rich in hills and dales, where Willis lived, is seen on the left. You can tell something of the appearance of these mountains from their well-chosen names. Storm King is fifteen hundred feet high and is clothed with trees to its summit. As the river tears its way along between these great barriers, it is only about half its previous width, and its current, of course, is far more powerful.

West Point. — Still farther down, Cro' Nest signals to a peak opposite, and both look down upon West Point at their feet. Few places have more really beautiful surroundings than West Point, where our army officers are educated. The view from Fort Putnam, above the Military Academy, out toward Newburgh, can hardly be matched for variety and loveliness.

The party are now among historic scenes. A little below West Point, but on the opposite side, is the place where Benedict Arnold, the traitor, escaped to the British vessel *Vulture*, when his treason became known.

For nearly twenty miles the party sailed on through bodies of water almost enclosed by overhanging peaks. In one place the river forms a beautiful crescent in passing around a lofty peak known as Anthony's Nose. You will think there must be some resemblance in this mountain to a human nose; but this is not true.

Two Revolutionary forts were built opposite this peak, because the river is very narrow here, and the position was favorable for preventing the enemy from coming farther upstream.

In a short time the steamer glided through the southern gateway to the lovely Highlands, and sailed into a wide bay.

Farther down, the river widens out into a still larger bay called the "Tappan Zee." Here are seen the white walls of the prisoners' palace, the well-known Sing-Sing prison of New York state. Sing-Sing in the Indian language means "stone upon stone."

On the same side of the bay, but farther south, are Irving's home, "Sunnyside," and the places he speaks of in his writings — Sleepy Hollow, Tarrytown, and Irvington.

The Hudson from West Point

Tugboat with a Tow of Canal Boats

The farther south the vessel steamed, the more numerous became the sailing-craft on the river. She met and passed canal-boats in bunches, hurried on by powerful, noisy tugs; and schooners, steamers, and every variety of yachts lent life to the scene, and made the surface of the noble river seem a busy highway.

One of our War-ships on the Hudson near Grant's Tomb

The Palisades. — More and more the party realized, as they advanced in the trip, that the river was increasing in size and importance. The eastern shore for many miles is an extended suburb of New York City. The western shore is a frowning wall of trap rock, known as the Palisades, rising from two to five hundred feet above the river. Seen from a distance, it looks like a real stone wall, gradually decreasing in height as it approaches the south; but in the nearer view it is seen to be much broken up by valleys and small peaks.

The great increase in the river travel showed that a great city was near. Soon a part of New York City appeared on the left. Then came Riverside Park, with its stately monument to General Grant. In a short time the boat steamed

The Palisades and Yachts

along between lower New York and Jersey City. This part of the Hudson is sometimes called the North River. Near the landing pier the Statue of Liberty came into sight in the distance, and towards it stretched the great harbor, full of life.

New York Harbor. — The harbor is formed by the union of the East River, which is on the opposite side of Manhattan Island from the Hudson, and the North River. Although the Atlantic Ocean is several miles away through the Narrows, or entrance from the lower bay, the mouth of the Hudson may be considered as being in New York Bay. Before landing, the travellers saw in the harbor every variety of craft, — ferry-boats loaded with many passengers; hundreds of tugs, moving ships of all sizes or towing long floats filled with freight cars; yachts of great beauty and value; schooners, large and small; steamers and ships from all parts of the world.

The little party of friends had come from the wild woods, the quiet lakes, the sparkling brooks, the green banks, and quiet summer homes, to the mouth of a great river and to one of the busiest seaports in the world, — Greater New York, the second city in size and importance on the globe.

New York Harbor

LANGUAGE LESSON

Write some account of a river or brook in or near your town or city.

17. A TYPICAL VALLEY

Miss Hale one day told the class about taking Henry to spend a few weeks with her on a farm in a valley. They had a horse and carriage and drove about where they pleased.

Flood Plain. — In their drives they found that, like most other valleys, this one lay among the foot-hills of a mountain range and was part of a larger valley. Through it flowed a river, and in the lower part of it a large village spread out over the *flood plain*. A flood plain is formed by a river in time of overflow, when the mud and silt brought down from the hills are left along the banks in the shape of flat, level land. These floods usually occur in the spring-time, when the melting snows and the heavy rains increase the volume of the rivers. Flood plains are also formed in lakes, and whenever muddy water begins to move slowly. Notice in the first picture how much the river looks like a lake. In his drives, Henry learned that this flood plain was nearly encircled by high hills, green with trees, shrubs, and grass; and from the hill tops he saw many beautiful views. As a flood plain has rich soil, there were fine farms in this part

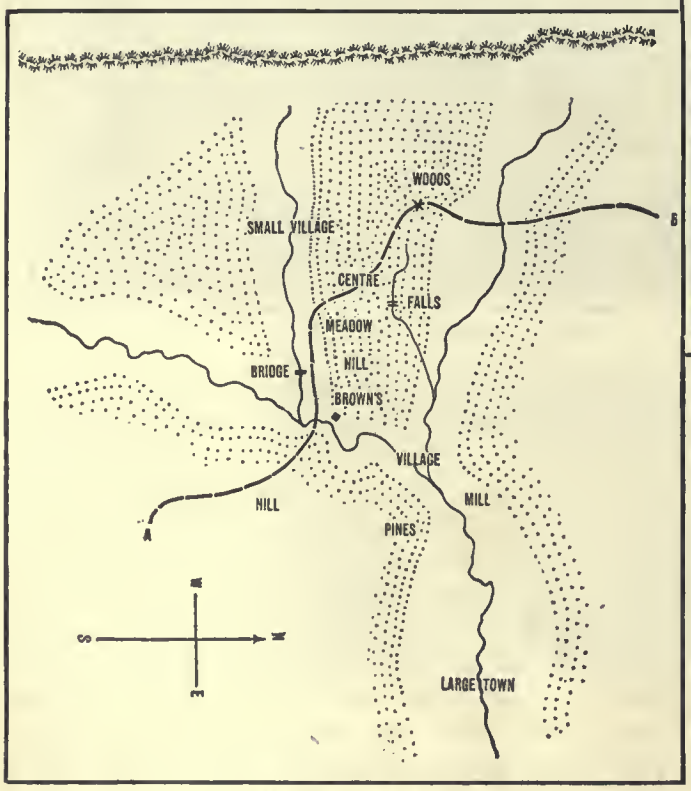
The River in the Valley

of the valley. Trees grew along the banks of the river.

In the large village were some factories, and it was the centre of trade for the towns around it. Every summer the railroad brought many visitors to it from the great cities.

Water Power. — One day Miss Hale and Henry took a drive through the middle part of the valley. For the first five miles the road ran over a nearly level plain, with glimpses now and then of the river. Under great elms they drove, past thriving farms with large houses and barns. Suddenly the valley grew narrower, the slopes became steeper, and the valley bed inclined more and more, making falls and rapids in the river and so giving the town water-power. Soon they found a woollen-mill near the river bank. Beyond the mill, the valley grew still narrower, turned to the left, and then divided into two valleys as you see on the map. Each valley had its river. Another village soon came in sight, with a street full of stores, a post-office, a hotel, two churches, a handsome town hall, a large high school, and many fine residences. (See cut of village on page 102.)

The valley was too narrow for the number of people, and many houses were built high up on the steep slopes. Two chances for water-power, one in each branch valley, had helped to build up the village. The valley to the left was the one in which Henry and Miss Hale were staying with Farmer Brown, and the house soon came into sight.



Map of the Valley

Farmer Brown's Home

As Henry went about among the people he noticed that the farmers and their children were good workers. They liked to work, and were not ashamed of it. The children enjoyed going to school. They could use their eyes; and if they did not talk as fast as a city boy, they were stronger in body and good thinkers, with much ambition to be somebody and do something. They liked Henry and he asked some of them to come to see him in his city home, and promised to show them many interesting sights.

Farmer Brown's Barn

Bridge over a Brook

The farm lay on both sides of the river. The farmer kept ten head of cattle and two horses in his comfortable barn. How Henry enjoyed the barn and the animals in it! He was up early to see the men milk, and afterwards he drove the cows to pasture beside the river. At night he brought them home again to be milked. He took his little cup to the barnyard, and had it filled again and again with milk. On hot days he often saw the cows under a large tree.

Farmer Brown Mowing

Next to driving the cows, Henry liked to feed the chickens in the yard of the hennery, where about a thousand roosters, hens, and chickens were kept. An incubator was used for hatching the chickens. Henry followed the men to the hay-field and saw the hay mown, spread out to dry, and carried to the barn for the cattle. Many a good ride he had high up on the load! Before he went home he learned to hoe corn, pull weeds, pick berries, and shell beans. He could tell peas, beans, onions, and potatoes growing in the garden, and he knew a barley-field from one of oats.

In roaming about, Henry noticed that about every half mile a little brook came down from the hillside, and crossed the road to join the main river. In one place he built a dam in a brook and put in a water-wheel. In some brooks he found little falls. People often crossed these brooks over wooden bridges.

Valley Farms. — The pastures for the cows extended in many cases up the sides of the foot-hills. Miss Hale showed him several foot-hills which had been rounded off and smoothed down by ice and water as if shaped by some giant's tool. Henry could see small farms off on the hills. It is much easier to work on a valley farm like

Cows in Pasture under a large Maple Tree

An Extensive View over the Valley toward the Mountains

Farmer Brown's than on a hillside farm.

Henry noticed that the farmers, on their business trips, followed the valleys and kept near the river, where the roads were more nearly level and distances shorter. He much preferred to go across the valleys and over the hills; for there he saw many beautiful views and passed fine summer homes among the shady trees not far from the road. Sometimes these roads ran over steep hills. Miss Hale showed the children, on the map, one of Henry's favorite drives. She marked it from A to B (see map, page 50). There were few ponds and no lakes in the valley, and Miss Hale explained to him that the rivers had drained off the water by wearing away all the barriers, which showed that a long time had passed since the rivers began their work.

Valleys of the World.—There are thousands of such valleys in the world, none of them shown on the maps of the geographies because there is not room. When you see lines on maps showing mountains, remember that there are many valleys among and near them.

A Steep Hill Road

LANGUAGE AND FIELD LESSONS

Describe Henry's valley, using the pictures for help.

Visit a valley near your home and write about it, or write about one you have visited.

The Mountains that enclose the Valley

18. A PRAIRIE

A Letter from Miss Hale's Sister

Out West, November 17.

My dear Sister, — I have been travelling for some time in the Central West, and now know much about the great plains or *prairies* so common there. Perhaps you and your friends would like to know what I have learned.

Harvesting Wheat on a Flat Prairie

The word "prairie" means "meadow-land," and was given to the fertile, treeless plains by the early French explorers. These extensive plains are found west and southwest of the Great Lakes in the upper and lower Mississippi Valley.

There are two kinds of prairies, the "flat prairies" and the "rolling prairies." The former are very level, and often as smooth and even as a floor or the surface of a lake. Not a tree is to be seen on them except along the water courses or in little groups where the soil happens to be very moist. In such places clumps of trees sometimes seem like islands in the ocean.

There are few trees because the soil is so hard and fine, and because the Indians used to set fire to the dry grass in the autumn, and thus destroyed the young trees. These fires were greatly feared by the early settlers. Whole families sometimes perished in this dreadful way.

The grass upon these plains is often as high as a man's head. The buffaloes formerly fed upon it, but they have disappeared, and on the large grazing farms may be seen thousands of cattle fattening for the market.

Trees beside a River on a Prairie

A Lagoon on a Prairie, supplied by an Artesian Well

The prairies are fairly well supplied with moisture. The rivers and small streams are slow, sluggish, and muddy, often without the definite banks of the New York streams. In South Dakota I noticed that the farmers had bored many very deep artesian wells, from which they had a supply of water.

The prairies are considered beautiful by many of the Western people on account of their gentle outlines and misty distances. The sky is very blue, the sun very bright, the flowers large and brilliant, and the horizon seems far, far away. The feeling of "having plenty of room to breathe in" is one of the strong attractions of the prairies. When I ride over them, I am much impressed by the vastness and sameness of things.

Cattle on a Rolling Prairie

In Wisconsin I saw the "rolling prairies," so called because the land rises and falls with much regularity, somewhat like the waves of the sea. The crests of the land waves are sometimes ten miles apart. From the top of one of these ridges one can see very plainly over to the next ridge. Between the ridges will be found depressions or valleys through which streams flow. The rolling prairies are very attractive, when settled, and remind me of certain parts of the East.

Illinois is still called the "Prairie State"; prairies are, however, found in several other states. In Illinois most of the "meadow-lands" are now made into valuable farms.

Uncle John lives on such a farm near Bloomington. He has set out near his house a large grove of trees, consisting of maples, walnuts, oaks, and hickories, to shelter his home from the cold winds.

Uncle John says it was very hard to plough the prairies for the first time, not on account of the stones, for there were none, but because the sod was so matted together with roots, tough and hard to break or turn. He has usually needed, for the first ploughing, several yoke of oxen on one plough. In carrying on his farm he uses all kinds of machines, drawn by horses or moved by steam, such as gang-ploughs, corn-planters, grain-sowers, mowing-machines, rakes, tedders or turners, reapers, harvesters, headers, and threshing-machines.

A Header drawn by Twenty Horses

Machinery can be used on these prairies to a greater extent than on the hill farms of Massachusetts, because the prairies are level and the soil fine and free from stones.

If you look upon a large state map of this part of the country, you will notice that townships are all of the same shape and size, just as they are in northern Maine. The whole country constantly reminds the visitor of a great chess-board.

Threshing Wheat by Steam

In riding over a western prairie country, instead of a happy variety of scenery, one usually sees fields of grass and grain which look exactly alike, small and very plain houses, a few trees, and a few barns. Now and then there is a grain elevator for the storing of wheat and oats, or a large windmill that is used to pump the water for the house and stock or to grind the corn.

The roads in this country all run in straight lines, following the parallels and meridians. The farmers build their wire fences in straight lines, and sow their wheat and turnips in parallels. Railroads usually run in straight lines, and curves seem banished from the sight except on the horizon.

I am so tired of straight lines that I am coming home next spring to enjoy once more the loveliness and irregularity of things on the Atlantic Coast.

Your sister, MARY.

LANGUAGE LESSON

Write a letter to Mary Hale and tell her about the plains, hills, mountains, or valleys near your home.

Government Map: the Coast from Portsmouth to York

19. A BIT OF COAST

Turn to the map of the New England or Eastern States on page 107, and find the two towns of Portsmouth in New Hampshire, and York a little farther east in Maine. The distance between them, you see, on the map, is about one-fourth of an inch. The little coast-line looks like this:—

but this fourth of an inch stands for a distance of twelve miles. That same coast-line, enlarged many times as on a government map, looks like the enlarged map on this page.

How much more the second map tells you than the first; because it is on a larger scale, more facts or details can be put in. You see now where the bays, the inlets, the peninsulas, the capes, the rivers, the towns, are situated; but there are hundreds of other things you do not know about.

Not long ago I visited this bit of coast, and I will tell you what I found there that a map, however large, cannot tell. On this pleasant trip I took many pictures. I will show them to you, and they may help you to understand what that small bit of coast-line on your map means.

A Tidal River. — One hot July day I stood on Seavey Island, where the Spanish prisoners were kept during the war in Cuba. From it I could see Portsmouth,

and I took the picture of the city which you see on this page. Portsmouth is near the mouth of a tidal river. The current of this river is very swift and strong, flowing in at one time of the day and out at another, as the tide rises or falls. These periods are about six hours in length. (See Lesson 14.) The current is very strong in the narrow channel, between the point and the mainland. It is almost impossible for a man to row a boat there against the current.

Looking toward Portsmouth

Coast and Islands at Low Tide

Seaweed-fringed Shore

Navy-yard. — This river, called the Piscataqua, separates the two states. After crossing it, an island in Maine is reached, just above Seavey, on which is a large navy-yard. Here ships are repaired and naval boats are made, as well as rapid-fire guns and naval stores in general. Here I went on board a ship taken by our forces in the Spanish war. She was being repaired. In the dry-dock was a large tugboat, all ready to be launched.

Next in the river comes the island, Seavey, on which we are supposed now to stand. It is shown on the government map. Now jump into my rowboat and go down this tidal river with me. The current helps us and we move rapidly. Crossing a strait, we land on a little island from which there is a fine view of Seavey Island. Northward we see several small islands, and, on the mainland, many handsome summer cottages among the trees.

Irregular Coast. — Again we enter the boat and pass along among the islands. Farther on we see a very irregular shore, full of bays, inlets, projecting points, and stony beaches. One of these points is called Kittery Point, and upon it there are some fine residences.

When the tide is low, the shores have a different appearance. The small islands seem larger, and the seaweed and the fringe of rounded rocks are to be seen everywhere. The seaweed is very slippery to walk over. It forms a good cushion to prevent the water from breaking the rocks to pieces too rapidly.

We row past the seaweed-fringed shore, around another sharp point, and then, in a short time, spy a little cove into which we steer the boat and land. We find here

A Little Cove and Piscataqua River

a break in the rocky shore, and a beautiful opening leading up to grassy seats from which we can see the great island of New Castle on the opposite side of the river.

A Summer Resort. — This is a very fashionable summer resort, and has one of the finest hotels on the coast.

A Pebbly Beach

Leaving the boat in the cove, we walk a short distance and come to a pebbly beach where the water is turning the stones over. This makes them more nearly round and smoother, thereby increasing the sand under the water.

A few rods beyond this beach is a small peninsula upon which stands a large hotel whose ample piazzas command a fine view of the harbor and mouth of this river. Here naval officers and their families are often seen in the summer months.

The Harbor. — A small corner of the harbor touches the hotel bathing beach, and then the coast rises to some height. On this elevation is an old blockhouse, well preserved, and around it the unfinished walls of a new fort. From this point there is a splendid view in all directions. Below and near this fort is the harbor, crowded with boats of all kinds; then the mouth of the Piscataqua River, and on the opposite shore another fort with its guns in position.

Portsmouth harbor is a waiting-place for vessels. New boats may be seen almost every morning, for they come in here for business, for pleasure, or to wait for better weather.

Along the Shore. — We have talked about only two of the twelve miles, and we have omitted much more than we have mentioned. The next seven miles along the shore are much less interesting, for the coast is rather low and flat; so we will do well to leave our boat in the cove and take a ride on the electric cars. We board the cars near the hotel and soon pass a little country schoolhouse behind the fort. School is kept here during two short terms in the year.

An opening on the left shows an arm of a creek, or long inland bay. This is salt water, and here the tide rises and falls regularly. Beautiful green grass and wooded slopes surround the bay. Houses are seen among the trees on the shore. A point of land juts sharply out into the water.

Village and Beach. — We pass through a long, straggling village, by the post office and church, and then out into the country by a large, wooded island on the right. On by country farmhouses, up hill and down we go, with glimpses of ocean away to the right. By and by the car approaches the coast and crosses wide salt marshes over long bridges supported by logs driven into the earth. Through cool, refreshing woods and

Old Blockhouse and New Fort: a Small Part of Portsmouth Harbor

along the dusty road, by country church and store, by well laid-out golf grounds, it goes, till it reaches another village on a promontory and ridge near a wide, salt river. Here we pass many fine mansions, handsome hotels, and cottages. Most of these buildings command a view of the ocean.

The Long Beach, York

Dover Cliff

From the ridge on which stands the pretty town of York Harbor, a short run, down grade, carries us to a long beach where the breakers never cease their oncoming and musical roar.

Over this beach for three miles we spin, watching the people in bathing or playing on the sand. Far out at sea rises the stately form of the lighthouse on Boon Island. At the farther end of the long beach we leave the car and climb Dover Cliff, the better to watch the surf and enjoy the cool breeze.

The Lighthouse. — A pleasant walk through a pasture where sleek, fat cows graze, and we come near a complete lighthouse plant on a small island at the end of a high peninsula. The peninsula is called Cape Neddick, and the island, Nubble Island. When it is foggy, the fog-horn is blown to warn ships off the rocks and shore. Against the end of this cape the waves dash constantly. This action of the water for centuries has worn the rocks smooth.

Beyond the cape, between two rocky points, is the entrance to York Harbor.

The cape and the opposite shore are covered with summer cottages and large hotels. Thousands of people come here in the hot months from the crowded city to bathe and enjoy the cooling breezes from the Atlantic Ocean. At high tide hundreds go in bathing, and the beach is a lively place.

What the Map means. — In this lesson you have seen a few pictures taken in the course of a five-mile walk. Have these given you any idea of the meaning of a little curve in an ordinary map? Then try to think how much is left untold in the twelve miles. You never will realize all that it means until you walk leisurely or ride in the steamer from Portsmouth to York.

Entrance to York Harbor

3. PICTURE STUDY

Nubble Island Lighthouse, York, Maine

1. What is the principal object in the picture?
2. What different forms of land can be seen?
3. Is it high or low tide? How can you tell?
4. Is there much movement of the water? Why?
5. Tell about the different objects seen on the island.
6. Of what use are lighthouses?
7. Is there a strait in this picture? Where?
8. How could a person on the mainland reach the lighthouse?
9. Was the wind blowing when the photograph was taken? How do you know?
10. Why was a house built beside the lighthouse?
11. What small building in the picture do you think is the boat-house? Why?
12. If the boat-house were at the water's edge, what would happen to it in time of storm?
13. A lighthouse is often placed on a rock several miles from land. Would you rather live in such a lighthouse or in the one shown in this picture? Why?

20. A COLD COUNTRY

To-day we will learn about the country where Sigloo and his sister Toodla live, far away to the north. Although this country is called Greenland (see map, facing page 88), it is a very cold place. Instead of four seasons, as in our part of North America, they have only two seasons — a long winter of over ten months and a short summer of less than two months, or "the long night" and "the long day." During nearly four months the sun never sets, and for about the same time he never rises to gladden the hearts of Sigloo and Toodla.

Stone Igloos on the Bleak Coast of Greenland

Climate. — In the short summer it is about as warm as in early spring in the northern states, but by the last of August ice begins to form, and in September the thermometer falls below zero and stays below, month after month.

Sigloo likes the cold weather if the wind does not blow too hard, for it is manly and brave to endure the cold without crying, even if it is 40° below zero. We think it very cold at zero. Sigloo much prefers the severe cold to the fogs and rain of summer or the terrible hurricanes of early winter.

So cold a country is very bleak and barren most of the year. Frowning cliffs and rocky capes are common on the western side, and snow and ice in the interior.

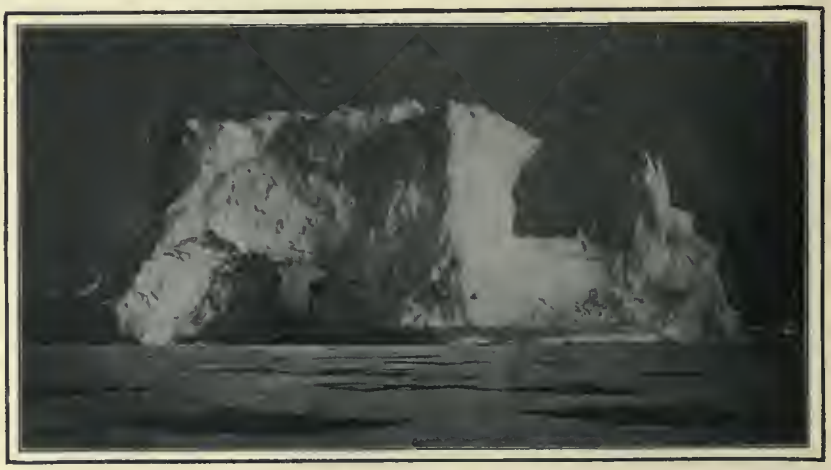
By the middle of October everything is frozen up. The birds have departed, the sun has gone below the horizon, and the dreaded night has begun. Snow and ice, ice and snow, are seen on every side. It is now cold enough to form fifteen inches of ice in twelve hours. Even the salt water of the ocean is frozen many feet thick. The salt-water ice is constantly moving about and breaking up and being thrown by the waves upon the land, where it is piled up in great heaps. Many of the single pieces are very large.

Ice from the sea-water is not fit to use as a drink, so when Sigloo is thirsty he melts snow or ice from a glacier, which is a frozen river.

The moisture from the open sea is driven over Greenland and falls in terrible snow-storms which sometimes last several days. Three feet of snow often falls at one time. As the sun does not fully melt each winter's snow, it collects in great quantities. By and by it is warmer, and the sun's rays partly melt the snow and change it into ice, forming over the interior a great ice-cap many feet in thickness.

Icebergs. — The great weight of snow and ice presses this mass slowly into and through the valleys and down to the sea. When it reaches the shore, it is sometimes thick and high enough to form a great wall of ice miles in length.

This great shaft of ice is pushed onward, by its enormous weight, out into the water. Suddenly, with a roar louder than thunder, a huge mass is broken off from the main body and tossed about in the sea, throwing up waves high enough to sink the largest ships. This huge mass of ice thus broken off is called an *iceberg*, which means an ice mountain.



A Large Iceberg

Sigloo several times saw the "birth" or the making of an iceberg, and it always filled him with awe and dread. The largest one was one hundred and fifty feet above the water as it floated. Seven-eighths of it must have been under the water, as you can prove by floating some ice in water; therefore, this monster must have been more than a thousand feet in height. While Sigloo was admiring its grandeur, the wind and the currents slowly moved it out of the harbor toward the Atlantic Ocean.

One summer day Sigloo and his sister were standing on a cliff, looking upon the water in the bay, which was dotted all over with great icebergs sailing majestically by. Suddenly a loud report caused them to jump, and soon they saw a big berg break in two. One part then broke into twenty or more, and fell with a shower of smaller pieces into the water. In a short time the remaining part turned over in the water, producing a terrible commotion and sending the foam flying in all directions.

The Long Night.—During part of the long night, the moon shines, and Sigloo and his sister go out making calls. When there is no moon, the stars are very bright. All of a sudden, perhaps, a bright band of white light shoots across the skies. This one is soon followed by bands of red, blue, and yellow, streaming upward and forming arches in the zenith. Then the colors change, the forms remaining the same. Blue and orange mingle, and violet darts its way through the bands of yellow.

All these rainbow colors are reflected from the snow and icebergs, and glow on the surface of the water and the mountain tops. But children of the North have little imagination and, I fear, do not care very much for the *Aurora*, or Northern Lights.

Plays.—Sigloo sometimes plays shinny or hockey with the other boys, using a walrus rib for his stick and a flipper joint for the hurley. He plays "pin and cup-ball," reindeer hunting, and bear hunting. He also likes to try his strength in tests of pulling, wrestling, and boxing. He practises throwing the lance and shooting with the bow and arrow. But he is very anxious to learn his father's business, which is *hunting*.

Dogs.—To prepare him for this his father gives him charge of the dogs. He has to feed them every other day upon walrus skin, scraps, bones, and sometimes dried fish. When feeding, they are quiet for fear of losing a part of their meal. Eskimo or Greenland dogs are like wolves, and they are usually quarrelling and always very hungry. They are greatly improved in temper by kindness and good feeding. They have sharply pointed noses and rather long hair. They are so strong and hardy that they can withstand the terrible cold, and are to the Eskimos what the camel is to the Arab in the desert.

Sigloo helps his father in harnessing them to the sledge. The harness is fastened to the sledge by a single trace. This branches into smaller traces, to which the dogs are attached. The leader has the longest trace. This dog is the one that can whip all the others and make them fear him.

Sigloo and his Eskimo Dog Team

The driver guides them by his voice and long-lashed whip. When drawing the sledge, they will suddenly turn away from the path of duty to fight a strange dog or to follow a chance bear.

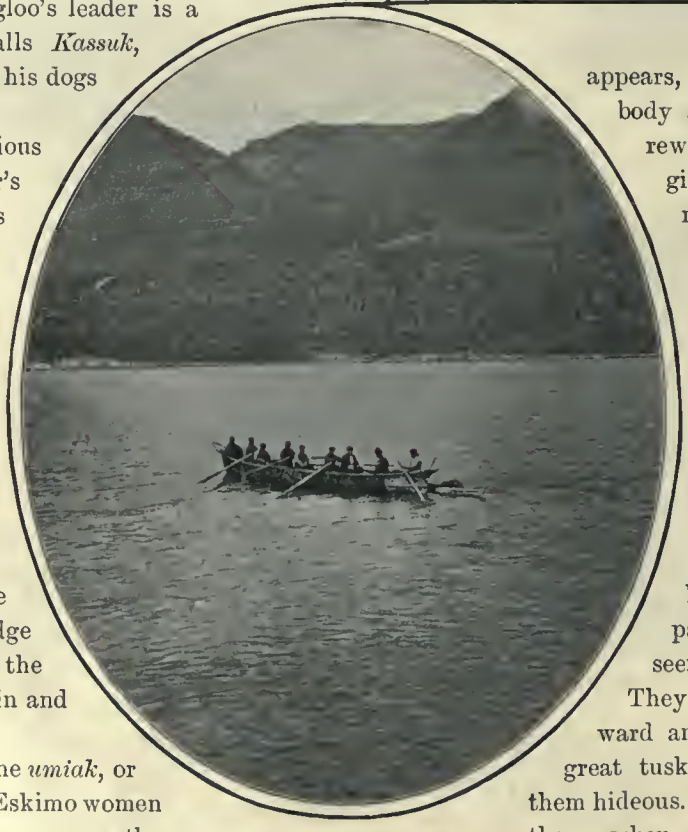
One day Sigloo wished to try his team of seven dogs on a longer drive than usual. The dogs behaved very well at first, but when Sigloo wished to turn them in a different direction, which happened to be against the wind, the dogs did not like the idea and refused to go that way unless he used the whip constantly. Sigloo became tired of swinging the heavy lash and let it drag behind. The dogs soon found this out, slowly turned round the other way, and dashed off like a parcel of schoolboys just out from their studies. Sigloo then drove them among the snow-drifts and hummocks of ice, jumped off the sledge, turned it over, and made the runners stick into the snow.

Moonlight View showing Kayak, or Eskimo Boat

In this way he stopped the dogs and then punished them for being so disobedient. After this they behaved very well and went where he directed them. Every set of dogs has a leader or ruler. Sigloo's leader is a powerful dog, which he calls *Kassuk*, meaning black. Another of his dogs is named *Oosiook*.

Boats. — Sigloo is very anxious to learn to paddle his father's boat, called a *kayak*. This is a very long and narrow boat, made of light wood, and it takes much skill to manage it. The covering is of tanned sealskin, sewn together with sinew thread. The length is about eighteen feet, and the depth nine inches, the top being covered like the bottom. The hunter sits in a round hole in the centre, and laces the lower edge of his water-tight jacket over the hole, thus fastening himself in and keeping the water out.

A large open boat, called the *umiak*, or woman's boat, is used by the Eskimo women when they go fishing. The men use the same boat when they go a long distance to hunt the walrus or polar bear, or when the people move from place to place in summer. This boat can carry at one time half a dozen persons. The shape and general appearance of the boat is shown in the picture.



Umiak, or Woman's Boat

Hunting. — In our spring the seals appear, and Sigloo for the first time goes out with his father to hunt them. The seals come up through the ice to breathe, and beside each breathing-hole a man sits and patiently waits in the cold. When the seal appears, a lance is thrust into his body and he is captured. As a reward for his patience, his father gives Sigloo some bits of the raw meat, which taste better to Sigloo than the best candy does to you.

A Walrus

In the early and late winter, Sigloo and his father go in their boats to hunt a very large animal, the walrus. These creatures bask in the sun on some great piece of ice, enjoying the warmth of the bright rays. They go in packs, and usually several are seen at once.

They are huge in size and awkward and ugly in looks. The two great tusks and long whiskers make them hideous. Their great strength makes them, when enraged by human beings, fierce and terrible foes.

When the monsters go to sleep on the ice, the two hunters approach noiselessly in the boat, keeping themselves concealed from view behind the ice. Getting as near as possible in this way, they may get out of the kayak and creep still nearer on the ice. If they fail to get near enough, they sit down on the edge of the ice and imitate the cry of the animal, calling, "huk! huk! huk!" This will usually bring several walruses up out of the water near the ice. The father throws the harpoon, and Sigloo fastens the rope around an iron stake

Polar Bear

An Eskimo House, or Igloo

driven into the ice. At every chance they take up the slack in the line, and finally bring the creature near enough to finish the killing with the lance. As a walrus weighs some six hundred pounds, plenty of meat and blubber for themselves and the dogs is obtained from one animal. Sometimes a herd will show fight in defending a dying companion, and then the Eskimos are obliged to flee for their lives.

The hardest and most dangerous animal to attack is the white polar bear. Several experienced hunters and a large number of dogs form a hunting party, and together they frequently succeed, after several dogs have been killed and some of the men wounded, in killing a bear.

In the early summer Sigloo goes out hunting all alone; he goes to catch birds in a net. The little *auks* come from the south in great numbers when it grows warmer. They feed and breed about the high cliffs, and Sigloo climbs halfway up one of the cliffs, where he is surrounded by hundreds of them. With their black backs and white breasts they make a pretty picture. Sigloo lies down and watches them as they sweep past, gradually drawing nearer and nearer to him. Suddenly he throws up his net and half a dozen birds fly straight into it. Moving his hands very rapidly, he catches them before they have a chance to get away.

In a short time he catches more, without moving from his place. Then he searches for the eggs, which make good eating.

Home. — Sigloo was born in a very queer house made of stone and banked around with turf. We would call it a cave or a hut. It is less than ten feet in diameter, and just high enough for his parents to stand in. It has one opening for a little light; a wide, raised bench covered with furs serves for a chair in the daytime and a bed at night. There is little "elbow room" in such a house. The strangest thing about the house is the entrance,

A Stone Igloo, showing the Long Entrance

which is a long stone passageway, fifteen feet long, and just large enough for one person to crawl through at one time. This is made long and small to keep out the cold. The interior of the hut is lined with sealskin, and a lamp hangs near the entrance.

Sigloo calls this home an *igloo*. His father does not own it, even though he made it. It belongs to those who occupy it for a season. His father does not own any land. It belongs to everybody. People here move from place to place very frequently, going like the Indians to places where the game is most plentiful.

When off for a long hunt in winter, Sigloo helps his father and mother build an igloo out of the hard dry snow, cut in blocks. The blocks are each about three feet long and over a foot wide. The snow igloo is made in about the same shape as the stone ones. Snow is shovelled over the snow hut to give more protection from the cold. The bed is made of snow covered with plenty of furs. These houses keep out the cold winds and yet are well ventilated.

Toodla helps her mother melt snow and cook the soup over the little lamp. The lamp is a shallow dish filled with oil, having wicks made of dry moss placed around the edge. Much of the food is eaten raw.

Toodla is learning to help her mother sew, with a bone needle and thread made of a sinew. Nothing would please her better for a Christmas present than a real steel needle. Her mother is very skilful in making garments out of furs. Father, mother, and children all dress very much alike. They use fur because it will keep out the cold so well.

When Sigloo was a baby, he wore clothes made of fawn reindeer skins, soft as a piece of kid. His mother carried him about on her back in the folds of her hood.

Eskimos and Government Storehouse, South Greenland

Dress. — Sigloo wears a shirt, trousers reaching to the knee, and a coat, all made of bearskin. His leggings are fur and his shoes bearskin, often with the natural sole of the bear still attached. He usually goes bareheaded and lets his hair grow for protection. Still, if it is extremely cold, he can draw the fur hood of his coat up over his head. His mittens are sealskin. Reindeer skin is sometimes worn in place of bearskin.

His sister has a coat of sealskin with a pointed hood, a shirt of birdskin, with the feathers worn next the body, trousers made of foxskin, boots of sealskin, and stockings of deerskin. In her trimmings of white fur she looks very winsome.

Sigloo and his people are called Eskimos, and they belong to the yellow race.

Appearance. — Sigloo is short and plump like his father. He has a heavy jaw, large cheek-bones, a narrow forehead, small black eyes, a flat nose, thin lips, and white teeth. So has his sister Toodla.

Summer. — A pleasant change comes after the ten long winter months. In June comes the Arctic spring or early summer, when the sun's warm rays melt the snow and ice, and the water, released from its long imprisonment, flows everywhere with a musical sound. Then Sigloo and Toodla see the willow stems starting, the flowers budding, the birds coming back, snipes seeking the pools, little auks on the cliffs, and the seals basking once more in the warm sun. By June 21, summer is in full blast; the grass is green upon the hillsides; the cry of birds and the hum of insects take the place of the terrible silence of the long winter.

LANGUAGE LESSON

Write about the cold country under the heads: Sigloo and Toodla, climate, icebergs, Northern Lights, plays, dogs, boat, hunting, home, summer, appearance, and dress.

21. A HOT COUNTRY — CUBA

Myra and Tom left New York in the middle of winter by a fast steamer for the West Indies. They wore heavy clothing and needed heavy wraps when they sailed, but in a few days all was changed. The farther south they went the warmer it became. The north wind became less sharp and soon ceased to blow. Winter clothes were so uncomfortable that their mother opened the trunks and took out summer things to put on. Parasols and fans seemed necessities. No one felt like moving about. All lounged on the deck and kept out of the sun.

The Bahamas. — The vessel stopped first at Nassau, a town on an island of the northern group of the West Indies called the Bahamas. The children noticed a great difference between the trees here and those in their own land. Palms and banana trees waved their leaves in the breeze, instead of the oaks, maples, and pines they knew so well. A palm is a tree without branches and limbs; it is simply a long, straight trunk with huge leaves growing in a bunch from the top.

Cuban Country Home — Palms and other Tropical Vegetation

Myra and her brother admired the clearness of the water in Nassau harbor. This clearness was partly due to the white, sandy bottom. They could easily see pebbles, shells, fishes, crabs, sponges, and branches of coral on the harbor bed. They leaned on the rail and looked down into the water. Its surface was, at times, like sea-green crystal.

Just before they reached the wharf, scores of little negro boys in small boats came out toward the ship, ready to dive for coppers. The passengers threw the coins into the water, and the boys jumped in after them, often catching them before they touched bottom. They had to hunt for Tom's, and they looked like large black spiders crawling about in the water.

Sea Gardens. — In another part of the harbor, the children saw the sea-gardens from a boat. Each of them had a long box with a glass in the bottom. This they held over the side of the boat, with the glass just under the water. Through this water-telescope the delicately tinted sea-flowers, pale pink, brown, or buff, could easily be seen, and also purple and scarlet sea-anemones, branches of beautiful coral, and many water-plants of rich color. Purple sea-fans waved to and fro among the forests of sponges. But more interesting than all these were the different kinds of fish, as gorgeous in color as the humming-birds which they saw.

When they left New York, the roads were white with snow and ice, and here they were white also, but with the coral, which is found everywhere and broken up for road-beds. The coral stone is also used for walls and buildings, so the streets are a dazzling white, relieved only by the bright green of the shrubs and trees.

In the Tropics. — After a few hours' sail farther south, the vessel reached the Tropic of Cancer, of which the little travellers had read in the geographies. "It is the northern limit of the torrid zone," explained Myra. Tom asked her to show him the line marking the place, but she knew that it was found only on maps and charts.

The Prado, a Plaza or Square, Havana

Havana. — They soon landed in the city of Havana, the "Key to the New World," as it was often called when most of the travelling by water was done in sailing vessels. It is on the northern side of Cuba, the largest island of the group called "Greater Antilles." The shore was covered with tropical trees. At once the ship was surrounded by native Cubans, scantily dressed on account of the great heat. After landing, the children passed through the Prado, one of the principal squares.

A Street Scene, Havana

Climate. — For several months Tom and Myra stayed in this hot country, and they learned much about it. As Havana is near the Equator, days and nights are nearly the same in length all the year round. It is a land of constant summer. The children found January about as warm as June at home, and January is the coolest month in Cuba. If the wind blows from the north, the thermometer may go down to 50°. The people then speak of it as "very cold." They have only two seasons, the wet and the dry, corresponding to our winter and summer. The dry season lasts from October to May, and the wet from May to October. "Just think, how odd it would be not to have any winter," said Tom to Myra one day. "Marguerita never saw any snow, and none of the children here skate or coast!" Marguerita was a little Cuban girl living near.

Buildings. — Many of the Cuban buildings are stately in style, with tall columns in front. They are built of a stone made of small shells, and are covered with plaster. They are then painted in light colors, yellow and white being favorites. With their red-tiled roofs they look very pretty among the green trees. Many of the houses have only one story, but one story in Cuba is often as high as two in the United States. Usually they are built around a court. In Marguerita's house, the court was surrounded with pillars and filled with orange trees. The windows in Havana are often covered with a large iron grating in the old Spanish style.

Cuban Homes and an Ox Cart

Many Spaniards live in Havana, and one must go outside to see true Cuban life. The children were surprised to see so many blacks in the streets. There are

Cuban Boys

more black people than white in most of the West Indies. In some of the islands there are forty times as many blacks; but in Cuba there are only twice as many.

The Cubans. — The white Cubans are descendants of the Spanish, but they have grown to be different from the parent race. Like little Marguerita, they are of dark complexion with large, beautiful, black eyes and straight, black hair. The men of the better classes are small in size, but well bred and well educated. Some of the poorer people are large and finely built. The women are charming in looks and manners. All classes are kind and polite. The climate has made them easy-going, even lazy. Nature has done so much for man in the hot countries that he does not need to work.

Tom thought it much easier for a man to live here than in his own country. He remembered how hard the farmer worked in the North to raise fruits, vegetables, and grains, while here delicious fruits, like oranges, grape-fruit, bananas, pineapples, and cocoanuts, grew almost wild in great abundance. The people obtained bread from the bread-fruit tree, a custard-like fruit from the custard-apple tree, jelly from the fruit of the guava, and a sort of apple from the mango. Yams, a kind of sweet potato, grew and yielded large crops with little care.

Thrifty foreigners, Tom noticed, cultivated all these things and made money; but the natives seemed unable to do this. Trees and other plants growing at their doors provided food and cooling drinks for the taking. These also furnished dishes, pails, ropes, wire, shingles, and beds. Why should they work?

The Rainy Season. — The children were in Cuba when the rainy season began. Almost every day it rained heavily. Often there was a thunder-shower. In some places it usually rains at night. If it does not rain, there is a heavy dew, and trees are dripping wet in the morning. On account of the drenching showers and dews and the great heat of the sun, trees and plants grow very rapidly and to a great size. Forests often extend to the mountain tops. In places where there are heavy rains, as in Cuba, Oregon, and India, thick forests of large trees are always found.

Trees. — Tom had a walk one day in a forest. It was so thick as to shut out the light of the noonday sun. The trees seemed to be pushing each other aside to reach the light; and sometimes he found the branches of one tree clasping those of another, "as if to squeeze the life out of them," as one traveller has said. Vines

Bananas as they grow, pointing Upward

grew closely over the tree-trunks and trailed from the branches. Over all was a thick roof of tangled leaves and vines which kept out the sun, making a dim twilight in daytime and pitch darkness at night.

Cocoanut Palms

Many of the trees he saw were unknown in the North. Among these were the limes, the ceiba, silk cotton, lignum vitæ, and castor-oil trees. There were also many logwood, ebony, and mahogany trees. The blossoms he saw were on trees or tall bushes, like the magnolia and the scarlet cordia which bears clusters of warlike, red flowers. It surprised Tom to hear that there was so much mahogany that it was used for railroad ties. The most noteworthy tree of the hot countries is the palm, of which Tom saw more than a dozen kinds. There was great variety of color on their large leaves — bright green, amber, yellow, burnt sienna.

Palms. — Cocoanut palms were seen everywhere, waving their long, graceful leaves in the air. This tree has blossoms upon it every month in the year; hence on the same tree will be found nuts in different stages of growth. The young nuts contain delicious, cool, and strengthening milk, like water in appearance. As the nut grows older the milk thickens and becomes jellied. It is then eaten in place of our custard. When the nut becomes quite ripe, some of the milk hardens into solid white meat, which is the condition of the nuts when brought to the northern markets. The size of the bunches differs, but sometimes they contain as many as twenty nuts. Ten cocoanut trees are sometimes given to a girl by her parents when she marries, as a handsome gift. From so many trees much may be obtained that is needed to support a home — food, a delicious drink, valuable oil for burning, brooms, brushes, matting, and ropes. These trees are also useful for their grateful shade. When the cocoanuts are broken up, the product is called *copra*, and it is exported for use in making soap and candles.

Myra thought the royal palm more lovely than the cocoanut palm. It is often seen in Cuba, and it is a miracle of beauty and usefulness. This is what she wrote in her note-book about it: "The great, bright leaves at the top resemble a cluster of plumes and give it its name. The trunk is straight and very tall. The people obtain boards from the trunk to make their houses and canoes. The bud furnishes a pleasant kind of food. The stem of the leaf may be made into a plate, a water-bucket, or a wash-basin. It is also often used for a kettle in which to cook the breakfast of meats and yams. The water in the wood prevents it from burning when upon the fire, and supplies enough salt to season the food."

Royal Palms

Birds.— Humming-birds were everywhere. There were several kinds, and all were rich in color; but green was the hue most often seen. The largest are about five inches long. They look like the topaz, sometimes like an emerald or a ruby. They should be seen hovering over a flower, or pressing themselves upon a dead branch, under the full blaze of a tropical sun, in order to have their coloring show off well. One of the smaller ones is called "crazy-crazy," because he darts here and there, up and down, round and round, seemingly without purpose. So brilliant is the color and dainty the build of the humming-bird, that it is often called the "gem of the feathered kingdom."

Humming-bird

In the woods the children saw great green parrots and glossy brown "tremblers." The latter bird feeds upon white berries. Every few seconds he stops to shake his wings, jerk his tail, take a jump, a skip, and then twitch his head and wings.

The "mountain whistler" is a bird found in quiet places. He utters a note clearer than a flute. He is small, and, strange to say, he is clad in sober drab.

The "sunset bird" is so called because, half an hour before sunset, he utters a very mournful note which sounds like the word for "sunset" in the language of the island. Hence the natives speak of "hearing the sunset." Before sunrise this same bird repeats these wonderful notes. He is a good clock, much relied on by the people who live in the woods.

Sugar.— Much money has been made in Cuba, as in other hot countries, by the raising of sugar-cane and the making of sugar. Not far from Havana, in the lovely Yumuri Valley, was a very fine sugar plantation which Tom and Myra visited. It surprised them to learn that the tall green canes in the fields were raised from slips, and that it took them six months to ripen. When ripe they are pale green in color, and men cut them down with large knives. Children strip off the leaves, and women tie the canes into bundles ready to be loaded upon ox-teams or cars and carried to the distant mill.

One of their most interesting trips was to a sugar-mill. Here they saw the canes pressed between great iron rollers, and the juice squeezed out. It was boiled at once so that it should not sour and be spoiled. They followed the steps of sugar-making till they came to the last one, when it was formed into crystals. In this state it was called "raw sugar," and the part which did not crystallize was called "molasses." It usually takes ten pounds of cane to make a pound of sugar. Raw sugar is taken to a refinery to be changed to white sugar ready for our use.

Home of a Sugar Planter

Farms.— Cuba is full of large farms — "plantations," as they are called. Tom and Myra visited several of them. On land somewhat elevated, where dampness and warmth were just right, they found large coffee plantations. Fruits were raised in great quantities in some places and sent to northern markets. Nearly all kinds of spices were cultivated. Allspice, however, they did not see, as it is grown in Jamaica only. On all plantations the black or the colored, by which we mean mixed races, were employed as laborers. They can best endure work in the broiling sun.

The Kind of House used by a Family working on a Sugar Plantation

One day the children started for the western part of Cuba where the best tobacco is raised. They there learned how the seed is sown in beds and the plants transplanted when only a few inches high. When full-grown they are six or eight feet high, with large, beautiful leaves. As the breeze passed over the field, there was a distinct smell of tobacco in the air. From December to May is the time for gathering the leaves and drying them in sheds. Although blacks do the plantation work, white labor is employed in the manufacture of cigars.

A Farm House

Negro Plantation Workers, Cuba

22. A TEMPERATE COUNTRY — THE UNITED STATES

Antonio's home was in the hot country of Cuba. He came to the United States to go to school. At first he was very homesick. He arrived in the United States in the summer and found the weather much like that which he had known in his own home. The heat was hard to bear. People felt idle and languid, and did little work in the middle of the day. The schools were closed. Many people had left the cities for cooler places among the mountains or at the seashore. Antonio learned that the rich often have two homes, one in the city, which they use during the winter, and one in which they pass the hot season. Thin clothing was worn in the heated months, as in Cuba; more fruits and cereals were eaten, and less meat. People lived much out of doors, and their habits were like those of the people in the hot country.

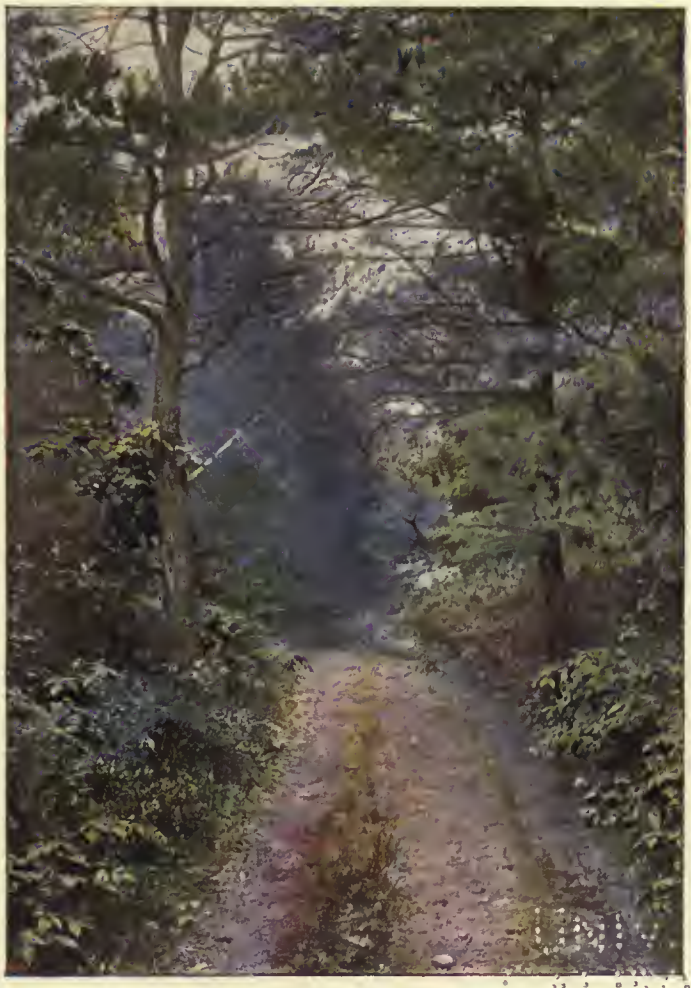
Vegetation. — How different the vegetation was from that of Cuba! Instead of palm, orange, and banana trees, he saw hard woods like the oaks, maples, chestnuts, and beeches; and soft woods, such as the evergreens — pines and firs. Some of the northern trees, like the apple, pear, and peach, had blossomed in the spring, and were bearing fruit. Pears ripened first, then peaches, and finally, in September and October, apples were ready to pick.

In Cuba, Antonio had always seen the cocoanut-palm and other fruit trees ripening their fruits all through the year instead of in one season only, as here. Vegetation grew very rapidly there, and here the trees were years in reaching their growth.

Seasons and Climate. — The three months of summer were at last nearly over. It surprised the little boy much to learn that in the autumn all the leaves, except those of the evergreens, would fall off, and leave the trees and bushes nearly bare. In his home, vegetation was green the year round. Grapes now grew ripe in this cool country. There were often chilly nights and bright, cool days. There were fewer hours of daylight now, and the nights were longer. The frosts opened the chestnut burs and ripened the nuts.

Autumn Leaves. — Then the leaves began to turn. In October his uncle took him into the mountains to see the gorgeous woods. There were whole mountain-roadsides full of brilliant red and yellow trees in every shade and tint, set off by the dark leaves of the evergreens! He had never seen such a sight. A little later the leaves began to fall, and it seemed to Antonio that the trees must be dying. This cool season lasted about three months.

Then the cold winds began to blow, and fires were built in the furnaces to keep the houses warm. The days grew shorter and the nights longer. One morning when Antonio woke, there was snow on the ground. Trees, bushes, and fences were covered with it. He saw snow for the first time in his life. He had a sled and went out to coast, bundled up as never before. One cold



AUTUMN FOLIAGE

AMERICAN COLORTYPE CO., N. Y. & CHI

Winter, showing Foliage on Pines and Other Evergreens

night, several inches of ice froze on the pond, and he had his first lesson in skating. Now and then through the winter there was a great storm with a snowfall of a foot or more. If the wind blew, the snow drifted or piled up in certain places. His brother in Cuba had never seen any of these things.

Ice-cutting. — Usually the temperature drops below zero for a day or two. Antonio was greatly interested in ice-cutting. Ice is harvested in winter, often in February; always as soon as the ice is nine or more inches in thickness in the lakes and the rivers. Ice is cut in ponds or lakes, or in rivers near cities and villages. New York gets much of its ice from the Hudson River and the lakes in its vicinity. Philadelphia gets ice from the upper part of the Delaware and from the Kennebec River in Maine; Chicago, from Lake Superior and from lakes in Illinois. Ice is exported from the temperate country to the hot country.

Cutting Ice into Blocks

When the freezing weather has made the ice thick enough, ice-harvesting begins. The ice is cut up by men with large iron handsaws into blocks, which float, and a gang of men tow them toward the shore, where they are carried up an incline to the inside of the ice-house.

The ice-house is built of wood, with double walls, the space between being filled in with sawdust. Ice is usually packed in sawdust,

Blocks of Ice entering Ice-house

the blocks standing on end. The houses are three or four stories high, without windows. As soon as one story is filled, the doors are tightly closed. From these great, barn-like structures the ice is carried in cars to the cities, and then to the houses and stores in ice-wagons.

Seasons. — Antonio noticed how glad the boys and girls were to welcome the departure of winter and hail the coming of spring. He found that the vegetation was not dead, the snow disappeared slowly in the spring, the grass grew green, the buds swelled, the flowers opened, the birds returned. In this cooler, busier part of the world Antonio found four seasons, spring and autumn being as long and important as summer and winter.

Wild Animals. — He was greatly interested in the animals and visited collections of them, and also read many books about them. He learned that the wild animals are not generally so savage as those in the other belts. The noted wild animals of the United States are the bear, deer, wolf, fox, and beaver. In place of the white bear of the cold country, the temperate country has black and brown bears. Black bears are found in almost all parts where the country is not thickly settled. They live upon both animal and vegetable food, and like green corn and honey. They have rather long legs, and long feet ending in five claws each. Their hair is long, soft, and woolly. They can climb trees, using their paws like hands. They often climb a tree to get the honey out of the hollow part of it.

Grizzly Bear

Black bears are often tamed by taking them when young and rearing them as if they were dogs. Tame bears often like to play with children. A bear on board a ship once played with a little girl and carried her up the rigging to the maintop, where he tried to continue his romp. The captain finally persuaded Bruin to come down with the child to get his fill of sugar. The girl was saved, and the bear was caged for the rest of the voyage. Black bears rarely attack a human being except in self-defence. Brown bears are found in Alaska. The Kadiak bear, found on the island of Kadiak, Alaska, is the largest bear in the world. He has a broad, square head and long, coarse hair.

The grizzly bear is probably the strongest and most savage animal in the world, and much more worthy to be called the "king of beasts" than the lion. He is the picture of great strength in a short, compact body. He sometimes weighs twelve hundred pounds, and can kill and carry off a buffalo or an ox, much larger animals than himself. His claws are very long and sharp like a chisel. He prefers flesh, but can live on roots and fruit.

Although he cannot climb a tree like his black brother, he is a dangerous animal to attack, even with modern rifles, for he will live and fight a long time after several bullets have passed through his heart.

Another interesting animal found in many parts of the United States is the deer, of which there are many kinds. This animal, like the cow, feeds on grass and tender buds, chews its cud, and has divided hoofs; but unlike the cow, it is very graceful and can run at great speed. All kinds of deer go in herds, are very timid, and often feed at night to keep out of sight of man. They take to water easily and are good swimmers.

Young Deer

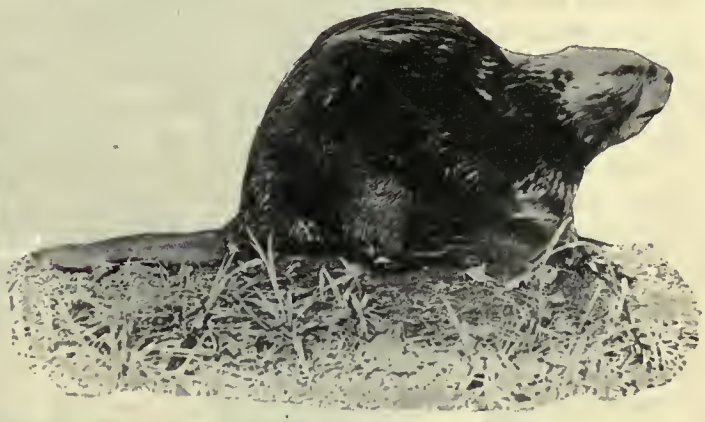
The common American or Virginia deer is at home in this temperate country, and it is found in almost every state, like the black bear. This deer is large and strong-limbed, and has heavy antlers which look like horns. Horns are hollow and are never shed; we see them on goats and cattle. Antlers are solid and are shed every year. They usually have several branches. They are worn by the male members of the deer family. The prongs on an antler are no index of the wearer's age.

This deer lives in thick brush and timber, and keeps away from the sight of man. The males lose their antlers in the spring. The new antlers grow very rapidly, and at first are soft, tender, and covered with hair. This hairy covering is rubbed off against trees and bushes. When they shed their horns, the males retire from female deer society as if quite ashamed of their appearance. The Indians tell a story of a deer boasting that he could run faster than his friend the antelope. He foolishly said, "If I do not beat you, I will give up my horns."

A Herd of Elk

A Cow Moose

Mountains, where there is a herd of thirty thousand. Both its flesh and skin are highly prized. Its branching antlers held high up, and its bright and shining fur coat, give it very properly the name of the "King of deer." It is shy and makes a harsh, braying noise. It lives in small families of six or seven. Elk have been trained to go in harness like horses.



A Beaver

The race came off on the plain, and the antelope easily won. From that day to this the deer loses his horns every year.

In the northern part of the temperate country are found moose and caribou, the largest kind of deer.

The elk is next to the moose in size. It was once found in many parts of the United States, but it is now largely confined to the Yellowstone Park, in the Rocky

A Tree gnawed down by Beavers

Beaver. — The beaver is one of the most remarkable animals in this country. He is about the size of an ordinary dog and his usual color is reddish brown. He is very timid and rarely goes about in the daytime. His front teeth are sharp and shaped like a chisel. With them he can easily cut down a large tree. His principal food is

the bark of trees, and he cuts down and stores away tree-trunks for winter use. A tree cut down by beavers is shown in the picture on page 73.

Though the beaver moves about awkwardly on land, he can live almost entirely in the water. He swims with his hind feet, which are webbed like the feet of a goose, holding his fore feet motionless and close to his body. He builds his lodge, or house, in the water, for protection, and dives under water to reach the entrance hole, which he purposely digs deep down in the stream. When the body of water beside which he lives is not deep enough, he builds a dam of trunks and branches of trees to increase its size.

No other gnawer has a tail like the beaver's. It is broad and flat, and covered with scales. He uses it in swimming and building, and, by striking the water with it, he can give an alarm which may be heard for half a mile. This interesting animal has been so much hunted for its fur that only a few specimens are now seen in the United States.

Learn all that you can about the other wild animals of this country.

City Scene in a Temperate Country: Haymarket Square, Chicago

People. — The people of this temperate country are very different from those of Antonio's hot land. They become used to all kinds of weather, to sudden and frequent changes from hot to cold and from cold to warmer. The hot season is not so long as to make them listless or lazy. The cold season is not so severe as to cause them to think only of preserving their lives; hence they are generally strong and active like the wild animals. They are full of business enterprise; they are thinkers and doers.

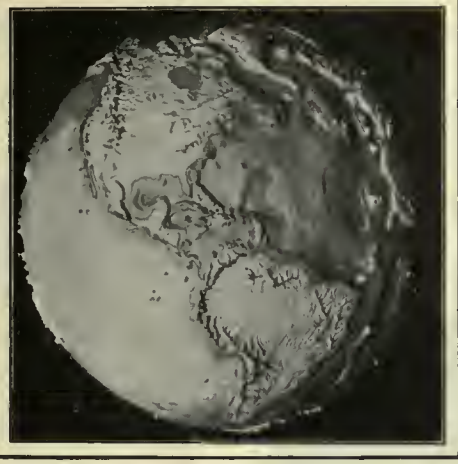
Here are found the highest type of men and women. They are well educated. Their boys and girls go to fine schools, in schoolhouses which are usually well built, and sometimes elegantly furnished. The Americans are readers and workers. Many of them have, by their enterprise and industry, acquired great wealth. A large number live in comfortable homes, and many in palaces such as are found at Lenox and Newport, and in all the great cities. Most Americans dress neatly and have enough to eat. They ride comfortably in electric cars, cabs, automobiles, steam-cars, or ships. Hundreds of rich people have their private coaches, steam yachts, and even steam-cars. No other country has so many railroads, telephone, and telegraph lines as the United States.

Industries. — As we shall see later, the people of this temperate country run mills and make all kinds of cloth, tools, machines, furniture, and steel products. They dig in the mines and take out of the earth great quantities of coal, iron, copper, silver, gold, and many other minerals. The farmers of the West raise great crops of wheat, corn, and other grains. They raise, also, immense herds of cattle, sheep, and horses. In the South large crops of cotton and tobacco are grown. All kinds of fruits are raised in the warmer parts. They transport these things from place to place by means of their railroads and ships. How different these people are from the inactive persons in the cold and the hot countries mentioned! They are highly civilized.

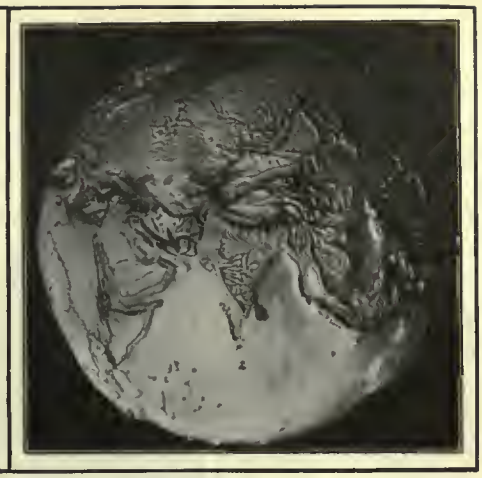
LANGUAGE LESSON

1. Write about the work going on near your home in the different seasons of the year.

2. Make a list of the animals you see frequently, and tell about some of them.



THE EARTH AS A WHOLE



GEOGRAPHY BY REPRESENTATION AND DESCRIPTION

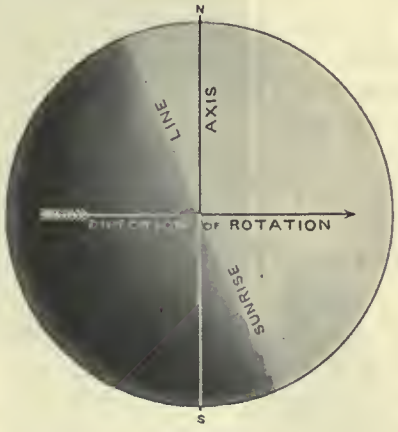
PART III

23. THE EARTH AND ITS MOTIONS

ONE day the teacher made some soap-bubbles float in the air, to the delight of the children. She then threw up in the air, with a little twist, a large rubber ball upon which had been drawn a number of circles in bright colors. When the ball was in the air, the children could plainly see it turn round as well as move up and down, thus showing two motions at once. Arthur spun his top on the floor to show how it turns round and sometimes moves along at the same time.

The Ball in the Air

"You saw, children, the soap-bubbles floating lightly in the air. In a similar way the earth, with the air around it, floats in space. Arthur's top turns round or spins, and moves forward at the same time.



Earth turning on Axis

"It turns on an imaginary line passing through its centre. This line is called its *axis*. (See page 77.) The rubber ball I threw up in the air gave a very good idea of the earth floating and turning in space. It turned round an axis passing through it, as shown in the cut above.

"You can show the same at home by marking an apple, orange, or ball, and tossing any one of them in the air. You must give them a little twist, when you toss them up, if you wish to show two motions.

"If John will now stand up in the middle of the room to represent the sun, Mary will carry this ball around the room, keeping the same part of it pointed toward the North Star, and turning it slowly as it turned in the air. The class can thus see the two motions of the earth very well illustrated.

"You can think of the great round or *spherical* world as a big round ship moving swiftly in space around the sun. This earth-ship turns around every twenty-four hours, bringing one part of the earth into sunlight for a part of every day, and then whirling it away into darkness for the rest of the time. *This spinning or turning motion of the earth causes day and night.*

"The earth goes around the sun in a year, and *this motion around the sun is one cause of our changes of seasons, and of the changes in the length of day and night.*

The New Moon
From a photograph taken through a telescope at the Lick Observatory

"The earth-ship is composed of three parts: the solid crust, which is mostly *stone;* the liquid portion known to you all as *water;* and beyond the first two and covering them, a third part, the gas or *air.*"

24. SHAPE OF THE EARTH

"Sailors, on entering port, can see land from the mast-head before they do from the deck. When we were at the seashore, we noticed the gradual disappearance of the ships below the horizon.

"If these ships should sail on and on, they would in time go around the earth and return to the shore where we saw them.

"The fact that men *have travelled* around the earth and have come back to the same place from which they started, is one of the best proofs *that the earth has a curved surface like a ball.* For how could they do this, if the world were shaped like a cube?

"You have all seen the new moon, and you remember that the paler part looked like a glass sphere or globe.

"A photograph of it shows the roundness very completely. Now, if you were standing on the moon, looking toward the earth, the earth would have much the same appearance as the new moon seen by us, except that it would seem much larger.

"None of us can ever stand upon the moon and look at the earth, so the next best way to get an idea of how the earth must look in space is to study a good photograph of the moon."

25. STUDY OF A GLOBE REPRESENTING THE WHOLE EARTH

"Because the earth is a large sphere, it is best represented by a ball called a *globe.* This ball shows the shape of the earth, and the position of places and their direction from each other. The raised globe differs from

A Raised Globe (The Jones Model of the Earth): looking toward the North Pole

those on your desks because it shows, besides these things, the highlands and lowlands of the earth's surface.

"A globe also shows the turning motion of the earth. A top seems to spin around a line which we imagine to run through the top from end to end. The position of this imagined line is shown by the white line AB drawn in the top on this page. This line passes through the centre, and is called the axis of the top, because the top seems to turn upon it.

"Remember that this axis is an imaginary line, not a real one.

"If I spin an orange round and round, every part of it turns round an imaginary line. This line is the *axis* of the orange. Pass a wire through the orange from end to end, and you can see the position of that line or axis.

"In like manner, *the axis of the earth is an imaginary line round which the earth turns or spins.*

A Top with Axis

"In a globe which represents the earth, the wire round which it turns is its axis, and represents the axis of the earth; but, remember, the earth has no wire upon which to turn, any more than the top or orange really has.

Orange with Wire Axis

"The ends of the axis of the earth are called *poles.* One end of the axis is at the place on the earth's surface nearest the North Star and is called the North Pole. The opposite end of the axis, or the place farthest from this star, is called the South Pole. These poles are in the very cold parts of the earth; hence we say, 'as cold as the poles,' or 'as cold as Greenland,' a country near the North Pole.

Equator and Poles

"The distance through the centre of the earth from one side to the other is its *diameter.* The greatest distance around the earth is called its *circumference.* (See diagram on page 81.) Show with the globe as many diameters and circumferences as you can.

"Now, children, please notice that around each of your globes a line is drawn, halfway between the poles, dividing the surface into two equal parts. This line, therefore, is called the *equator* or equally dividing line. We talk as if such a line were really drawn on the earth; but there is no such line, any more than there is a fence or wall between one ward and another in a city, or between one town and another.

Equator and Parallels

"This great circle, the equator, passes through the hottest parts of the earth; hence we often say, 'as hot as it is at the equator.'

"Now look on your globes and find other lines drawn parallel to the equator, so as to divide the surface of the globe or earth unequally. Such are called *parallels*. They show very clearly the directions east and west, and also how far places are from the equator. The most important parallels, those which are frequently mentioned, are the *polar circles* and the *tropics*. Notice what they bound.

"Lines are also drawn on your globes, you see, through the poles and crossing the equator at right angles. These are the circumferences of great circles like the equator, and divide the surface of the earth into equal parts. They run exactly north and south. As every place on each half of these circles has its mid-day at the same

Equator and Meridians

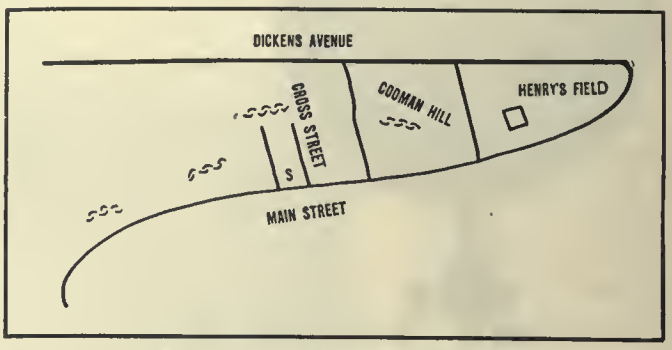
time, these lines are called mid-day lines, or *meridians*. Any number of parallels or meridians may be drawn on a globe. Count the number that you find on your globes. The north and south line we drew on the floor is part of a meridian, and, if extended far enough, it would go through the poles of the earth."

DRAWING LESSON

1. Copy a top. Show its axis.
2. Draw an orange with a wire running through it.
3. Draw a globe and mark on it the poles, equator, parallels, and meridians.

26. THE VICINITY OF THE SCHOOLHOUSE

Near the school is a long, wide, straight street called Dickens Avenue. The schoolhouse stands on a curving street called Main Street. This is the principal street in that part of the town, and it extends southwest from one end of the avenue. When a heavy line, three inches long, is drawn to represent the straight avenue, and a curving line to stand for Main Street, the two lines remind one of a whip.



Map of Streets near the Schoolhouse

The letter *S*, placed about halfway along the lash of the whip, shows where the schoolhouse stands. It is situated between two short streets. One of these is Cross Street, spoken of in Lesson 5.

Other short streets, crossing the long streets, are shown by lines on the map. The map also shows the distance and direction of Henry's field from the schoolhouse. This distance on the map is one inch, and, as every inch stands for a mile, the distance is one mile. The map also shows where other points of interest are located.

In several places short, curved lines are drawn to stand for hills and slight elevations. One of these is Codman Hill, mentioned in Lesson 5.

A map is made up of lines and marks which stand for certain features on the surface of the earth, such as streets, roads, railroads, places, rivers, valleys, mountains, and boundaries.

LANGUAGE LESSON

Answer these questions: —

1. On what street do you live?
2. For whom or what was your street named?
3. What hills, valleys, or fields are near your schoolhouse?
4. What are the names of the two main streets near your home?
5. What large buildings are on them?
6. What churches are near your school?
7. What manufacturing is carried on within two miles of the school?
8. What object is about a mile from your school?
9. How far from the school do you live?

DRAWING LESSON

Draw a map of some of the principal streets near the school.

27. MAKING MAPS

The pupils measured the tops of their desks and found them to be about two feet long and one foot wide. With rulers and pencils they drew a plan of the top of

A Schoolroom

the desk, making one inch in length stand for one foot in length on the desk, or one square inch for one square foot. See Fig. 1.

Next they drew another plan and made one inch stand for two feet, as in Fig. 2. After finishing this, they made another plan in which one inch represented one-half of a foot, as in Fig. 3.

Figure 1

Figure 2

They next measured the schoolroom and found it to be about thirty feet long and twenty-four feet wide.

Figure 3

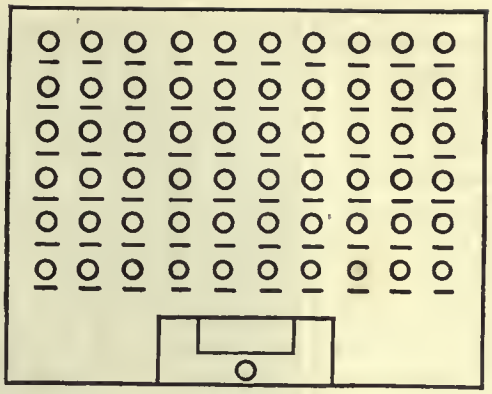


Figure 4

They decided that, in their first plan, twelve feet should be represented by one inch. See Fig. 4.

After this plan was finished, the school building was measured. It was found to be about seventy-two feet long and sixty wide. The halls were nearly twelve feet wide, so the boys used a scale of twenty-four feet to an inch. They put the desks in only one room; the outer doors were shown by lines indicating the steps; the teachers' room was shown opposite one of the entrances. See Fig. 5.

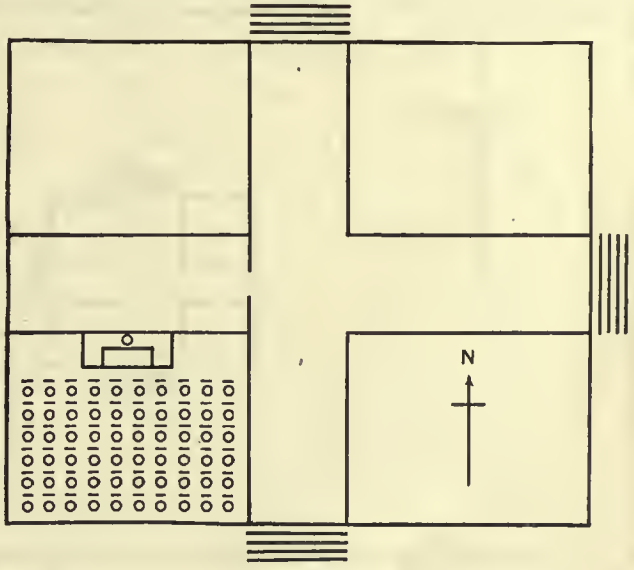


Figure 5

Other plans were drawn on different scales. A picture of a schoolroom in the same building is shown on this page. It is the room in which the desks are shown in Fig. 5.

In this way the children learned that as the scale changed, the size of their plans changed, but the shape remained the same.

The school yard was next paced off by the two boys. It was shaped like a rectangle, and was about 350 feet by 300 feet.

Enlarging their scale again and allowing 100 feet to stand for one inch, the class made the plan for the yard shown in Fig. 6. In the first and last figure the arrow shows the points of the compass.

One Saturday Henry and his friend paced the field mentioned in the first lesson, and they found that the scale used for that map or plan was 400 feet to an inch. See map on page 3. But even this scale is not large enough for most maps.

A Schoolyard

If the scale is known, it is very easy to find the distance from one place to another on a map, by finding the number of inches or the distance by the scale. How far is it, then, from Chicago to San Francisco as shown on the map of North America? Find other distances in North America. How far is it from New York to Chicago? From Washington to New Orleans? From Philadelphia to St. Louis? From New York to Havana? From Boston to Montreal?

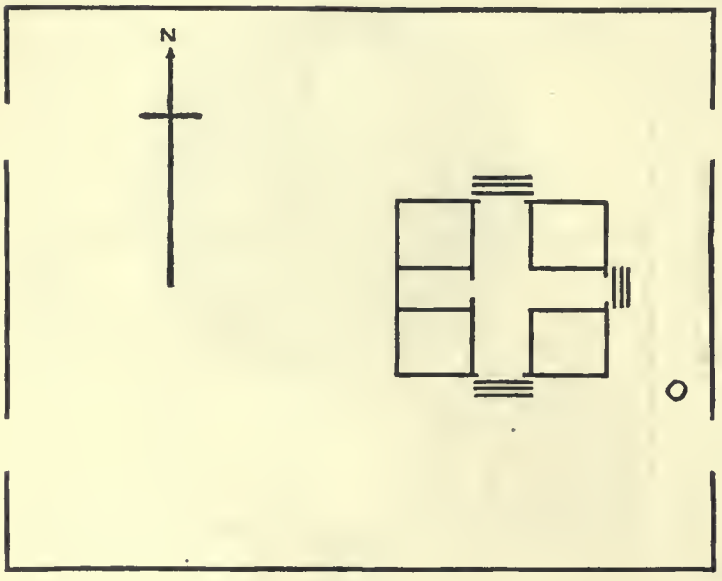


Figure 6

28. THE READING OF MAPS

In making plans of the schoolroom and schoolyard, the children used certain lines to represent the sides of the room, different parts of the building, etc. In making a map of the field and the vicinity of the school, straight lines were used to show the edge of the field and streets; curved lines to indicate the brook, spring, trees, etc. *In these plans and maps every line stood for something.* This is true of all maps. Color and shading are also used, and each has its meaning.

If a map is placed on a desk, so the top of the map is toward the north, you will at once discover that the bottom is toward the south, the right-hand side toward the east, and the left-hand side toward the west. If the same map is hung on the north

In nearly all maps found in books, the scale is a certain number of miles to an inch. North America is drawn opposite page 88, and the scale is 640 miles to an inch. In the map of the United States, the scale is 325 miles to an inch; in the map of Asia, the scale is much smaller, or 800 miles to one inch.

The shape of the map in all these cases is exactly the same. We learn that as the scale of the map grows larger, the area represented upon the map grows smaller. As the scale grows larger, a smaller tract of land is included in the same space. This is illustrated by the four maps of Chicago and its vicinity. See page 128.

Map on Desk

side of the schoolroom, the right-hand side is still toward the east, etc.

In all maps this arrangement of direction is understood unless an arrow is given to show direction; the arrow generally points toward the north. In the field, the little brook flowed toward the south; hence, on the map it was drawn as flowing toward the bottom of the paper or map. (See page 3.) If a river flows eastward, how should it be drawn on the map?

All maps are drawn upon a certain scale, like those of the school and neighborhood; hence, by means of the scale, so many miles to the inch, distances can be very accurately shown. (See scales on maps in this book.)

As the best globe is the raised globe, so the best maps to show the surface are *raised*, or *relief* maps. An album of such maps is very helpful, but it is too large for convenience, and the cost is very great.

Shading has been used, therefore, to represent elevations. (See map, opposite page 89.) Colors show the surface even better than shading. Each color shows a certain height. Shades of the same color in maps of the states and small sections are used by the United States government to show elevations. These are often called *physical* maps, because they show the surface or physical features. (A relief map is shown opposite page 89.)

Political maps do not make the surface elevations very plain, but they show the position and the extent of countries under one government, or political divisions; and hence are called political maps. They also show direction, rivers, bodies of water, mountains, cities, etc. The map opposite page 88 is a political map. On such a map what do the heavily shaded lines indicate?

The dotted or broken lines? Waving broken lines? Curving black lines?

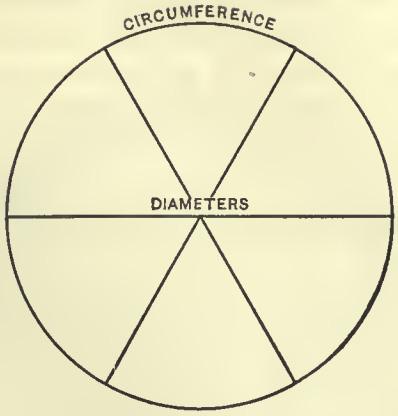
How is the direction of a river shown on a map?

29. THE SIZE OF THE EARTH

Many of the children had the small globes. They found the distance through these globes, or the diameter, to be eight inches. The earth is so large that the distance through its centre, or its diameter, is about eight thousand miles. You see that one inch on the diameter of the small globe stands for one thousand miles of the earth's diameter.

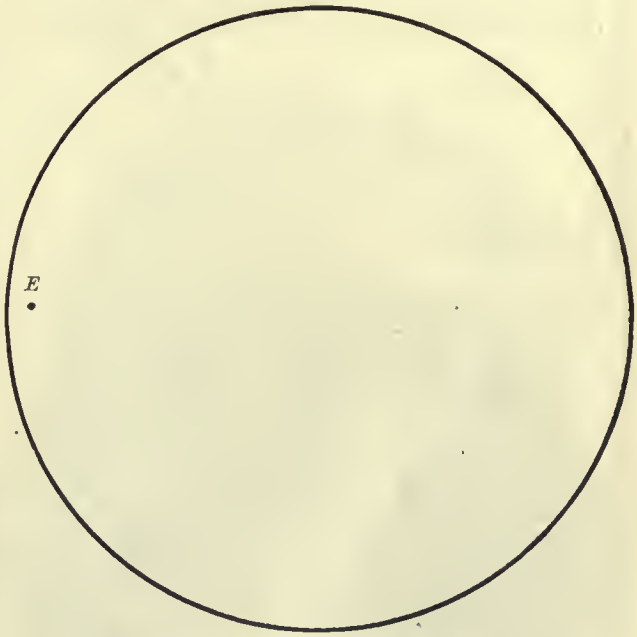
The distance around the earth, called its *circumference*, is more than three times as great as the diameter, or nearly twenty-five thousand miles.

Twenty-five thousand miles is a very long distance.



Diameter and Circumference

Some of you can walk twenty-five miles in a day. In order to walk around the earth you would have to walk for one thousand days, or two and three-fourths years. It would take a fast express train more than a month to do this if it travelled day and night without stopping. Yet the earth is a mere speck, compared with the sun.



Relative Size of the Earth and Sun

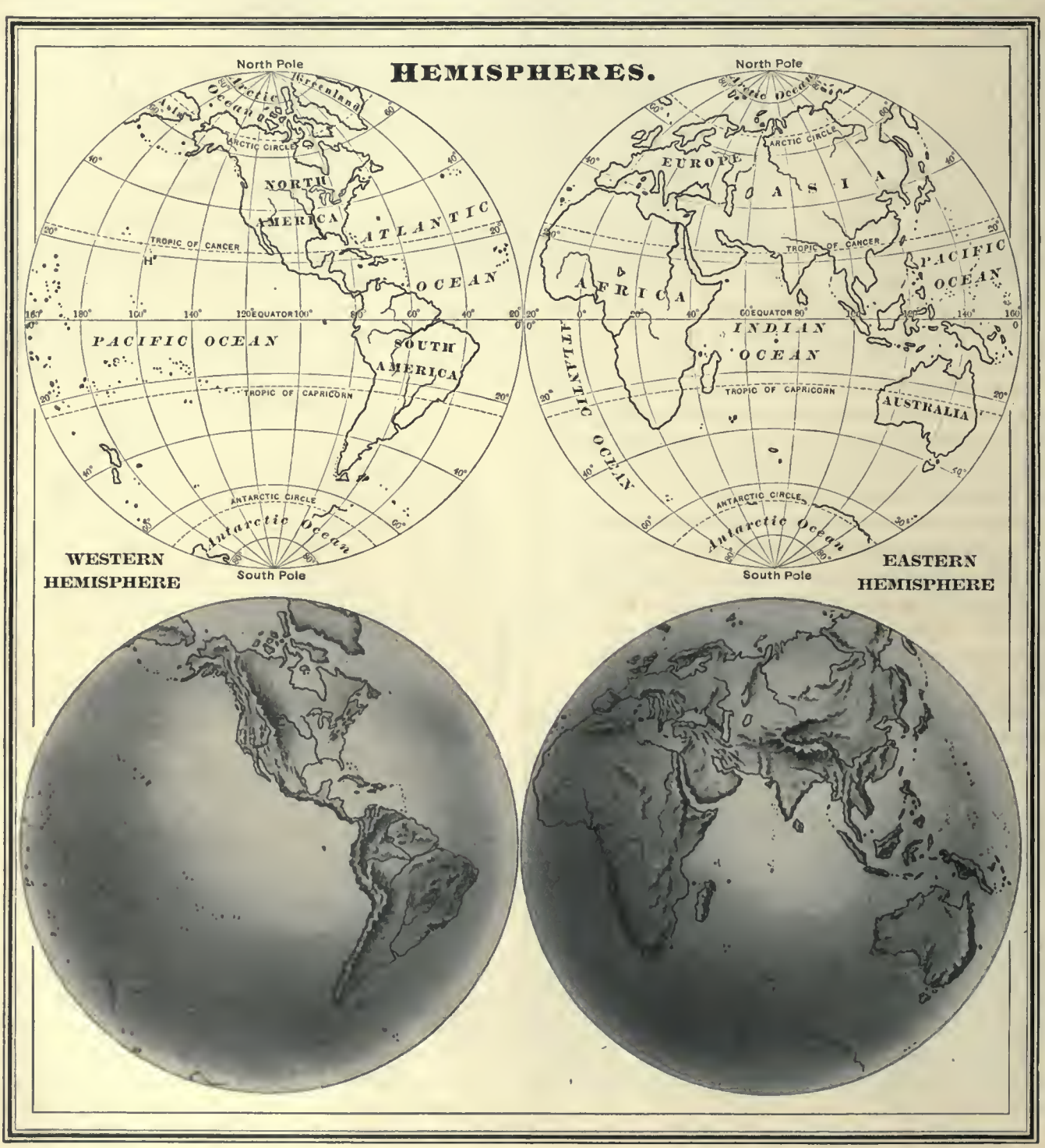
The relative size of the earth and sun can be partly understood by a comparison of their diameters and circumferences. In the diagram above, if a little speck like *E* represents the size of the earth, eight thousand miles in diameter, then the sun would be shown by the big circle, which is eight hundred and sixty thousand miles in diameter. In other words, it would take a million earths to make one sun.

30. SURFACE OF THE EARTH

The class, in their travels and observations about home, found the surface of the earth composed of land and water. All travellers have found it the same. The water surface is found to be nearly three times as much as the land surface.

For convenience, the earth is usually divided into two parts or half-spheres called *hemispheres*. These are often made to show the land masses.

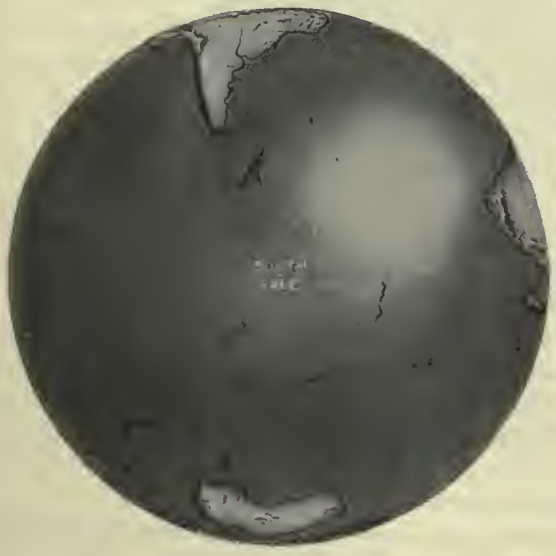
Thus divided and represented, we call the parts the Western and Eastern hemispheres. Draw a chalk line on your globe to show Eastern and Western hemispheres.



The division is sometimes made to show the poles as centres, in this way: —

Northern

NORTHERN AND SOUTHERN HEMISPHERES



Southern

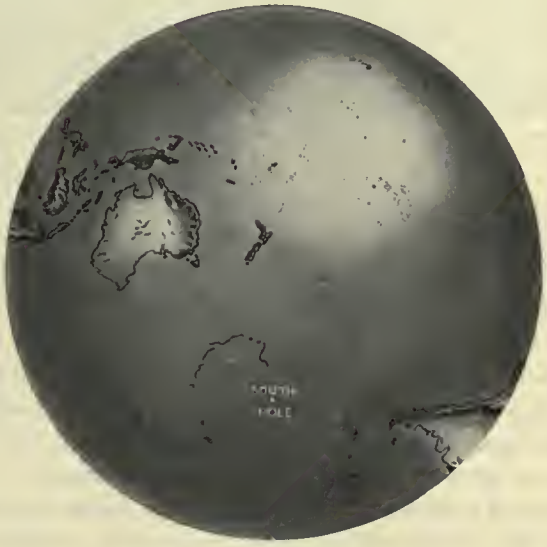
and the two parts are called Northern and Southern hemispheres. Draw a circle around your globe to show these hemispheres.

The water surface is level, and it is taken as a convenient point from which to measure. When we say a hill is one thousand feet high, we mean that the top of the hill is one thousand feet above the level of the sea.

In one hemisphere may be shown most of the land and in the other most of the water, in this way: —

Land

LAND AND WATER HEMISPHERES



Water

These are called Land and Water hemispheres, and may be traced on a globe in the same way as the Northern and Southern hemispheres.

When attention is called to the land, and not to the water in the Eastern Hemisphere, the term Eastern *Continent* should be used. The land in the Western Hemisphere is called the Western *Continent*, or the Americas.

If the land in the continents is subdivided, six *Grand Divisions* are made, as follows: —

The Western Continent has two, North and South America. The Eastern Continent is much larger, and the land is divided, first, into three parts. The largest part on the north is called Eurasia. This is subdivided into Europe and Asia. "Eurasia" is formed from these two names. The part south of Europe is always called Africa, and the sixth and smallest grand division is the great island of Australia.

RELATIVE SIZE OF GRAND DIVISIONS DRAWN ON SAME SCALE

In *North America*, the grand division in which we live, are found wide prairies, large and beautiful lakes, the finest canyons, and the most magnificent falls in the world. It is noted for its great and prosperous republic, the United States. This republic is famous for its free schools.

In *South America*, we find the largest river on the globe. There are also many volcanoes of great height, and long ranges of snow-capped mountains. The forests and pampas are very extensive and their products of great value. The pampas are great treeless plains.

Europe is small in size, but it is the home of many nations. Many of its people are wealthy and cultivated. Europe is visited by travellers from other lands who go there to enjoy its lovely lakes, beautiful mountains, treasures of art, and many interesting towns and cities.

Africa is noted for its great desert, its intense heat, and the many savage tribes that live there. It has an inland elevated plain and several wonderful rivers. Until recent years little was known of the interior of this grand division, and it has been called the "Dark Continent."

Australia is large, as an island, and small, as a grand division. It has many strange animals.

Asia is celebrated for its great size, being equal to both North and South America together. Its mountains are the loftiest in the world, and its millions of inhabitants are more than half of all the people in the world.

The size of the grand divisions differs very much. If they were drawn upon the same scale and arranged in order from smallest to largest, in squares of the same size, they would appear as in the diagram above.

Using this diagram, compare the size of Europe with that of North America; with that of Asia. Note how much space in the squares is left uncovered by the small grand divisions, and how little by the large ones.

World Slopes. — "Though the water surface is level," said Miss Hale, "we have found that the land surface has many slopes of different degrees of steepness and a very small amount of dead level. The land in the two continents has a striking likeness in slopes and elevations."

Profile of a Grand Division like North America

Usually the surface of a grand division is divided into five parts, as follows: (1) A short, steep slope; then (2) a long, gentle slope; (3) a high elevation on one side, and (4) a lower elevation on the opposite side; and finally (5) a wide, central valley or plain between the elevations. In this central valley or plain are generally found some of the prairies, selvas, deserts, and plateaus of the world. (See profile above.)

Still more wonderful is the fact that the short, steep slopes of the world, with their short, small rivers, lie next to and drain into the largest body of salt water, the Pacific; while the long slopes, with their long rivers, drain into the smaller bodies of water.

Water. — The water of the earth is found in two conditions, fresh and salt. The fresh water is much less in amount than the salt, and is found in the rivers and lakes; the salt water is found in great bodies called seas and oceans.

There are five oceans, each noted for some special things. The names of these oceans are given on the maps of the hemispheres. Find and place them.

The *Pacific* is the largest of all the oceans. In it are found islands built by the coral animal. Its waters are generally very calm, which fact has given it its name.

The *Atlantic*, which is next in size, is noted for its wonderful currents, beautiful islands, and the many ships which sail over it. It was across this ocean that Columbus sailed to discover the continent upon which we live.

The *Antarctic Ocean* is the most mysterious, because it has been so little explored. We know that it has great fields of ice, but there seems to be very little land.

Of the *Arctic* we know more. It is famous for the coldness of its climate, and its miles and miles of ice and snow. On its shores live a strange little people called Eskimos. The brilliant Northern Lights are seen in the Arctic skies.

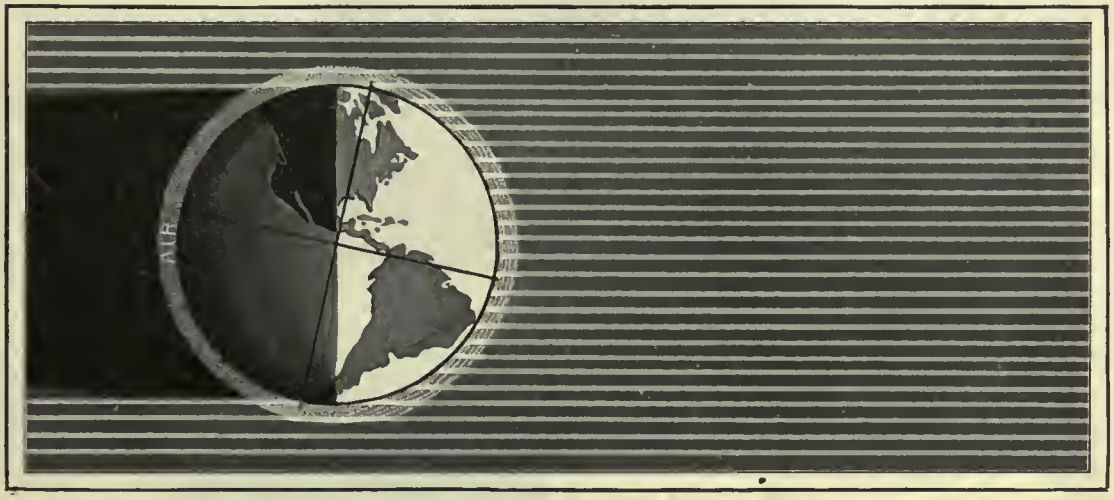
The *Indian Ocean* is a warm ocean noted for its terrible storms and its strong winds, which blow part of the year from one direction and part from the opposite direction. Divers go down into this ocean after the finest pearls.

31. BELTS OR ZONES OF HEAT AND COLD

The children have already learned that the heat is much greater at noon than late in the afternoon, in summer than in winter, because more rays reach the earth when they fall upon it vertically than when they strike the earth at a slant. For the same reason different parts of the earth are heated differently at the same time.

The parts near the ends of the axis, called the North Pole and the South Pole, receive the smallest amount of heat. Halfway between these cold sections is a wide section which is very hot, because every day the sun is nearly overhead.

As these parts go all the way around the earth they are called *belts*. The belts which people wore many years ago were called "zones," so the word *zones* is used for these belts of temperature.



The Position of the Earth in reference to the Sun in June: The Rays of the Sun (shown by the White Lines) heat the Earth differently in Different Parts and differently at Different Seasons

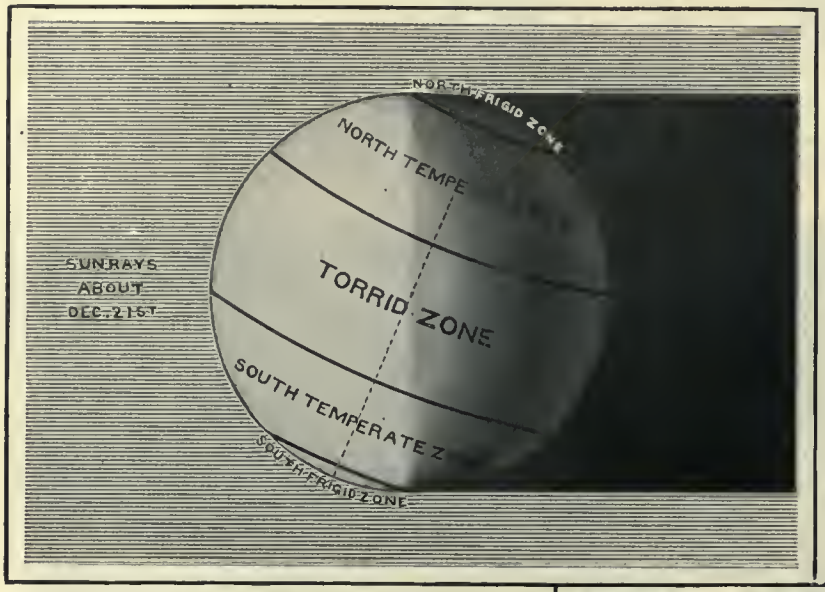
Between the hot and cold belts are two parts where the winters are cold and the summers hot; where the people have frequent changes in heat and cold; and where there are the four seasons, spring, summer, autumn, and winter. As the heat here, and the cold also, is moderate, these belts are well called the "Temperate Belts."

One of them is north of the hot belt, or Torrid Zone, and one is south; so they are named the *North Temperate Belt* and the *South Temperate Belt* or *Zone*. How many belts are there in all? Find each one on the Zone Belt Sphere.

Cold Belts. — The sections near the poles are sometimes called the Polar Regions, or North and South Frigid Zones. There is no season like our summer in these belts. It is so cold there that no trees, few shrubs, only a little grass, and a few flowers are seen. Moss is very common. Land animals are not very numerous, but birds and creatures like the seal and walrus are abundant.

Only a few people live in the cold belts. In the lesson called "A Cold Country," you have read about the animals, people, and plants that can live in the terrible cold of the Frigid Belts.

The Hot Belt. — The hot belt or zone is found on each side of a line passing around the earth from east to west,



The Zone Belts: Winter

equally distant from each pole. This line is shown on page 82, and it is called the *equator*, because it is equally distant from the poles.

The heat is so great in this part of the earth that there is no winter at all. White people do not like to live under the burning rays of the sun. Black people live in this hot belt because they can better endure the fierce heat of the sun. This part is *often called the tropics* or *the Torrid Zone.*

Though not many white men live in the hot belt, they constantly go there to get valuable articles. They bring to the North, from the hot South, bananas, oranges, lemons, cocoanuts, spices, coffee, raw rubber, raw cotton, pearls, and diamonds.

More interesting things are told of such lands in the lessons on Cuba, India, and Africa.

The Temperate Belts. — The temperate belts or zones are noted for their frequent changes of weather, changes in the length of day and night, and for the regular return of the seasons. A hot or a cold spell does not last long.

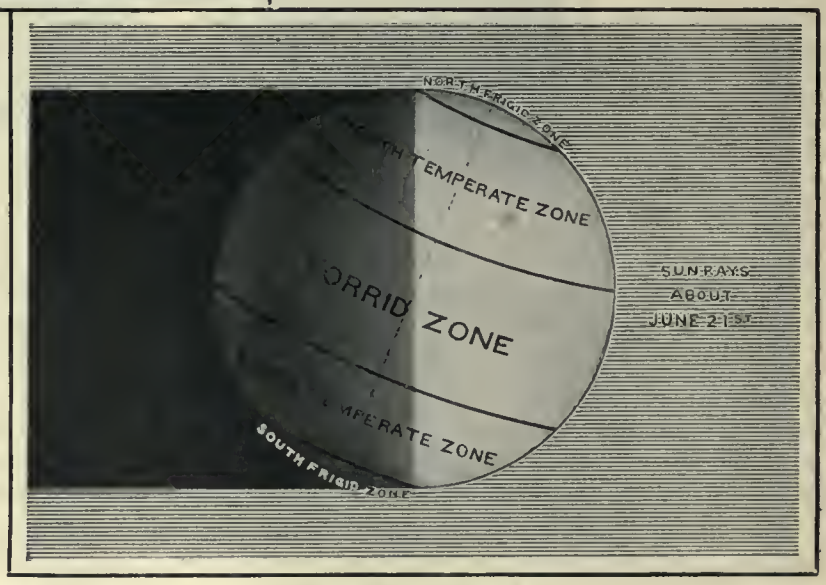
The temperate belt is much the more desirable part in which to live, and there will be found, especially in the North Temperate Zone, the most land and the most people. Man seems to be best suited to a moderate amount of heat and cold, frequent change of weather, and the food which naturally grows in this region.

The different grains, including rice, potatoes, vegetables, temperate-zone fruits, and the cattle which are fed upon grass, hay, and corn, furnish the most wholesome and nourishing kinds of food for man. Hence in the temperate belt man is the noblest, the best educated, and most prosperous.

Life Belts. — Again, children, we may divide the surface of the earth into life belts, arranged in order, beginning at the North Pole.

There is first, all around the pole, a belt with little variety of vegetation or animal life, as you learned in reading about Greenland.

Then comes a belt of forests in which live the fur-bearing animals, found only in cold countries.



The Zone Belts: Summer

South of this belt, in the North Temperate Zone, is a warmer belt in which the different grains flourish. It is often called the food belt. In this belt live a large part of the people on the earth, and with them the domestic animals, and such wild animals as the bear and deer. Like all these belts, this one extends all the way around the earth.

Scene in the Sub-tropical Belt: Jamaica

Farther south is a much warmer belt, in which grow sugar, cotton, coffee, and fruits, and where people of dark hue live. As the climate is almost tropical, it is called the *sub-tropical* belt.

Then comes the hot or tropical belt, near the equator, in which the great heat and moisture make vegetation grow rapidly and to great size. The wild animals are large and fierce, and include the elephant, lion, tiger, hippopotamus, and others described later in this book. Tropical vegetation grows very rapidly and looks very different from that of the temperate belt. It includes palms, bananas, breadfruit, pineapples, spices, rubber trees, cacao, and trees valuable for dyestuffs and cabinet woods. Negroes like the hot belt.

These belts are found also in the Southern Hemisphere, but they are less important, because there is less land there than in the Northern Hemisphere.

REVIEW

Those of you who live in the temperate belt can easily answer the following questions: —

1. When are the days and nights of the same length?
2. Of what benefit is the snow?
3. In what part of the year does it rain most frequently?
4. Is it warmer in August than in June? Why?
5. Is it cooler on the top of a hill than at the bottom? Why?
6. What fruits grow best near your home? Why?
7. When is the hay crop harvested? Why?
8. Why do people go to the seaside in summer?
9. Why do children have different games in different seasons?
10. What one article of food is eaten where you live more than any other? Why?
11. Why do people go south in winter instead of going in summer?

4. PICTURE STUDY

Harbor of St. Johns, Newfoundland

1. What is a harbor? Find this harbor on the map.
2. How is this harbor shut in from the ocean?
3. Why are not the mountains covered with vegetation?
4. How many large ships can you count in the harbor?
5. What kind of vessels are they?
6. Write an account of an imaginary trip on one of the ships.

NORTH AMERICA

INTERESTING FACTS ABOUT NORTH AMERICA

In Alaska the mails are hauled by reindeer, which travel over the snow faster than dogs.

In June Dawson has the midnight sun. Photographs can be taken in the middle of the night.

Some parts of Alaska are well suited to agriculture and cattle-raising.

One of the great industries of Canada is lumbering. The heavy logs are easily drawn over the snow during the winter months. Fur gathering and fishing are two other great industries.

Montreal and Toronto are two wide-awake cities in Canada. Quebec is a most interesting, quaint, historic place.

Newfoundland is a favorite land for hunting. St. Johns has a landlocked harbor.

The temperature and climate in Mexico vary as the elevation varies. The lowest part, near the coast, is called the *hot country*. The next part, from one to four thousand feet high, is called the *temperate region*. The third part, over five thousand feet high, is called the *cold country*. The vegetation differs in the three parts. Indian corn forms the chief food of the people in Mexico.

The mountain forests of Santo Domingo contain many furniture and dye woods.

Jamaica raises and ships to the North large quantities of bananas.

MAP QUESTIONS ON NORTH AMERICA

1. Why are different colors used on the map?
2. How are the elevations shown?
3. How can you tell in what direction the rivers flow?
4. How many inches is it on the map from New York to New Orleans? How many miles, then?
5. In what direction do most of the rivers of North America flow?
6. Point out a river system and name it.
7. Name four large branches of the Mississippi River.
8. In what kind of places do rivers rise, according to this map?
9. In what cases do rivers form boundaries?
10. Where are there a great many islands?
11. Write in order the names of the large rivers.
12. Where do you find a broad valley? A narrow one?
13. In what directions do most of the peninsulas point?
14. Name four large peninsulas.
15. What part of North America is in the hot belt? In the cold belt?
16. To what country does Alaska belong?
17. What cities are near the 40th parallel?
18. Write, in order of location, the names of five other cities.


NORTH AMERICA.
Scale of Statute Miles.
0 100 500 1000
640 MILES TO ONE INCH.
Capitals of Countries thus :.⊙
THE M.-N. WORKS, BUFFALO, N.Y.
Longitude West from Greenwich
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
GREENLAND
(To Denmark)
ICELAND
(To Denmark)
ALASKA
BRITISH DOMINION OF CANADA
UNITED STATES
MEXICO
CENTRAL AMERICA
WEST INDIES
GULF OF MEXICO
CARIBBEAN SEA
ARCTIC ARCHIPELAGO
LABRADOR Peninsula
NEWFOUNDLAND
Hudson Bay
Baffin Land
Baffin Bay
Davis Strait
Hudson Strait
Bering Strait
East Cape
Bering Sea
Alaska Pen.
Kadiak I.
Nome
C. Prince of Wales
Yukon R.
Mt. McKinley
Mt. St. Elias
Mt. Logan
Dawson
Mackenzie R.
Great Bear Lake
ARCTIC CIRCLE
Boothia Pen.
MAGNETIC POLE
Peary Land
Cape Farewell
Southampton I.
Great Slave Lake
Peace R.
Lake Athabasca
Nelson R.
Lake Winnipeg
Saskatchewan R.
Albany R.
James Bay
L. Mistassini
Queen Charlotte Is.
Sitka
Vancouver I.
Victoria
C. Flattery
Mt. Rainier
Columbia R.
Portland
Seattle
Vancouver
Winnipeg
Anticosti I.
Gulf of St. Lawrence
R. St. Lawrence
Strait of Belle Isle
St. Johns
C. Race
Grand Bank
Cape Breton I.
Halifax
NOVA SCOTIA
C. Sable
Quebec
Montreal
Ottawa
Toronto
L. Superior
L. Michigan
L. Huron
L. Erie
L. Ont.
Buffalo
Boston
C. Cod
New York
Philadelphia
Baltimore
Washington
Pittsburg
Cleveland
Detroit
Chicago
Milwaukee
Minneapolis
St. Paul
Duluth
Yellowstone National Park
Mt. Hood
Cascade Range
Mt. Shasta
Great Salt Lake
Salt Lake City
Sierra Nevada
Coast Range
San Francisco Bay
San Francisco
C. Mendocino
Pikes Peak
Denver
Omaha
Kansas City
St. Louis
Cincinnati
Ohio R.
Louisville
Missouri R.
Mississippi R.
Arkansas R.
Red R.
Chesapeake Bay
C. Hatteras
Bermuda Islands
Gulf Stream
Atlanta
Mt. Whitney
Colorado R.
Los Angeles
Santa Barbara Islands
El Paso
Peninsula of Lower California
Gulf of California
C. San Lucas
Revilla Gigedo Islands
Rio Grande
Galveston
New Orleans
Florida Pen.
Florida Strait
C. Sable
Key West
Havana
Nassau
Bahama Islands
TROPIC OF CANCER
Yucatan Channel
CUBA
Haiti
DOMINGO
San Juan
St. Thomas
PORTO RICO
Santo Domingo
Fort au Prince
Jamaica
Kingston
Greater Antilles
Lesser Antilles
Santiago de Cuba
Gulf of Campeche
Vera Cruz
Yucatan Peninsula
Mexico
Popocatepetl
Isthmus of Tehuantepec
Gulf of Tehuantepec
BRITISH HONDURAS (BELIZE)
HONDURAS
Tegucigalpa
NICARAGUA
Managua
Nicaragua
SALVADOR
San Salvador
Guatemala
COSTA RICA
San Jose
Colon
PANAMA CANAL
Isthmus of Panama
Panama
SOUTH AMERICA

Relief Map of North America.

Describe the location and relative position of the mountain ranges.
Find the principal river valleys and compare their area.
Compare the Atlantic and Pacific coast lines.
Locate the plains and plateaus of this map on the political map of North America.

NEW YORK HARBOR AND CITY HALL PARK: City Hall at Left and Large Newspaper Buildings at Right of Lower Picture

JOURNEY GEOGRAPHY

PART IV

IN NORTH AMERICA

32. NEW YORK CITY

We will begin our *journeys* with a visit to the largest city in the Western Hemisphere, "Greater New York," as it is now sometimes called.

By looking at the two maps of the *Middle Atlantic states*, on page 117, and of *New York and its vicinity*, on page 90, you will at once see some reasons why this city has grown so rapidly and even made itself the *second city* in size in the whole world.

In the first place, you notice that it has a large, well-protected harbor. The outer harbor, called the *Lower Bay*, is protected from the fury of the ocean by an arm of land or cape called *Sandy Hook*. Then the inner harbor, called the *Upper Bay*, is shut in by two large islands which almost touch each other. You may tell the names of the islands.

In the next place, most of the city is built on a long, narrow island, between two rivers. An immense amount of water surface, in which many vessels can ride in perfect safety, is thus afforded and there is plenty of room for wharves.

In addition to all this, the city is connected by water with Long Island Sound, away to the east, and with the Hudson River to the north. It is also well situated for trade with Europe, because it is so near to that grand division, and lies between it and the grain-growing West. It is closely connected by rail with Albany, the capital, and with Troy, Syracuse, Rochester, and Buffalo, all in the State of New York.

Map of New York and its Vicinity: City of New York shown by Heavy Dotted Line

New York, like London, Chicago, and some other cities, has grown by joining to itself other places. The largest city added was Brooklyn, a city across the East River.

Streets. — If you went to New York, you would be greatly interested in the streets and street life. As you see by the fine cross lines on the map on this page, most of the streets run across the narrow strip of land and the others up and down, crossing one another usually at right angles. The long streets are called *avenues*, and most of the short streets, above the lower third of the city, are numbered.

Let us go through a part of the avenue called Broadway. This street is not so wide as some of the avenues parallel to it, but it is one of the best-known streets in the world. It is about six miles long, and there are few streets where more business is done in a day. It begins at the Battery, a small park looking out upon the shipping and the harbor.

The name "Battery" comes from the fact that years ago a small fort stood there to guard the city. Grass and trees grow there now, and I always see people there watching the busy crowds. There, too, they can see the various boats ever passing by, and gaze upon the soft sunsets over the Jersey hills.

Leaving this pleasant green oasis, we will walk up Broadway and plunge into the hurrying crowd. On both sides of the street are great business blocks and busy people within. This is the general condition of the street for many a mile.

Not far from the Battery we come to a large church with a very high and handsome spire. It is called Trinity Church, and it has stood here for years, peaceful and calm amid much noise and confusion. The view from this lofty church spire was once one of the great sights in New York; now there are many buildings

higher than the top of the spire.

One of the very high buildings stands nearly opposite this church. It has many tall companions in this part of the city.

One of the side streets, the one almost opposite Trinity, is Wall Street. There is nothing attractive or peculiar in the appearance of this street, but it is known all over the world as one of the places where great exchanges of money are carried on. It is, in fact, the "money throne" of the new world. Fortunes are made and lost here every day in buying and selling stocks.

Walking along Broadway again we soon come to a small opening on the right which may properly be called the business centre of the city, although far from the geographical centre. In this little square is City Hall, the headquarters of the New York City government (see picture on page 89). By it surges all day long an ever moving throng of busy men and women. All around are tall buildings where great newspapers are published; the post office and immense office buildings are also there. City Hall, in contrast, is a low building and noticeable on that account.

There is another reason why this is a busy spot. Not far away to the east is the great suspension bridge over the East River, the famed Brooklyn Bridge, and to the west are the New Jersey ferries, all landing thousands of people every few minutes during the busiest parts of the day. The rush in and about this little square early in the forenoon and between four and six at night is a sight worth seeing. There is no centre in the world more crowded. One has to be very alert not to be run over. At these hours the newsboys are everywhere — even girls and women sell papers in New York.

Contrast the hurry, rush, and strain of this busy place with the peace and quiet of some country village.

Step inside any one of these high buildings, and notice the nervous look on the men's faces as they rush for the express elevators and are shot up to the twentieth story.

Busy Scene on Broadway

Brooklyn Bridge over the East River

Cross Streets. — If we still go on up Broadway we soon find ourselves among the wholesale dry-goods houses and railway offices. I always find the side and cross streets about as interesting as the main avenues.

In these side streets you now and then meet a beggar or an organ-grinder. You see many children at work, and, wherever men are numerous, bootblacks find employment. Down town some of the side streets are short and end at Broadway, not crossing the island.

Young Workers: Bootblacks

Let us now visit a typical cross street and notice its changes. It very likely begins at a ferry on the East River where the sea-gulls move in airy flight over the salt water. The "truck" wagons may be coming on the ferry from Long Island. Or there may be wharves, and ships, and people loading and unloading from them. Then comes a warehouse and a small factory. Here is a crowded tenement district where families live close together; but nothing would entice them to move into the country for fear of loneliness. The streets here are full of children, each one with a good pair of lungs.

As each avenue is crossed the rents become higher and the shoeless children fewer in numbers. The tenements are soon succeeded by flats, which in turn become apartments. By and by we reach Madison Square and look down a busy cross street. Then we go to Fifth Avenue. What a change! We have come to the homes of wealth. The interiors of the costly houses here, if we could only see them, would show refinement and luxury, many servants, and all that is supposed to go with "style."

We now pursue our way along the cross street to Sixth Avenue. Here brick takes the place of brown stone fronts, and the sign "boarders" appears in the windows. Beyond these are more apartments, more residences, and many more boarding-houses. As we cross other avenues we come to factories, then to railroads, and soon to wharves reaching far out into the Hudson River.

Business increases on the cross streets till the climax is reached near Broadway, in the great "sky-scrapers," where Mrs. Janitor sits sewing in the sun on the high roof, while the children run about and play. There is no danger of falling off, because every roof is well walled in.

These cross streets, as well as the avenues, are kept clean by an army of men, dressed in white, who sweep up the dirt and carry it away in little hand-carts.

It takes an army of letter-carriers to take out and bring in the mail in so large a city as New York.

Looking Down a Busy Cross Street from Madison Square

Shopping. — New York is noted for its shops and is the shopper's paradise. Not only is a part of Broadway devoted to the retail trade, but it overflows along the cross streets, such as Fourteenth and Twenty-third streets.

In the poorer parts of the city, vegetables, bread, and other merchandise are sold from carts — even such articles as ribbons, handkerchiefs, artificial flowers, dolls, etc. In other streets, stands put up on the sidewalks and gutters are shops for the people.

The Letter Carrier

Selling Bread

A Street Merchant selling Vegetables

The shopping district now extends up the lower part of Fifth Avenue, where it invades the old houses and makes them into show rooms for tailor-made dresses, bonnets, and costumes, all sold at perhaps treble the price asked on the side streets.

Fifth Avenue, in the morning, is enjoyed by the rich and fashionable. They then crowd the street and the sidewalks. They walk, or ride in carriages, hansoms, and automobiles with their liveried servants, as in Europe. People constantly pass and bow; the perfume of violets fills the air. There are young girls with bright faces and sparkling eyes, full of gayety and charm. If they are out shopping, they do not have to think about the cost of what they buy.

Where Fifth Avenue crosses Broadway, at Madison Square, is a very busy centre, typical of New York. Besides the endless stream of shoppers, you see here actors, artists, authors, little girls on their way to Huyler's for a soda, detectives, sandwich men, and pickpockets, — the best and the worst people in the city hurrying past, while the drivers of automobiles and hansom cabs are waiting around the corner for customers.

A Hansom Cab

Tenement Districts. — Let us visit the crowded homes of some people who live on the "East Side," down town, in New York. We will call first upon Carmen, near Mott Street. You can find her by going through a tumble-down tenement house full of bad smells and slovenly people. Across the foul and slippery yard, down three steps, is a shed-like structure, half underground, in which Carmen, her four brothers, and her father and mother sleep, and which they call "home." The three big family beds nearly fill the room. Between the beds the mud floor may be seen. The walls are black with smoke and age.

The mother makes some effort toward neatness, for the beds are carefully made up with old quilts and pieces of carpet for coverings. A bit of oil-cloth is on the floor. Carmen's father and her two older brothers work on the dump. When Carmen is not in school, she is out picking wood or selling newspapers. She often brings home a heavy load of wood.

Carmen and her brothers are very poorly clothed and fed; but they all have sunny tempers and laughing, happy ways. They like to go to school and always behave well there. They are very proud to be learning English.

Carmen and Joseph selling Newspapers

We have time for one more visit, and we will call upon Joseph, near Ludlow Street. He lives on the top floor of a large building crowded with children and adults. His father is a tailor and hires two rooms. One of them he keeps for his family and he lets the smaller room, eight feet square, to another tailor and his wife. They divide this room into two by hanging up a shawl, and sublet the other half to a third tailor and his wife and child.

There is only one bed in Joseph's room, or home, and in it sleep his parents, sister, and two brothers. There is no room for Joseph, and he, poor boy, has to sleep in his ragged clothes on the floor.

Joseph goes to school fourteen weeks in the year and learns very rapidly. When not in school, he sells shoestrings or newspapers. One brother blacks shoes and the other sells matches, as so many poor children do in London. Sometimes Joseph carries bundles of clothes from one shop or home to another shop. Joseph and his brothers have little time to play. They are too busy even to laugh like real, natural children.

Once Joseph's sister, Jette, went out to look for her father and lost her way. She was picked up by the police, but could not tell where she lived, so she was sent to an asylum where she was given another name. It was two years before she was found and restored to her family. During all this time her empty chair stood beside her father's at each meal, showing his love for his little girl. Great was the joy when she finally came back to her home.

A great deal is now being done in New York for the children of the slums. Many crowded buildings have been taken down and parks laid out, or better buildings put up in their place. Playgrounds have been made, with swings, poles, bars, and sand-boxes. Sometimes these playgrounds are on piers on the river front, and bands of music entertain the poor people on summer evenings. Five thousand children often enjoy one of these grounds in a single day. Every summer thousands of these children are taken out into the country for a week of enjoyment. Vacation schools and nurseries are opened. There are also many industrial schools where trades, sewing, and cooking are taught. Charity also supports boys' clubs, in which the boys play games, read good books and magazines, take lessons in military drill, carpenter work, and the setting up of type and printing.

33. NEW YORK CITY (*Concluded*)

High Buildings. — The prevailing building material in this city is brick. There are acres of brick blocks, four and five stories high, used as residences. Much of the

for cross is carried two rivers in such large ships, except Broadway and other streets down town where business is centred. There land increases in value; the city cannot grow sidewise because of the water, so lately it has been growing skyward by the building of "sky-scrapers." Where Fifth Avenue crosses Broadway stands one of these high buildings, called the "Flat-Iron Building," because its plan is like a flat-iron. Some of the "sky-scrapers" are about three hundred feet high. They look like dry-goods boxes standing on end. They are really great towers. The success of the elevator has made them possible. If we take the express elevator and go to the top of one of these buildings, we shall find that the weather-bureau man has his eyrie in the top story.

A "Sky-Scraper": The Flat-Iron Building

Going on up Broadway, we come by and by to one of the city's great parks.

Parks. — Central Park is well named, as it is situated near the former centre of the city. It was once a tract of swamp and rock, and its change into a beautiful park showed great skill on the part of those who planned and carried out the scheme. Central Park was one of the first five parks in this country, and it was begun in 1858. It cost over $15,000,000. It is one of the many large parks found in or near most of our large cities. It contains four hundred acres of groves, shrubbery, and grassy glades, and forty-three acres of ponds. Reservoirs, which supply part of the city with water, are in the park, and cover one hundred and fifty acres of land. Four concealed roads cross the park for driving and heavy teaming. The southern part of the park has been laid out in drives and walks, and there is also the large mall lined with lamps and statuary of great and noted men. Here you see Shakespeare, Scott, the Indian Hunter, and other statues. There are many fountains and lakes in this section. The Egyptian obelisk, which was brought over from Egypt, is the only one in this country. The Khedive of Egypt gave it to the United States, and Mr. Vanderbilt, of New York, paid the expenses of moving it. It is all in one piece, and was cut long before the birth of Christ. It is often called Cleopatra's Needle. The northern part of the park has much greater natural beauty and the lake is very picturesque. There is much driving and horseback riding, as well as walking on the mall on pleasant afternoons. In the winter the lake is used for skating.

Egyptian Obelisk

A Road in the Park

Riverside Drive

There are several museums in this park to which children and adults go for instruction and amusement. In the Museum of Natural History may be seen one of the largest and best collections of American woods and photographs of trees to be found in the country. In the same building there is a good collection of stuffed birds and animals, insects, shells, and minerals.

On the other side of the park stands the Art Museum, well filled with pictures and other art treasures.

A Buffalo

Riverside Drive. — Directly west of Central Park is a long, narrow park stretching up and down the east side of the Hudson River. The river bank is high, and on top of it a retaining wall has been built, and roads and paths have been laid out among the trees. Seats are placed here and there, shrubs have been set out, and everything has been done to make an artist's paradise.

Grant's tomb is at the northern end of this narrow park. From it, and throughout the whole length of the park, fine views of the river and the Palisades opposite are constantly enjoyed. This park is a favorite place for bicycle riders. Along one edge of the park is a row of elegant estates, the homes of rich New Yorkers. Morningside Park is the name given to the upper and wider end of this pleasure space.

Zoological Park. — In the northern part of New York City, in the "Bronx," a section named after a small stream flowing into East River, is a series of parks and nected by wide parkways. One of these is Bronx do in situated on both sides of the Bronx River. It coothes several large lakes, ridges, gentle slopes, valleys, d hia oaks and beeches, and forest plants. Although some distance away from the centre of the city, it can be easily reached by steam or electric lines. I went there not long ago with a friend, and these are some of the many interesting things we saw: —

Buffalo. — We went in at the southeast entrance and first came to the buffalo range. In this great field we saw about twenty specimens of these interesting creatures, which once roamed in droves over the western prairies. At the time we were there, Cleveland, the shaggy old patriarch of the herd, was quietly eating hay like a patient ox. There are sheds and barns for these animals, as well as groves of trees and plenty of feeding room. They love to walk about and will dash across their pasture on the slightest excuse.

Deer in Captivity

In the amount of space given to the animals, no other zoological garden in the world can equal this one. Wild animals are shown, as far as possible, in the condition in which they are found in nature.

Deer. — Next to the buffalo range are the pastures for the antelope and deer families. The antelopes do not shed their horns every year. They are like our domestic cattle in this respect.

The antelopes have with them several prairie dogs

for companions. A wild, grassy valley, lying between two ridges, is given to the elk. These animals are very large and resemble the moose. In one part of their grounds is a large pond where they delight to bathe in warm weather. The stretch of woods gives them a chance to escape the hot sun. The elk look their best in the autumn against the bright foliage of the trees.

Beyond the elk pastures are the deer ranges. First we saw the moose, then the caribou, and then various kinds of deer. Here all these animals roam with almost the same freedom as in their forest homes. Sometimes you will see one leap high over the back of another in its haste to reach the other side as quickly as possible. The mule-deer buck, called "Montana Billy," now and then crosses the hollow in his range in a series of wonderful stiff-legged jumps by which he flies over the ground. He looks then as if rebounding from a rubber cushion.

Bear climbing a Tree

Mule-deer Buck

The ranges are all fenced in with strong steel wire which is nearly invisible.

Birds.—Near the home of the deer is that of the large birds. They have a chance to fly and move about, being placed in a great flying cage one hundred and fifty feet long and over fifty feet high, in which are growing trees, large pools of water, saplings, and shrubs. The trees offer shelter and resting-places for bird life, and the water is greatly enjoyed by the water-birds. In this cage we saw herons, egrets, ibises, eagles, and other large birds. The condor was in a separate cage. The ducks, geese, and flamingoes were having a good time in the shrubbery and on the lake.

The wolves and foxes held an afternoon reception in their wire homes on the sides of a rocky ledge. The prairie wolf did not like his dinner of beef and refused to eat, doubtless longing for a feast of fresh spring lamb.

Bears.—In another part of the park we found the dens of the bears. They were built against the base of a high granite cliff. Mr. Bear was at home and was ever on the move. He raced up the rocks; he climbed the trees and slid down to the ground; he took a bath for variety, and growled at his visitors. Mr. Bear was from the island of Kadiak in Alaska, and he closely resembled his grizzly brother, but he did not look quite so fierce.

The two white Polar bears had very elegant quarters with many Arctic luxuries. They bathed in ice-cold water, and had their house well shaded from the sun, and a very moist and cool cave in the rocks to retreat to when it became too warm outside.

Some children, perhaps, would have enjoyed the great snake house, which was full of these crawling creatures; but we were glad to get out, because it was so hot there, and to leave the hideous python, the deadly cobra, and the ugly alligator to each other's company. We liked much better the frisky squirrels from different parts of the world.

MAP QUESTIONS ON THE UNITED STATES

1. Write out in order the names of the states touching the Atlantic Ocean; of those bordering the Gulf of Mexico.

2. What states, named in order, touch the Mississippi River on the east? On the west?

3. What eight states touch the Great Lakes?

4. What states are Rocky Mountain states?

5. What states border the Pacific Ocean?

6. What country is north of the United States? South of it?

7. Where are the two great mountain ranges?

8. Name in order the important branches of the Mississippi River.

9. What is the highest mountain in Alaska?

10. What large river is in Alaska?

11. To what country does Porto Rico belong?

12. In what direction from New York City is Cuba?

13. Locate New York, Philadelphia, Washington, Baltimore, Milwaukee, Chicago, Buffalo, St. Louis, Minneapolis, New Orleans, and San Francisco.

34. "MADE IN NEW ENGLAND"[1]

Along the northern part of the Atlantic coast is a cluster of six states somewhat separated from the rest of the country. Hours might be spent in telling of visits to many charming summer resorts among the hills and mountains of the interior, or down beside the sea, where thousands of people go in July and August.

A New England Manufacturing Village

New England Manufacturing. — Perhaps you have heard that New England has a very poor soil — a soil hard to cultivate, because it is so full of stones. For this reason the people, who are great workers, as they increase in numbers find it profitable and necessary to make things for themselves and others.

They have developed great talent in this direction. To help them, nature sends many small streams down the steep slopes of the hills and mountains, and some large ones, which furnish the power needed for turning the wheels of industry in factories and shops. Coal can be brought cheaply in ships to places near the coast. It is used in many of these towns instead of water-power, or in addition to water-power.

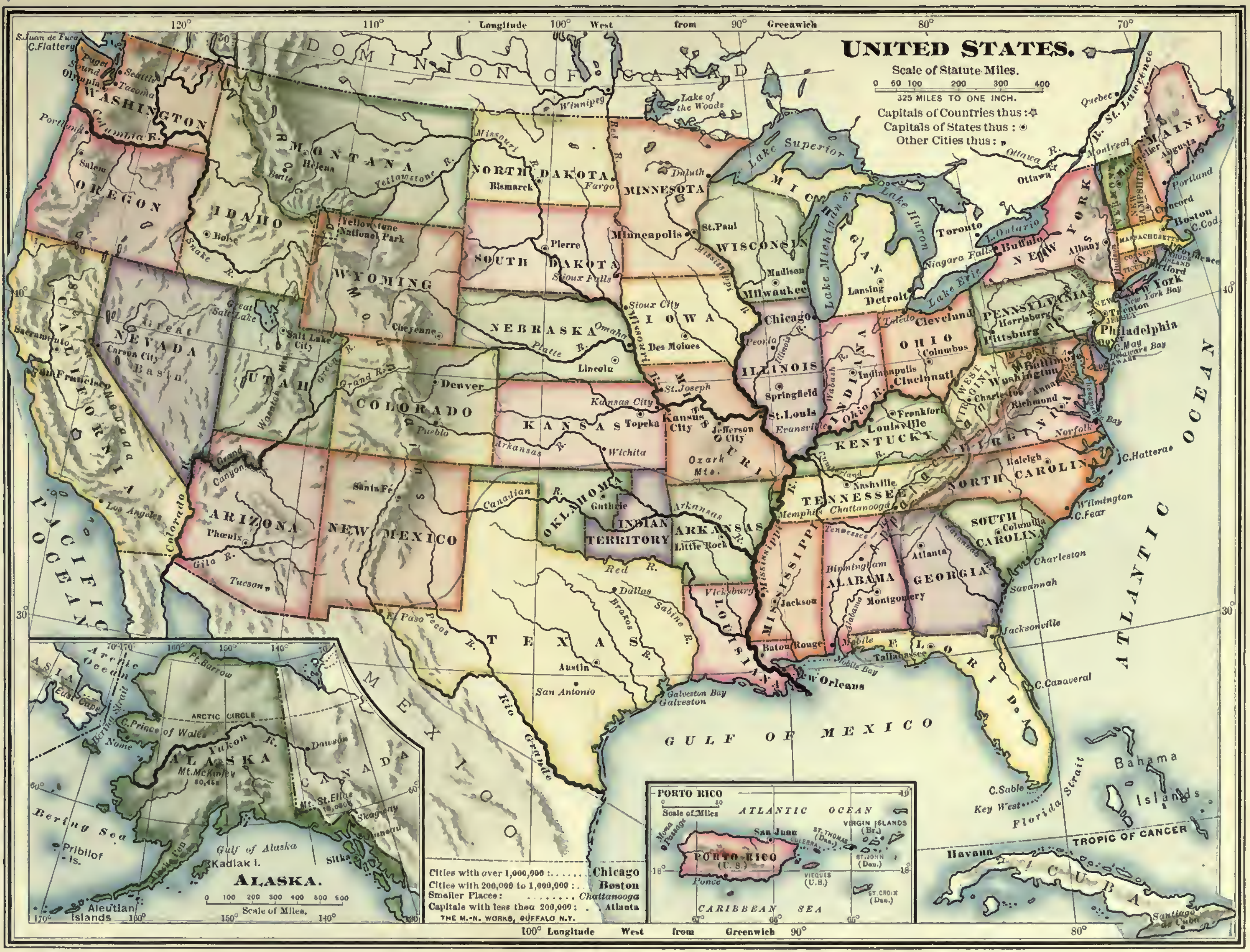
State Capitol and Grounds, Hartford, Conn.

If we leave New York City by rail, we soon enter Connecticut, the "Land of Steady Habits" and "Yankee notions"; the land of Eli Whitney, who invented the cotton-gin; of Samuel Colt, who made the first revolver; and of Charles Goodyear, who discovered how to make rubber. So many things for our comfort and pleasure are made in this and the other New England states that it would be difficult to mention them all.

Busy Bridgeport, which we soon reach, is one great hive of workers, turning out from its rows of mills sewing-machines, rifles, cutlery, carpets, and organs.

There is no time to stop at the "City of Elms," New Haven, the largest city in the state, where the most valuable production is Yale College boys; we must rush on to Meriden, noted all over the country for its plated silverware.

[1] Teachers should require the pupils to trace all the journeys on the maps.


UNITED STATES.
Scale of Statute Miles.
0 60 100 200 300 400
325 MILES TO ONE INCH.
Capitals of Countries thus:
Capitals of States thus:
Other Cities thus:
Longitude 100° West from 90° Greenwich
DOMINION OF CANADA
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
INDIAN TERRITORY
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
MAINE
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
MEXICO
TROPIC OF CANCER
CUBA
Bahama Islands
ALASKA.
Scale of Miles.
0 100 200 300 400 500
PORTO RICO
Scale of Miles
ATLANTIC OCEAN
CARIBBEAN SEA
Cities with over 1,000,000 : .... Chicago
Cities with 200,000 to 1,000,000 : .. Boston
Smaller Places: .... Chattanooga
Capitals with less than 200,000: . . Atlanta
THE M.-N. WORKS, BUFFALO N.Y.

Whenever I go through this state in the autumn or early spring, I always see from the car windows, immediately after sunset, hundreds of shops lighted by electricity, in which busy hands are turning out all kinds of "Yankee notions." Clocks, watches, bicycles, locks, firearms, sewing-machines, rubber goods, hats, pianos, fish-hooks, pins, buttons, and needles and thread with which to sew the buttons on, come from these factories.

New England Villages. — New England villages have certain features in common. There is usually a central square or green, shaded by stately elms, a tall-spired church, and attractive wooden houses surrounded by gardens and flower-beds, the happy homes of well-to-do, contented people.

Above Meriden we come to Hartford, the capital city. A capital city is not always the largest city in the state,

Hadley Falls

but it is the seat of government, where the governor has his office and the legislature meets to make laws. As we enter Hartford we see factories and machine-shops, and at last the beautiful white capitol, admirably placed in a picturesque, green park in the heart of the city. Here, too, we come to the Connecticut River, which we follow as we go northward to Springfield, Massachusetts.

The valley of the Connecticut River is rich in good farming land on account of the silt brought down from the uplands by the river and its branches. The river furnishes a considerable water-power and combines excellent farming with prosperous manufacturing.

Between New Haven and Springfield we see profitable farms with good farm buildings, and large and small factories full of busy mechanics. In Springfield the national government has its armory and arsenal of which Longfellow sang. Here are made the magazine-rifles for our soldiers. This great factory is upon a hill some distance back from the river. The chief buildings stand around a square, making a pleasant stretch of lawn, shaded by rows of trees.

Water Power. — Going farther up the valley, we come to the wonderful Hadley falls and rapids, in which the river descends about sixty feet within a mile, furnishing the greatest water-power in New England. A steep descent is necessary to furnish water-power. Wherever a river descends rapidly by means of falls and cascades, the water at the falls or just above can be held back by a dam. A part of the water may then be made to run through a canal, or artificial channel beside the river, on a very gentle slope. In this way, in a short distance below the falls, the canal becomes much higher than the river.

Between the canal and river, mills may be built. The water flows from the canal down into the river through the turbine wheels of the mills, which are placed as near the level of the river as possible. In its fall, by its great pressure, it turns the large wheel which is connected with all the little wheels and makes them revolve also. Thus the water helps to make the cloth.

Paper Making. — By a system of canals, the water is used to give needed power to a long line of paper-mills. Paper of all qualities and sizes is turned out in Holyoke.

A ride of about two hours eastward brings us to another

A Paper Mill, Holyoke, Mass.

busy city, surrounded by a ring of hills from all of which fine views are obtained. Here skilled hands toil all the day through upon iron and wood, shaping them into articles of great value. In this city of Worcester stands the largest wire-mill in the world. From it thousands of miles of wire are yearly sent away to the four points of the compass.

Mills of the Blackstone Valley. — From Worcester I went down the Blackstone Valley through a stretch of mills many miles in length; for the river in this valley descends in its brief course some five hundred feet and thus furnishes large water-power privileges. Once this little river must have been exceedingly lovely as it wound about among the enclosing hills; but now it is made to work, and the country along its course has become a section of dams and canals lined with brick mills. As soon as the water turns one set of wheels, it is driven to work to turn another set, and so on for twenty miles.

View in Providence, showing Capitol in the Distance

Most of these mills are in one corner of the smallest state in the Union, Rhode Island. In one of the cities, Pawtucket, the river goes around in great bends, and the canals lead the water from frequent dams to the water-wheels that turn the mills, thus enabling thirty thousand people to make cotton and woollen cloth. Farther down the stream are great thread-mills that turn out spools of thread by the basketful, more than enough to sew all the cloth made in this busy city.

The Pawtucket Falls, which supply Water-power for the Lowell Mills

Just beyond Pawtucket is the beautiful capital of Rhode Island, Providence, with its villa-capped hills. The handsome new state capitol at Providence is well worth seeing. This, too, is a busy city, where the people make silverware, worsted goods, screws, and files. Some of the mills in which these goods are made are the largest in the world.

River and Canal Side by Side: Canal at Left, River at the Right

Cotton Manufacturing. — A delightful ride from Providence by steamer through Narragansett Bay brings us to Fall River, where there are good cotton-mills, all run by steam-power because coal is so cheap there.

Not far away, in Massachusetts, is New Bedford, once the "whale oil city." Now there are so few whales to catch that she has built cotton-mills, and makes such good sheeting that people are willing to pay a high price for it.

Lowell, in the northern part of Massachusetts, is another great cotton-cloth making centre. It is one of the oldest of these manufacturing cities. At Pawtucket Falls and the cascades just above the city, the great working river Merrimac descends over forty feet, thus furnishing immense water-power. From the falls a long canal has been built to make use of the power. It carries a large supply of water through the city. There are gates at the beginning of this canal to regulate the amount of water. In some places one can stand and see at one glance both the quiet flow of water in the canal and the dashing, rushing river thirty feet below. A solid granite wall separates the natural and the artificial rivers. The mills stand between the canal and the river, each one taking a certain amount of water from the canal supply. Each mill stands on a level with the canal and far above the river. As the water descends from the canal to the river, it turns the great turbine wheels, and these turn the machinery in the mills.

The Concord River joins the Merrimac at Lowell. It, too, furnishes some water-power. The union of the two rivers may be seen from a bridge over the Concord on one of the principal streets of Lowell. One of the mills has lately put up a large building upon piles over the Concord River.

Sometimes the water in these rivers is low in summer, and then coal is employed to furnish additional power. Most of the mills have tall chimneys.

The water in the Merrimac River does duty over and over again. In Manchester, New Hampshire, before it reaches Lowell, it furnishes an immense amount of power and moves the spindles and looms in several great mills.

Leaving the Cotton Mills in Lowell at the Noon Hour

The Boarding-houses of the Paper Workers, Holyoke

And so it does in Lawrence, some twelve miles below Lowell. The largest cotton-mill in the world is at Manchester.

In all these cities, many of those who work in the mills live in large boarding-houses owned by the corporations; that is, by the companies owning mills.

Usually these corporation houses are built of brick and furnished with few comforts. The price of board in them is very low.

The Waltham Watch Factory

In Lowell, many of the people who now work in the mills are Greeks, Armenians, and Italians. Just at noon the bells ring and the workers come out of the mills for their midday meal. They return to work at one o'clock.

A Common Type of Village Street in New England

Watches. — Several hours may be spent in Waltham, Massachusetts, where we find one of the greatest factories in this country for making watches. Many wonderful machines are

used there instead of hand labor. On account of this, a good silver watch may now be bought for a few dollars.

One of these low-priced watches has about fifty-four parts in it, and the higher priced ones three times as many; but each of the fifty-four parts must be made with the greatest care and accuracy. It takes thousands of persons to make these parts, to look after the machines, and to finish and put together the different parts after they are made.

Shoe Factories, Lynn

Pleasant Homes near the Shoeshops, Lynn

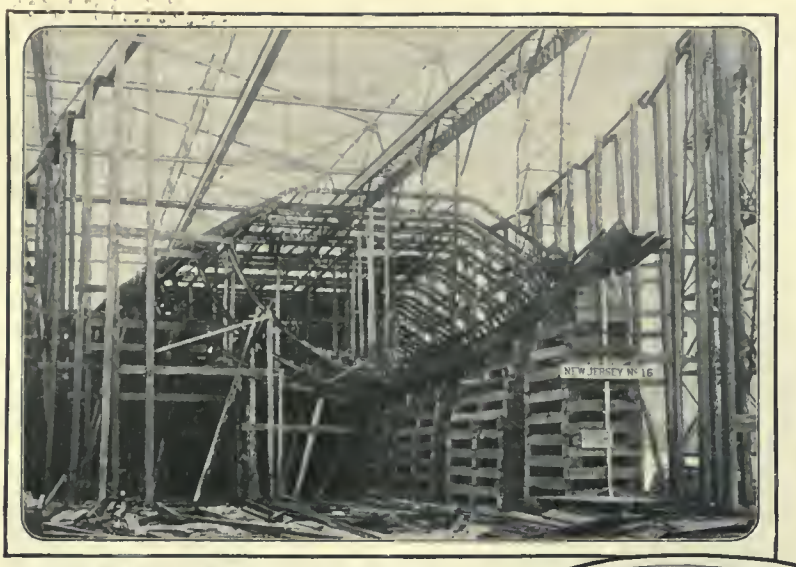
Very little of the cost of a watch is due to the material. Most of the expense is in the hours of work necessary to make it. In Waltham the men and women are paid good wages and they work in well-lighted, clean, pleasant rooms. The factories are surrounded by well-kept lawns and parks. The city is on the Charles River.

Shoes. — Travelling south from the Merrimac River one passes through the great shoe-making city of Lynn. The many shoe factories are scattered about the town. On the main streets are the offices of the shoe merchants. The humble homes of the men and women who work in the factories are seen covering the plain and stretching over the near-by hills. From these homes hasten well-dressed children, even on rainy afternoons, to school. There they not only learn to study, but at the time of my visit they had united in a grand effort to gather and destroy the brown-tail moth, and thus preserve the trees of the city. Thousands of the nests of this pest were thus destroyed by the school children. Their parents turn out each year millions of pairs of women's shoes, or one-fourth of all the shoes made in this country. Men's shoes are made in similar quantities in the city of Brockton, Massachusetts.

Much of the work on the shoes is done by machinery. Some of the machines can do as much work as twenty men can do by hand in the same time. One man with his machine can sew on six hundred pairs of soles in a day. These shoes are marketed in Boston, making that city the largest shoe market in the country.

Books. — One of the great industries of New England is the making of books. Many noted authors of books have lived in New England. In most cases the plates for the books are made in one place, the leaves are printed in a second place, and then the leaves are folded and bound in a third place. But in Norwood, Massachusetts, there is a very large establishment where all the processes are carried on under one roof. This geography

Printing Schoolbooks at the Norwood Press



The Steel Battle-ship "New Jersey" being built at the Fore River Works

was made there. In one end of the building the type is set up and the plates cast; the leaves are printed by large machines in the central part of a very long building; and at the farther end the cover is made, and placed upon the book. Hundreds of machines and thousands of workmen are thus employed in making carloads of books for schools, libraries, and homes.

The Frame under which Large Ships are built

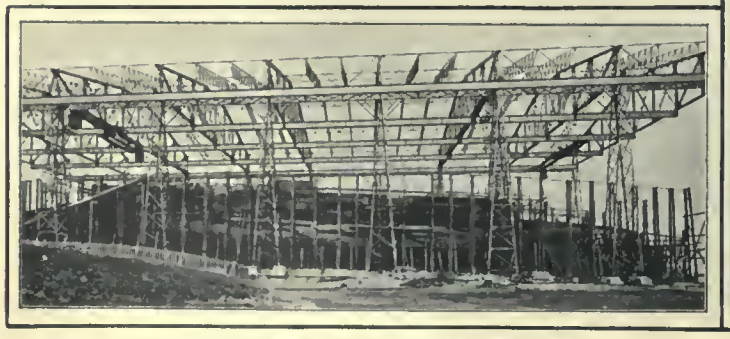
Ship-building. — New England is once more becoming noted for its ship-building. Wooden and iron ships are built on the Maine coast, as at Bath. The fastest yachts are designed and launched in Bristol, Rhode Island.

One of the largest and most interesting plants is at Quincy, Massachusetts, on Fore River. Not only great steel, many-masted schooners, but torpedo-boats, cruisers, and battle-ships are built there.

The pictures on this page show two battle-ships building, the *Rhode Island* and the *New Jersey*. The heavy parts of the ships are carried by an overhead electric crane to the places where they are needed. Near by are forging and machine shops of great size. More than two thousand men are employed in this ship-yard.

Boston. — And so we come, last of all, to Boston, where all these things "made in New England" may be bought, and from which city they are sent to various parts of the world. The buying, selling, sending away, and receiving of so many articles has built up business and caused Boston to grow until it has become the largest city in the New England states. Boston's good harbor and many railroads have helped to make her the second city of the Union in commerce. It would take two Bostons to make one Philadelphia in population, and several more to make a New York.

Boston is proud of her history and historic places. The Old South Church, where Warren and Adams spoke for independence, is carefully preserved in a busy part of the city.



Side View of Frame, showing Side of Battle-ship

In the Leather District, Boston: a Load of Leather

The Old State House and Faneuil Hall still tell Boston children of the great deeds of patriotic fathers. Bunker Hill Monument looks down upon the city in solemn grandeur from the famous battle-field in Charlestown. Boston is very proud of her Common, because it stands for much history and because it is near the business part of the city, and therefore may be enjoyed by many people.

She is also proud of her costly and elegant Public Library. The grand staircase in this building is one of the finest in the world. This library and all its branches have an immense circulation of books. In the main building there is not only a great reading room for adults, but a very large one for children. The rooms are decorated with paintings by some of the greatest modern artists.

The city is proud of her opportunities for learning. She has an excellent system of common schools, from the kindergarten to the high school. Some of the recent grammar and high school buildings are palatial in size and finish, and almost extravagant in cost. Boston was one of the first cities to furnish children with single desks and separate seats. She has more high school buildings and pupils than any other city of the same size, and a larger proportion of children take the high school courses than in any other city in the country.

A Busy Scene at Faneuil Hall

Boston youth have access to such first-class institutions as Harvard University and the Massachusetts Institute of Technology. They can go to many free lectures and literary and musical entertainments.

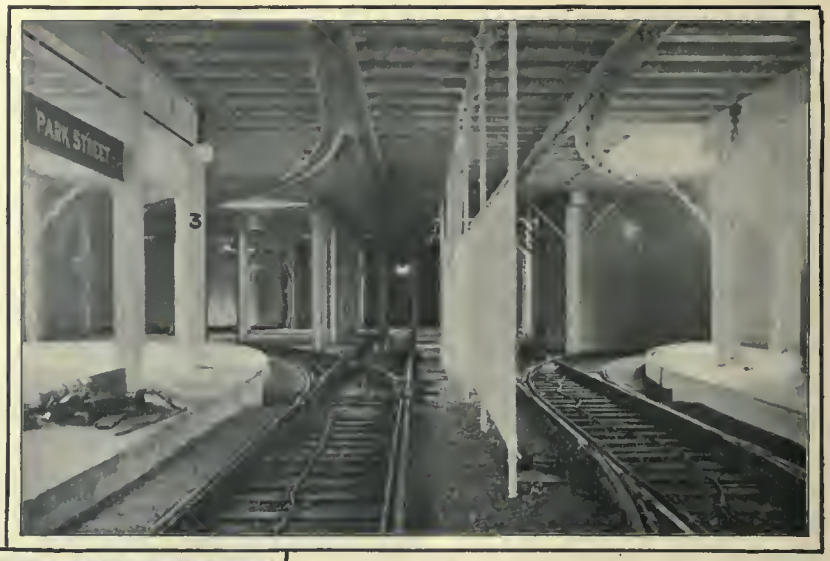
The city is noted for, but not very proud of, her narrow, crooked streets. The great fire, years ago, enabled her to improve and widen many streets, but the trouble from crowding grew worse and worse

Grand Stairway in the Library, Boston

Charlestown and Bunker Hill Monument

till it finally became so bad that she was obliged to build a great subway in which to run some of her street-cars underground, and to give more room for speed on the surface tracks.

This subway passes under the Common, under several busy streets, through the heart of the city to the great North Station. It is used for surface and elevated electric cars, and is so well built and so well ventilated and lighted that it is not at all disagreeable to ride through it. The waiting rooms are underground too; they are reached by stairs from the street and are large enough to contain many people.



In the Subway under Boston Common

Some of the Subway Entrances on the Common

8. In what direction, then, does the land slope?
9. What city has over 500,000 people in it?
10. In what state is Portland? Manchester? Montpelier? Worcester? Lawrence? Somerville? Providence? Hartford? Cambridge?
11. Name in order the large rivers, beginning with the Penobscot River.
12. Make up questions about the cities, bays, people, and occupations.

SUMMARY

Connecticut — the land of the inventor.
Connecticut Valley — water-power and farming.
Worcester — wire workers.
Blackstone Valley — many mills.
Lowell — cotton mills. Waltham — watches.
Lynn and Brockton — shoes.
Boston — largest city in the New England states.

MAP QUESTIONS ON THE NEW ENGLAND STATES

1. Which is the largest state? The smallest?
2. What state does not touch the ocean?
3. Find a range of mountains.
4. Are they near the coast?
5. Which state has a very irregular coast line?
6. In what direction do most of the rivers flow?
7. Into what ocean do most of them flow?

35. MAINE AND JERSEY COASTS

Maine Coast. — You have had your attention called to some peculiarities of the seashore in Lesson 14. A small part of the Maine coast has been described in Lesson 19. Here the coast was shown on the map in your book by a short curved line, but when we visited it, we found it irregular, with many river mouths, bays, points, and good harbors.

Our country is so large that it has a vast amount of coast-line. Some of it is like that in the chapter called "A Bit of Coast." Some of it is far more varied and beautiful than that, and much of it is less interesting and less helpful for commerce.

A Rugged Shore. — We shall now learn about the high, rocky, irregular coast at the north, and compare it with the low, flat, and more regular shore farther south. (See map of North America, facing page 88.)

Good harbors abound along an irregular coast like that common to the New England states. The coast of Maine is a good example of this.

NEW ENGLAND STATES.
Scale of Statute Miles.
0 10 20 30 40 50 100
54 MILES TO ONE INCH.
Capitals of States thus : ⊙ Other Cities thus : •
THE M.-S. WORKS, BUFFALO, N.Y.
Cities with 500,000 to 1,000,000 :.....Boston
Cities with 200,000 to 500,000:......Montreal
Cities with 50,000 to 200,000:......Portland
Smaller Places :..............Gloucester
Capitals with less than 50,000 :. . . .Augusta
Longitude West from Greenwich
74° 72° 70° 68° 46° 44° 42°
QUEBEC
NEW BRUNSWICK
NEW YORK
VERMONT
NEW HAMPSHIRE
MAINE
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
ATLANTIC OCEAN
Quebec
Montreal
Sherbrooke
St. Lawrence R.
St. Maurice R.
Chaudiere R.
St. Francis R.
Richelieu R.
R. St. John
St. Francis R.
Eagle Lakes
Walloostook or R. St. John
Aroostook R.
Chamberlain Lake
Houlton
Chesuncook Lake
Mt. Katahdin 5,200
Moosehead Lake
Grand Lake
St. Croix R.
Calais
Eastport
Penobscot R.
Kennebec R.
Mt. Abraham 3,388
Saddleback Mt.
Rangeley Lakes
Bangor
Waterville
Androscoggin R.
Augusta
Bar Harbor
Mt. Desert I.
Rockland
Penobscot Bay
Lewiston
Auburn
Sebago Lake
Bath
Saco R.
Casco Bay
Portland
Biddeford
York
Piscataqua R.
Dover
Portsmouth
Lake Memphremagog
St. Albans
Lake Champlain
Mt. Mansfield 4,364
Burlington
St. Johnsbury
Adirondack Mountains
Montpelier
Otter Cr.
Green Mountains
Rutland
Lake George
Connecticut R.
Berlin
Mt. Washington 6,293
White Mts.
Lake Winnepesaukee
Merrimac R.
Concord
Manchester
Keene
Nashua
Haverhill
Bennington
Brattleboro
Troy
Albany
North Adams
Greenfield
Lawrence
C. Ann
Gloucester
Lowell
Salem
Lynn
Fitchburg
Malden
Somerville
Cambridge
Waltham
Newton
Boston
Massachusetts Bay
Pittsfield
Northampton
Holyoke
Worcester
Blackstone
Quincy
Springfield
Cape Cod
Brockton
Taunton
Cape Cod Bay
Plymouth
Woonsocket
Pawtucket
Providence
Fall River
New Bedford
Buzzards Bay
Hartford
New Britain
Housatonic
Waterbury
Meriden
Norwich
Thames R.
Newport
New London
New Haven
Bridgeport
Narragansett Bay
Marthas Vineyard I.
Nantucket I.
Hudson R.
Long Island Sound
Montauk Pt.
LONG ISLAND
New York
BOSTON AND VICINITY.
0 1 2 3 4 5 10 MILES
Winchester
Melrose
Saugus R.
Lynn
Lynn Harbor
Mystic Lakes
Medford
Malden R.
Malden
Everett
Revere Beach
Nahant
Broad Sound
Mystic R.
Charlestown
Chelsea
5 Miles
Somerville
Cambridge
East Boston
Winthrop Head
Charles R.
Newton
City Hall
Reservoir
South Boston
Boston Harbor
Brookline
Boston
Quincy Bay
Charles R.
Neponset R.
Quincy

Such a coast is the result of the land's sinking and leaving the tops of the hills above water, as islands, heights, and capes. The old river courses and valleys

A Drowned Valley, Maine Coast

then make the deep water channels and harbors. The deep bays, like Penobscot Bay, are really drowned valleys; that is, valleys in which rivers once ran, but which have been lowered with other parts of the coast and filled up to sea level by the waters of the ocean which have flowed into them. It is quite impossible in such cases to tell where the river ends and the bay begins.

My young friend Albert once went on a yacht from Portland, a large city in Maine, to Bar Harbor, a beautiful seaside resort, and he has told me about his trip: —

"I remember," said Albert, "that it was a charming sail down the harbor of Port-

Portland Light

land. Our yacht was followed by several others, and we met sail-boats, rowboats, yachts, dories, and steamers coming in. We passed a lighthouse and a fort.

"As we moved away from Portland a mass of houses rose behind us, one tier above another, on different hills, great trees and here and there a church spire filling in the spaces between.

Casco Bay. — "My first surprise was to learn how many more islands Casco Bay has than are shown on the map. My brother said that many city people spend the hot months of July and August on these islands. Much of the coast beyond Casco Bay is made up of low hills which rise steeply out of the water twenty or thirty feet. Farther back from the water the land slopes gradually.

"Most of these hills are thickly wooded with small pine and spruce trees that often grow all the way down to the ragged rocks forming the shore-line. In some

A Typical Bit of the Tree-covered, Rocky Coast of Maine

places the scenery becomes bolder and the hills higher. Many different shades of green are seen. Inland, high hills and even mountains appear.

"On this trip we saw many islands, capes, and peninsulas; a lighthouse here, a beacon there, and then a stretch of open sea. Frequently large rocks came into view, covered with seals — large and small, black and white. One splash as the steamer drew near, and the rock was bare.

"In a few places passed in the first part of the trip, the shore sloped off gradually, and when the tide went out, it left a wide, sandy beach, very good for bathing. Nearly always, however, it was so steep that the beach at low tide was narrow. Most of the shore east of the

Kennebec River was rocky and covered with trees, making excellent landing-places for boats, but affording few chances for bathing. Marsh land was seen now and then,

Penobscot Bay, Maine

but it was not extensive, being rarely more than a few miles in length. Lighthouses were frequently seen along this coast.

Penobscot Bay. — "I enjoyed greatly the sail in and around Penobscot Bay. It seemed from the yacht more like a long, wide river than a bay, because the islands form an almost continuous chain of bordering land. The wooded hills rose here in noble curves from coves and rocky points. In one part of the bay there was a clear expanse of water; in another part it was dotted with islands, large and small, grassy and rock-bound. On some of these islands were lighthouses.

"The third day was still more interesting. We steamed among thousands of islands, often very near the coast. My brother pointed out many of these islands and told me their queer names. There was Little Deer Island, Butter Island, Eagle Island, Calf and Swan Islands. From the map of the coast he read the names Burnt, Green, Black, Spoon, Seal Rock, Wooden Ball, Little Duck, Brown Cow, Junk of Pork, Sheep, Porcupine, and Squirrel Islands."

Lighthouse in Penobscot Bay, Maine

"Did he tell you why they had such strange names?" some one asked.

"Yes, because the sailors noticed a resemblance in shape to the animals or objects whose names they bear, or because these things were found on them.

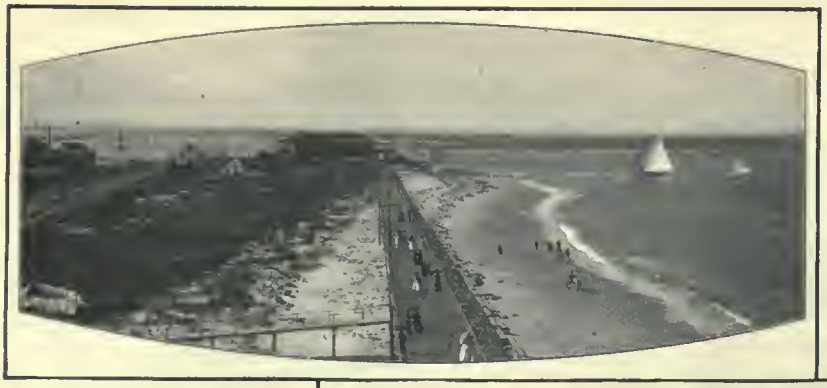
"As we went farther and farther east, the shore became higher and steeper. We saw more frequently crags and rocky ledges, and less often fields of corn and grass. As we approached the large island called Mount Desert, the mountains grew higher and seemed to come nearer the water. The coast there was very bold and steep. Just before reaching Bar Harbor, Green Mountain loomed up far above us, seeming to rise out of the ocean."

New Jersey Coast. — In sharp contrast with this steep, rocky shore, the teacher told the class about a long, flat stretch of coast farther south — shown on the map of North America.

"The land there," she said, "slopes very gently up from the water, rising not over sixty feet for a long distance along the shore. The higher land is very far back from the shore, instead of near the water as in Maine.

"The ocean here and farther south beats against a low, sandy bar which in most places is separated from the mainland by bays, channels, sounds, and salt marshes. This sandy shore is divided by inlets and rivers into

View of Bar Harbor, Maine



A Sandy Beach on the New Jersey Shore

islands and long, narrow peninsulas running parallel with the mainland. These sandy stretches are called *beaches*. .

"The beaches are composed of hard, white sand, which has been scooped out into hollows in some places and piled up in dunes, or small rounded hills, in other sections.

A Sand Dune and Pine Trees

"In summer-time people go from hot cities to the beaches, where there are good places for bathing and enjoying the cool breezes from the ocean. Many summer resorts have grown up along the New Jersey shore, most of them on the low, sandy bar already mentioned.

"Behind the beaches are stretches of salt marsh covered with salt grass. The tide is constantly flowing in and out through these marshes or flats. They are not easily crossed, even at low tide, because they are cut up by tidal streams too wide to jump over.

A Bleak Coast and Sand Cedars

Low and Level Land. — "Much of this marsh land is so low and so well soaked with salt water as to be worthless; but where the land lies a little higher, abundant crops of hay are cut every summer and cattle find good pasture.

"The soil along the shore being more or less sandy, pine trees abound. Sand cedars are often observed showing twisted branches, the effect of strong winds.

"The inlets and bays of this coast are full of various kinds of fish, oysters, clams, and lobsters. Good fishing is enjoyed by visitors. Weakfish are caught in summer and also sheepshead, both excellent fish to eat. In the fall striped bass are caught; in winter, flounders. The abundance of fish and crabs brings gulls and ducks, geese, snipe, and crows, to feed on this shore. It is a great place for fishermen and sportsmen. Crows often go to these shores to find food in the winter-time. They are sometimes seen opening clams, taking them up several feet in the air, and letting them fall to break open the shell.

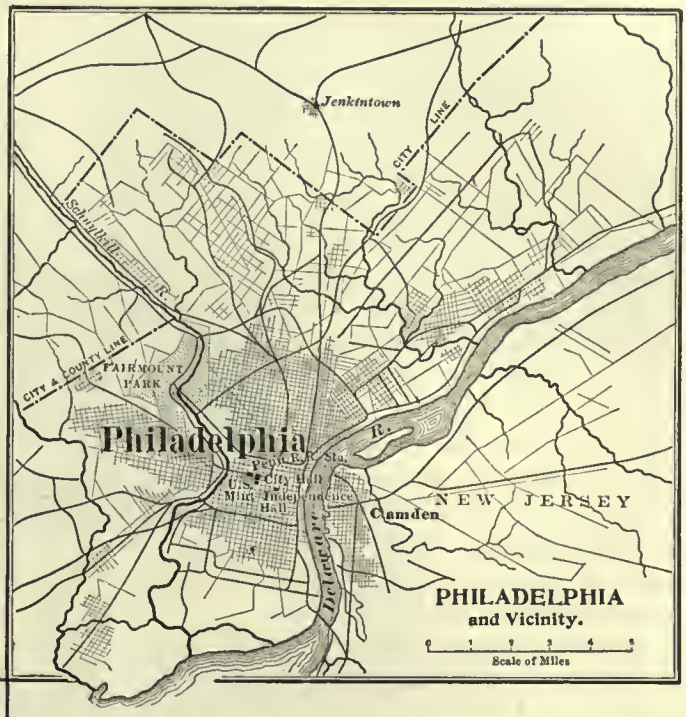
Island, Salt Marsh, and Inlet

"As one travels southward the long, narrow barriers become wider and form larger islands, upon which grows the valuable sea-island cotton used in making thread. These islands are found along the entire coast, as far south as Florida."

36. A SOUTHERN TRIP

How much we would enjoy, this cool morning, a trip to the "Land of the Palmetto and the Pine."

Philadelphia. — On our way from New York, we would first come to Philadelphia, a city in the state of Pennsylvania, and so important that we must stop there and see some of its points of interest. Like Pittsburg in the same great state, it is situated at the union of two rivers. These two rivers, the Delaware and the Schuylkill, flow into the northern end of a long bay; so Philadelphia is at tide water and is a sea port. This city stretches out over a wide territory, and has very long streets because the people like to live in houses, each by itself. The streets are often ten miles long, and most of them cross one another at right angles. Philadelphia contains many factories and carries on a large commerce, so it is a busy city. It has several fine railroad stations, the largest and most costly city hall in this country, and several noted historic buildings which are carefully preserved by the people. The most celebrated of these buildings is Independence Hall, in which the Declaration of Independence was made and signed.



The City Hall

The United States Mint

Cramp's Shipyard: Launch of a War-ship

In this city are four striking things to see. (*a*) The United States has always had here its most important mint. A mint is a building in which the coins used as money are made.

(*b*) On the banks of the Delaware River, a little above the city, is one of the largest and most celebrated shipyards in the world, owned by the Cramps. Here thousands of men are working from morning till night on great iron and steel vessels. They also build warships here for our government and other nations. These are powerful, floating forts, like the *Indiana* and the *Texas*.

Homes of the Workers, Philadelphia

(*c*) Philadelphia has more homes in proportion to the number of people than any other city, so it is called the *City of Homes*. The people do not live in flats, one family above another, nor in family hotels and tenement-houses as much as is usual in cities. Most often the houses are side by side in long brick blocks, all just alike on the outside. The blocks are from two to four stories high, and most of the houses have modern improvements, such as a furnace, a bath-room, hot and cold water. Many of the houses have piazzas where the families sit in the warm weather.

Washington Monument, Baltimore

(*d*) Fairmount Park is, as its name indicates, beautiful to look upon, and the pride of the city. This pleasure ground contains three thousand acres of woodland and cultivated stretches. It is noted for its picturesque walks and lovely drives, and is one of the largest parks in the world.

Baltimore. — A ride of three hours from Philadelphia brings us to Baltimore, and here the sights and sounds are those of the South. Baltimore is an agreeable city, the largest in the state of Maryland. Its beautiful surroundings, particularly Druid Hill Park, afford pleasant walks and drives to the dwellers in the city proper. The city is famous for the Johns Hopkins University and Hospital, for its museums and monuments, and for the wealth and culture of its citizens. The monuments in Baltimore are so numerous and so good that it is often called the *Monumental City*. Before going away we should see the Washington Monument, the Battle Monument, some of the fine residential streets, and the Peabody Institute.

A visit to the water front is well worth while. Here we see sailing craft of every sort, and this reminds us that Baltimore owed its original importance and much of its later prosperity to its position as a seaport. The streets down town are filled with the noise and bustle of an important commercial city. Such signs of progress as the new court house, the Woman's College, and the handsome Mt. Royal railroad station favorably impress the visitor.

Peabody Institute, Baltimore

Vermont Avenue and Thomas Circle

Looking toward the Washington Navy Yard from the Capitol

Washington. — The next interesting city to which we should come on our trip is Washington, the capital of the nation. This city is considered the most charming place in this country, and one of the most beautiful cities in the world. Several causes have united to build up so handsome a city on the banks of the Potomac.

The National Capitol at Washington

In the first place, the land here is not flat, as it is about many cities in America, but there are many gently sloping hills, with pretty valleys between. George Washington made no mistake when he picked out this spot for the capital. In the next place, the city has been laid out by men who knew their business, in broad streets and still broader avenues. These avenues and streets lead from a common centre. Wherever they cross, squares, circles, and parks are made. These avenues are named after the different states. Where Massachusetts and Vermont avenues cross is Thomas Circle.

In the third place, the city contains the spacious, costly, elegant, and imposing government buildings. These are not all built around one central square, but are scattered about the city, so that each building has proper surroundings, and space to set it off well.

The Capitol, where Congress meets, is well situated on one of the elevations, and can be seen for many miles. It is considered the most imposing building in the country. From the Capitol, broad, well-cultivated grounds spread out towards the lofty, white Washington Monument and the White House, where the President lives. The White House and the Capitol are connected more directly by a fine, wide street called *Pennsylvania Avenue*. Near the Capitol is the new Congressional Library, which cost six millions of dollars and contains the largest collection of books in this country.

Congressional Library

Public Square, Richmond, Virginia

Richmond. — It is a ride of but four hours from Washington to Richmond. When visiting this city, I go first to the public square, a part of which is shown in the picture above. Here the tame gray squirrels will come to eat from your hand, and climb on your shoulder. They have their nests in boxes up in the trees.

Richmond is a most progressive city, full of life and enterprise. It is a growing place, and many new streets have recently been added. The James River winds about it, and, like Rome, it is situated on seven hills. From one of these hills is a fine view of the falls in the river; from another, a never-to-be-forgotten view of the river and the city.

The great state of Virginia once raised large quantities of tobacco, which, in its early history, was used for money. Tobacco, you know, is the leaf of a plant, and it looks very beautiful and innocent when growing. So much tobacco is still handled in Richmond that the well-known odor of the plant is very plain in certain streets. But this plant greatly exhausts the soil, and now the state raises less tobacco than formerly, and more peanuts and sweet potatoes. The peanut plant, after blossoming, runs along the ground, and the pods are forced down into the soil. The seeds thus covered ripen about the time of the first frost.

Rice Fields. — Farther south are the rice fields. These are level pieces of ground, situated near a river, where plenty of water may be let in and the fields flooded by large irrigation canals when it is needed; for the rice sprouts and ripens in the water. Rice is a kind of grain, and it grows on a stalk like wheat. It is cured and threshed somewhat as wheat is, and then the hulls are taken off by machinery. More people live on rice than on any other kind of food.

Harvesting Rice

Sheaves of Rice

The rice plant needs so much water and heat that it cannot be grown anywhere in this country except in the low lands of the South. When you are learning about foreign countries, you will find that rice is the great grain crop of Asia, where it forms the main food of millions of people. It grows best in such a hot, damp climate as that of the Philippine Islands.

Irrigation Canal for flooding Rice Fields

Southern Trees.—All through the lower South, we see from the car windows a rather strange looking tree, a kind of palm, called the *cabbage palmetto*. The trunk is about twenty feet high, very straight, and without any branches.

The Cabbage Palmetto

At the top grow many long, narrow, fan-shaped leaves, from five to eight feet long. The *Georgia* or *hard pine* is a more useful tree than the palmetto. This, too, is seen all through this section. This southern pine, sawed into boards, is used in most schoolhouses for the floor, and in most buildings in the country for the large beams and timbers. It is highly valued for building purposes in all parts of the United States. From it, also, are obtained turpentine, pitch, and tar.

Not quite so useful, but more beautiful, is the *long moss*, so called, seen all through the Gulf states. It hangs in great streamers from the branches of trees, especially where there are swamps and much dampness. The moss makes the trees look very old and hoary. It is well called *long* moss, for it often hangs down from the limbs some twenty feet; as it swings and sways in the breeze, it is graceful and beautiful.

The farther south we proceed, the warmer it grows, till we reach the southern part of Florida, which is the extreme southern part of the United States, and very near the hot belt. Here the winters are very mild, and oranges and pineapples grow in abundance. Orange trees reach their prime for bearing when they are about twenty years old. The fruit ripens all the way from December to March. Sometimes one tree has on it one thousand oranges. The crop is a very profitable one when the frost does not destroy the trees.

Long Moss on the Trees

The oranges that we buy to eat come from Florida and California.

The Hard Pine Groves of Georgia

Pineapples grow in many parts of Florida, but a large quantity of those for the market are now grown on islands south of Florida. This well-known fruit is borne on a low plant, not over three feet in height, which has several long, narrow, stiff, sharp-pointed leaves. These leaves are much like those left on the crown of the fruit when it is brought to market. If this crown were thrust into the ground, it would bear fruit in due time; but the plant is usually grown from slips. Each plant bears a single fruit, and then dies. The pineapple is ready to be harvested

Typical Home of Negroes in the South

A Field of Pineapples

in April. The men who gather the fruit have to protect themselves from the leaves by wearing cowhide boots, canvas trousers, and leather gloves. They wear mosquito-netting on their heads to protect themselves from the mosquitoes, which rise in great clouds from the pineapple plants. When the pineapple ripens in the field, it is as yellow as an orange, and fully as sweet. It melts in the mouth, and is wholly unlike the hard, sour pineapple known in the North. The people who raise the pineapple, and do most of the hard outdoor work in the South, are the negroes. As they can work in the hot sun with little trouble, the negroes raise the cotton, the rice, and the fruit.

Summary. — Philadelphia is noted for its costly City Hall, its historic Independence Hall, its United States Mint, its many pleasant homes, and its fine park.

Baltimore is a busy commercial city, and a seaport.

Washington, the capital of the nation, is one of the finest cities in the world.

Virginia raises tobacco and peanuts.

Rice is grown on low land which can be flooded.

Florida grows oranges and pineapples.

MAP QUESTIONS ON THE MIDDLE ATLANTIC STATES

1. Name in order the states on this map.
2. Find the largest and the smallest state.
3. Name in order five large rivers.
4. Name in order four lakes.
5. Name in order three bays.
6. Through which bay does the most shipping move?
7. Name in order, beginning on the north, the important mountain ranges.
8. Can you find four mountain ranges running parallel to one another?
9. What two rivers form the Ohio?
10. What long canal passes through New York State?
11. What bodies of water does it connect?
12. Locate New York City, Jersey City, Philadelphia, Pittsburg, Dover, Richmond, and Charleston.


MIDDLE ATLANTIC STATES.
Scale of Statute Miles.
0 25 50 100
84 MILES TO ONE INCH.
Capitals of Countries thus :
Capitals of States thus :
Other Cities thus :
Longitude 78° West from 76° Greenwich
NEW YORK and Vicinity.
Scale of Miles.
New Haven
New London
Bridgeport
Ossining
Long Island Sound
Montauk Pt.
Yonkers
Hoboken
Jersey City
New York
Oyster Bay
Long Island
Brooklyn
Fire Island
Rockaway
Coney Island
Staten Island
Sandy Hook
Atlantic Ocean
QUEBEC
Ottawa R.
Ottawa
Montreal
R. St. Lawrence
Ogdensburg
Lake Champlain
Adirondack Mountains
Montpelier
VERMONT
Green Mts.
LAKE HURON
DOMINION OF CANADA
ONTARIO
Toronto
LAKE ONTARIO
Niagara R.
Niagara Falls
Hamilton
WELLAND CANAL
MICH.
Lockport
ERIE CANAL
Rochester
Oswego
Watertown
Black R.
Rome
Utica
Saratoga Springs
Lake George
Mohawk R.
Syracuse
Schenectady
Cohoes
Troy
Albany
Buffalo
Genesee R.
Seneca Lake
Cayuga Lake
Ithaca
Catskill Mountains
NEW YORK
MASS.
Connecticut R.
Lake St. Clair
Detroit
LAKE ERIE
Dunkirk
Chautauqua Lake
Hornellsville
Elmira
Erie
Hartford
CONN.
Poughkeepsie
Newburgh
Hudson R.
Cleveland
Oil City
Allegheny R.
Williamsport
W. Br. of Susquehanna R.
Scranton
Wilkesbarre
New Haven
Long Island Sound
Yonkers
Long Island
PENNSYLVANIA
Delaware R.
Lehigh R.
Paterson
Hoboken
Jersey City
Newark
Easton
Allentown
New York
New York Bay
Allegheny
Pittsburg
McKeesport
Johnstown
Altoona
Harrisburg
Reading
NEW JERSEY
Trenton
Long Branch
OHIO
Wheeling
Ohio R.
Muskingum R.
Monongahela R.
Philadelphia
Camden
Lancaster
York
Susquehanna R.
Wilmington
MARYLAND
Cumberland
Potomac R.
Baltimore
Annapolis
DELAWARE
Dover
Delaware Bay
Atlantic City
Cape May
Cape Henlopen
Washington
DISTRICT OF COLUMBIA
WEST VIRGINIA
Great Kanawha R.
Huntington
Charleston
Blue Ridge
Appalachian Mts.
ATLANTIC OCEAN
Fredericksburg
Staunton
Chesapeake Bay
VIRGINIA
James R.
Richmond
Roanoke
Lynchburg
Petersburg
New R.
Pine Mt.
Cumberland Mts.
Cape Charles
Cape Henry
Norfolk
Portsmouth
Staunton R.
Roanoke R.
TENN.
NORTH CAROLINA
Albemarle Sound
Cities with over 1,000,000 : New York
Cities with 500,000 to 1,000,000 : Baltimore
Cities with 200,000 to 500,000 : Buffalo
Cities with 50,000 to 200,000 : Allegheny
Smaller Places Petersburg
Capitals with less than 50,000 : Annapolis
THE M.-H. WORKS, BUFFALO, N.Y.

37. DOWN THE MISSISSIPPI RIVER

Children, I wish to take you now for a trip on the Mississippi, a river many times larger than the Hudson. We will go down one of its branches, the Ohio, which itself is three times as long as the Hudson.

Ohio River. — The Ohio River is formed by the union of two other rivers, the names of which you can find on the map. At the point where they unite to form the Ohio the great city of Pittsburg has grown up.

Pittsburg. — This city is a very busy point, and the river there is well filled with boats of all kinds. Our steamer has plenty of company. There are coal barges and coal vessels, boats carrying iron, steel, glass, and petroleum. So much coal passes down the river that it has been called "a coal chute." Pittsburg is the centre of the iron and steel industry in this country. The flames from the iron furnaces and coke ovens light up the scene at night, and by day heavy smoke hangs over the city. It is a remarkable sight.

River Front, Cincinnati

We are going through a rich valley and along the edge of the great corn belt. Corn grows abundantly on both sides of the river, but the states north of the river are noted for the large amount raised every year. So are those states farther west in about the same latitude.

Pittsburg

Cincinnati. — We pass many large cities. One of them is Cincinnati. This city is situated on the right bank of the Ohio. It is built on two terraces and is surrounded by a ring of hills. The view from the higher and better parts of the city is very fine. There is a beautiful park on these heights. A great many Germans live in Cincinnati, and their part of the city is called "Over the Rhine."

This corn crop is worth more than all the gold, silver, and lead which we take out of the earth in a year, and it is twice as valuable as the wheat crop. This great crop of corn is fed to chickens, cattle, and especially to hogs; for pork sells better than corn.

Mississippi River. — In the course of time we reach the main stream, the mighty Mississippi. If we should start

at the source of its longest branch, the Missouri, and pass down to the mouth of the Mississippi, we should sail down the longest river in the world. Look at the outline of the river on your map, and notice the number and size of its tributaries and how far from the west and the east they come. A steamer can run on this river system nearly twenty thousand miles. The amount of land drained by the river and its branches is enormous.

St. Louis. — The steamer we are on turns and passes northward to reach St. Louis, a short distance below the mouth of the Missouri River. The city is near the centre of the United States. Perhaps in your own city you have ridden in electric cars made in St. Louis. It is a very busy place, the centre of numerous railroads, and also of fresh-water commerce. Not far away are great forests of pine, coal fields, and mines of lead, iron, and zinc. Many things besides cars are made here and shipped to different places, especially to the southwestern part of the country. It is a city of parks and fine homes. I shall never forget standing on the great iron bridge, watching the traffic up and down the river and the busy scenes along the wharves.

Iron Bridge over the Mississippi at St. Louis

This great bridge is one of the sights of the city. It is a two-story structure, the driveway and footpath being on top, and the railway tracks down in the middle of the iron work.

At St. Louis I left the smaller steamer for the *Crescent*, a real Mississippi River steamer built in three stories. The lower deck is used for freight, and the next above for dining rooms and sleeping berths. The third or upper deck is called the hurricane-deck. Unlike the steamer shown on page 124, this is a side-wheeler and carries a long plank to be let down when it reaches port. A trip down this river is most fascinating, because it is very different from other trips in this country.

State Street, St. Louis

A Winding River. — In the first place, the Mississippi River, as your map shows, is very winding, perhaps the most winding river in the world. It is a long chain of S's and "ox-bows." As we wind among these curves we can sometimes see other boats sailing to the right and

Loading the Mails at the Union Station, St. Louis

left above and below us. In passing around the "ox-bows," we often go ten miles in order to get one mile farther south. A river always makes such curves, no matter how small it is, when it flows through a plain or broad valley with a very gentle slope and fine, light, loose soil, free from stones or pebbles and easily moved by the flowing water. The whole broad Mississippi Valley is made up of fine soil called *silt*, brought down from the uplands by the Mississippi river and its great branches.

A Typical View on the Mississippi

As you look at the water over the side of the steamer you see how muddy it is, just as streams usually are in spring or after heavy rains. We talked about this in the lesson on soil. If you fill a glass with water from the river and let it stand an hour, mud will settle to the bottom. The settlings from the river make very rich soil; and this river and its tributaries have for countless ages, by overflowing their banks, spread a covering of silt annually over the wide valley between the great ranges of mountains, thus preparing for man a vast fertile field on which to raise all kinds of crops. There is certainly no greater or richer expanse of good soil on the face of the earth.

The Mississippi is very wide and deep in most places, but bars frequently form, and the pilots must be wide awake not to run aground, especially in the night.

A Great Highway. — Our steamer stops often for freight, which consists mostly of bales of cotton. We see other steamers with cotton on board. We pass hundreds of barges loaded with coal from Pittsburg, and wheat and corn from the northern central part of the country. This bulky freight is carried very long distances on the river because river transportation is cheap. This river is a great highway of travel through the central part of the country.

The Mississippi River is not only very winding and very busy, but it is at times very troublesome. It is constantly changing its course, and always looking for some place where it can escape and run wild. There is a constant fight going on between man and the river. Where the natural banks are low, artificial or made banks are built up for protection. These are called *levees*. There are, along the Mississippi River, about two thousand miles of levees, built at great cost. Notwithstanding much watchfulness during the spring months, the river now and then breaks through the levees, forming a *crevasse*, and covering thousands of acres of good farm land with water. A wide inland sea is formed, the cattle are driven to the high knolls, which have become islands, and the people take refuge in the second stories of their houses. Sometimes cattle and people are drowned by the angry waters, or starve before they are rescued.

New Orleans. — At last, one hundred miles above the mouth of the river, we reach a half-circle bend where we see many boats moving about and more tied up on the left bank. Our steamer turns in on the left, and soon is fastened to a wharf. We have reached New Orleans, the greatest cotton mart in the world. Here there is much to see, for this city is quite unlike other American cities. It is often called the "Crescent City," because it is built on a graceful

bend in the river. I would like to call it a *French* city, because the French people first settled it; the names of many of the streets are still French; the French language is largely spoken here, and here the descendants of the French and the Spanish still live. They are called "Creoles." French ways and manners are common. There is nothing the cultured people enjoy more than a good French opera.

St. Charles Avenue, New Orleans

New Orleans is one hundred miles above the mouth of the Mississippi. It was built on this spot because of its nearness to an arm of the sea. Years ago sailing vessels from the Gulf could much more easily sail across this salt lake, almost to the great river, than they could sail up the river itself. Much of the land on which the city stands is lower than the surface of the water in the river, so the city is protected from constant overflows by very strong levees fifteen feet wide. These form the wharves on the river front. The highest place in the city, called the *ridge*, is only nine feet above the level of the sea. Drainage is, therefore, a serious question.

Canal Street, New Orleans

Houses and Gardens. — Canal Street, the principal business street of New Orleans, divides the city into two parts. On the left as you go from the river are most of the homes of the richer class of people, and on the right those of the laboring classes and of negroes. Almost every family, no matter how poor, has its own separate home, as in Philadelphia; only here there are no blocks of houses, but separate buildings with gardens and fences around them. The houses on St. Charles Avenue and neighboring streets are large, two stories high, with double balconies or piazzas. They are surrounded by large gardens filled with tropical plants and flowers. Orange, palm, and magnolia are the favorite trees. Most of the houses are built of wood, because brick and stone are not suitable in so moist a climate.

The houses are built for a hot rather than a cold climate. The stories are high, the rooms large, with polished floors. Rugs are taken up in summer time on account of the heat. The windows are large and extend down to the floor. As the winters are very short and mild, the houses are heated by open fires.

A curious custom of this city is that of burying the dead in tombs above ground. This is owing to the fact that the land is low and a grave immediately fills up with water.

New Orleans is the great city of the cotton and sugar belt. Its situation is favorable to commerce, and its shipping interests are so great that it is often the third city in this respect in the country. The cotton belt includes the great state of Texas, which produces an enormous crop of cotton every year. Remember that the Gulf states form a large part of the cotton land, although cotton will grow as far north as Massachusetts. It flourishes best in the Southern states, where there is the right amount of heat and moisture.

Cotton. — The cotton plant is raised from seeds planted in early spring. It will grow in poor and sandy soil. It begins to blossom in June. The blossoms are the first day a pale yellow, almost white, and the next day pink. They are very beautiful, but soon fall off and are followed by the pod or *boll*. The plant is the size of a currant bush, and grows to a height of two to six feet. The bolls contain the seeds, wrapped up very snugly in a mass of soft, downy white substance which we call cotton. This is to protect the seeds and help the wind to scatter them.

The bolls of cotton are picked by hand. A good picker can gather two hundred and fifty pounds in a day. To

Cotton awaiting Shipment at a River Port

Negroes in their Cotton Field

get rid of the seeds, the cotton, after drying, is sent to the mill and the seeds are removed by a machine called the *cotton gin*, invented by Eli Whitney. Then the cotton is pressed into bales or large bundles for convenient handling in transportation. These bales weigh about four hundred and fifty pounds and are worth from thirty to forty dollars. Stalks and seeds were once thrown away as worthless; but now the best of writing-paper is made from the stalks, and oil is pressed from the seeds. The refuse makes good food for cattle.

There is an immense amount of cotton raised in this country, more than three-fourths of all in the world. New Orleans handles more than one-fourth of it all. The cotton wharves, where the steamers and railroad trains unload the brown bales, are very busy places.

When the bales of cotton are shipped from the South they go to different parts of the world. Much of this cotton goes to New England to be turned into cloth in the great cotton mills of New Hampshire, Massachusetts, and Rhode Island. A part of the cotton is sent to England to be made into cloth. Some of it is used for this purpose in the newer cotton mills of the South itself, as in North and South Carolina.

SUMMARY

The Ohio River — "a coal chute."
Corn belt — on both sides of the Ohio River.
St. Louis — centre of fresh-water commerce.
Mississippi-Missouri River — longest river in the world.
The mighty Mississippi River — bends, silt, cotton, levees.
New Orleans — "Crescent City," French city, "Creoles," cotton and sugar centre.

INTERESTING FACTS ABOUT THE SOUTHERN STATES

The coast-line of the Southern states is more regular than that of New England. The harbors are poor.

The climate of these states is very warm, because they are so far south.

There is plenty of rain in the South. It is brought by the damp winds from the Gulf of Mexico.

For these reasons the South can raise cotton, sugar-cane, and rice successfully.

Agriculture is the leading occupation of the South.

Other industries have lately sprung up there. Cotton mills are now found in several Southern states. Mining coal and iron, and separating the iron from the ore, are growing industries in Alabama.

From the pine forests come tar, turpentine, pitch, and lumber.

Atlanta, in Georgia, is to-day one of the largest commercial cities in the South.

In Texas are some of the largest cattle ranches in this country.

During the winter and early spring vegetables are shipped from the warm Southern states to the large cities of the North.

A large amount of cotton is shipped from Galveston, in Texas; but the greatest cotton market in the world is New Orleans.

Many people from the North spend a part of the winter in Florida, where there are many large and excellent hotels. Southern people like to come North in summer. Why?

Richmond is an enterprising and growing city.

Missouri is called the Empire State of the Mississippi Valley.

MAP QUESTIONS ON THE SOUTHERN STATES

1. In what direction from your school are the Southern states?
2. Name the states touching the Gulf of Mexico.
3. What states are next to the Atlantic Ocean?
4. What states touch the Mississippi River?
5. Which is the largest Southern state?
6. Does the land of these states slope toward the Gulf of Mexico? How do you know?
7. What states are crossed by the thirty-third parallel?
8. Where is the largest river?
9. Why do so many rivers flow in about the same direction?
10. Which river has a delta?
11. What is the second river in size?
12. Name five branches of the largest river.
13. Where are the mountains in the South?
14. Locate St. Louis, the largest city in this section.
15. Between what two bodies of water is New Orleans?
16. In what state is Birmingham?
17. Is the Indian River, in Florida, a fresh or salt water river?
18. What noted city is south of Florida?
19. Tell some fact about each Southern state.
20. Compare New Orleans and Chicago.
21. Find out the meaning of the words levee, everglade, delta, sound, key, reef, bar, staple, cotton market, and "naval stores."

5. PICTURE STUDY

Steamer on the Mississippi River

1. In what part of the United States is the Mississippi River?
2. How does it compare in size with other rivers?
3. Does this steamer look like an ocean steamer? Why?
4. Does the steamer appear to be on a small or a large river?
5. Is it a side or an end wheeler?
6. How many decks has it?
7. Why do river steamers draw less water than ocean steamers?
8. What is this steamer carrying?
9. To what place do you imagine it is going?
10. Give the steamer a name.
11. Write an account of a trip on this steamer.

The American Falls at Niagara

38. THE GREAT LAKES AND CHICAGO

Niagara Falls. — From New York to Buffalo is a ten-hour run in a fast train. The trip takes one across a rich and powerful state, well called the "Empire State." In going we pass by noble mountains, through rich farming lands, and busy cities and villages. At last we reach nature's wonder, Niagara Falls, the grandest falls in the world, between Lakes Erie and Ontario and between this country and Canada.

A little boy named William once visited Niagara Falls with his mother and told in this way what he saw and did there: —

"We first visited Goat Island, by walking over the pretty bridge across a rapidly flowing stream, and then through the woods to the edge of the chasm. Here we suddenly came upon a good view of the falls. As the water falls, the mist rises like rain clouds. We soon descended long wooden stairs, and stood at the foot of the smaller, or American Falls. I saw a man all dressed in rubber go behind this sheet of falling water, but mother would not let me go, for fear a big stone would fall on my head. I greatly enjoyed looking up toward the falling water and standing as near as I dared.

"We then went up to the top of the bank and walked some distance to Terrapin Rock, on the edge of the larger falls, the Canadian or Horseshoe Falls. The water moves over the precipice very rapidly, and falls with a sound like thunder.

"We next saw the Horseshoe Falls from the suspension bridge, and the size and force seemed greater. A nearer view was obtained from the Canadian side, and the impression of greatness and power was increased. Here I saw a perfect rainbow over the falls about three o'clock in the afternoon.

"The next day my mother took me out in the little steamer, the *Maid of the Mist*. We both put on rubber cloaks. When very near the vast sheet of water falling so far from above, with the mist upon us like rain, and the great noise in our ears, I began to feel the grandeur and tremendous power of Niagara as never before.

The Horseshoe Falls at Niagara

The Steamer "Maid of the Mist" at the Foot of the Falls

"We took a carriage to the Whirlpool Rapids, some distance below the falls, where the river sweeps by with great swiftness and terrible force. The gorge here is so narrow that the waters are thrown up and dashed about in great green waves of motion."

Cause of the Falls. — You will see on the map that Niagara River connects two large lakes. Lake Ontario is three hundred and twenty-six feet lower than Lake Erie. The river moves along very quietly at first, then it begins going faster and faster until it comes to a projecting shelf of hard limestone, where it drops straight down one hundred and sixty feet into a narrow gorge, thus making the famous falls.

The Whirlpool Rapids

The falling water wears away the soft shale beneath faster than the hard limestone above, and leaves the latter unsupported. Sooner or later, therefore, it falls by its own weight. Thus the falls are wearing away at the rate of about five feet each year. At the foot of the falls there are great stones which have broken off. William's mother was right about the danger of going under the falls.

Buffalo. — A short ride from Niagara Falls brought us to Buffalo. This city is lighted and has its cars driven by electricity produced by great dynamos turned by the waters of the Niagara River. We found Buffalo a very busy place and a growing city. Transportation and domestic commerce are very active here. Vessels are constantly coming in from the great lakes at the West, bringing grain, flour, lumber, and iron ore. The Erie Canal boats and railroads strive for this freight, in order to carry it to the great cities in the East. The lake vessels carry back coal and manufactured goods, and sometimes passengers.

Through the Lakes. — One summer I took this trip with several friends. We left Buffalo in the evening. As we went out of the harbor we met several vessels coming in. One of them was the new style of boat called the *whaleback*, on account of its shape. These boats are used especially for carrying grain. Other vessels were loaded with iron ore. Early the next morning we went near Presque Isle, and entered the picturesque harbor of Erie (associated in history with Commodore Perry). Later we ran along near the well-wooded shore, and reached Cleveland in the afternoon. The appearance of this city from the lake is very striking. The handsome Garfield Memorial is plainly seen on the top of a hill. The captain told us that many of the lake vessels are built in Cleveland.

The Grain-carrying Whaleback

Euclid Avenue, the Finest Street in Cleveland

We left Lake Erie by ascending the Detroit River, and stopped next at Detroit, where we saw many lake vessels loaded with iron and copper ores, for Detroit makes many cars and car wheels, iron and steel goods. We saw also many ships loaded with grain. The amount of shipping passing this city in a year equals that of London and Liverpool added together.

We next entered the little shallow Lake St. Clair, and passed through the swiftly flowing St. Clair River into the deep Lake Huron. This lake is full of islands. In time we reached the northern end of the lake, and entered the river connecting this lake with the largest fresh-water lake in the world, Lake Superior. The latter lake is twenty-four feet above Lake Huron.

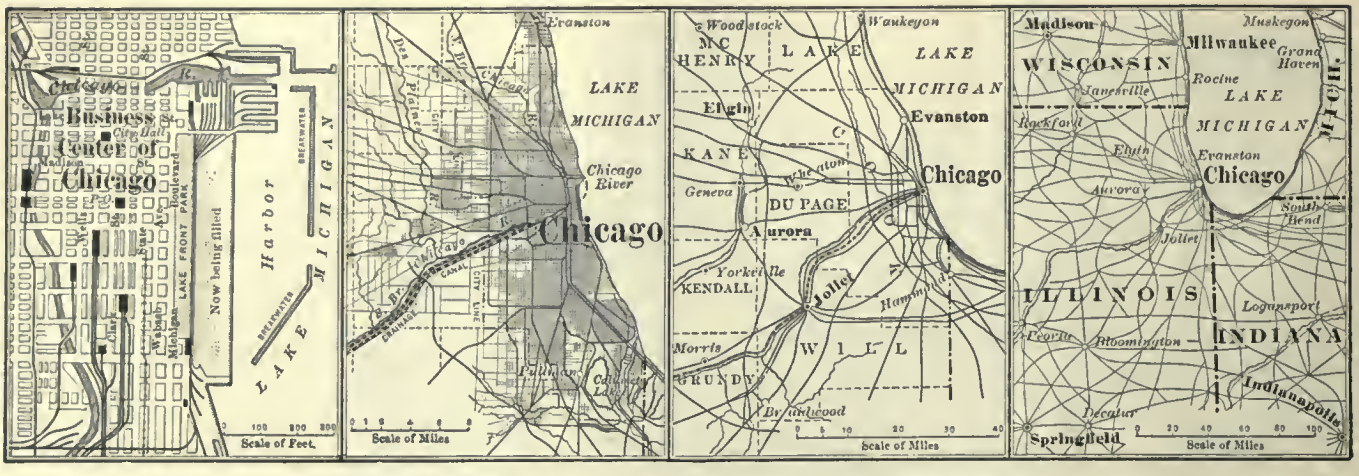
Our steamer passed from one lake to the other through the Sault Ste. Marie or "Soo" Canal, one of the finest canals in the world. It is doing more business to-day than any other canal. This is because rich iron and copper mines have been opened on the southern side of Lake Superior and because a good deal of wheat is now shipped eastward through the lakes.

General View of the "Soo" Canal

The steamer finally reached Duluth, at the western end of Lake Superior, about six days after starting from Buffalo.

The Gates of the Canal Open

The Gates of the Canal Closed



Four Maps of Chicago and its Vicinity: Note Effect of Changes in Scale

At Duluth and the other places mentioned, we saw long and very high piers. These contain great bins into which the iron ore is dumped from the cars. The ore is then allowed to slide out of the bottom into lake vessels anchored beside the pier and below the bins. Some of the iron mines are open mines and the ore is shovelled up with great steam shovels and loaded into the cars. Thus most of the ore is handled and carried to the receiving ports on the south side of Lake Erie and to Chicago at the south end of Lake Michigan. After spending a few days in Duluth, we went back through the lake, changed steamers at Sault Ste. Marie, and in due time reached Chicago.

State Street, Chicago

Chicago is a most interesting city on account of its wonderful growth and enterprise. The first impression it makes upon a stranger is that of great bustle, noise, and stress of life. Its rapid increase in population is the wonder of the world. Nature has done much to make it grow thus rapidly. A little river flowing into the southern part of a big lake decided the position of a fort. Around the fort grew a village. The rich prairies bordering the lake, great forests of trees to the north, and large coal fields to the south supplied pressing needs for raw material. Then man began to build long lines of railroads over the level prairies to connect with the inland waterways, and as fast as this Middle West grew, Chicago grew.

Let me read you a letter from a Chicago boy to his aunt:—

CHICAGO, ILL.,
MAY 16.

MY DEAR AUNT:—

I am now in the grammar school and study geography. My teacher suggested that I write you a letter about our city, the streets of which are the busiest I have ever seen. The business part of Chicago lies south of the river and between the south branch and the lake.

The different parks are connected by boulevards, wide streets lined with trees and flowers. Most of the

streets are wide and straight and cross one another at right angles; but in a few cases there are streets running diagonally to the other streets, and these are called avenues. Some of the wider streets for homes are also called avenues. One of these wide boulevards is Michigan Boulevard, running along the lake front. It was for years devoted to family residences and costly houses; now the lower part of the street is given up to business and to great hotels. One of the noted buildings is the Auditorium.

Lake Shore Drive

The three great business streets are State, Dearborn, and Clark, running in the same direction, parallel with each other and the lake. State Street is eighteen miles long; it is the retail shopping street and is generally crowded. Western Avenue is twenty-three miles in length. On Dearborn Street are several great office buildings. In some of them as many as four thousand people are working. When business closes, the streets are crowded with these people starting for home. Chicago, you know, was the first city to erect such high buildings, and we always call them *sky-scrapers*. There are several of them here, and all have steel frames covered with brick or stone like those in New York. Many of these tall buildings, as the Tacoma, the Marquette, and the Masonic Temple, are beautiful inside.

My favorite building is the Auditorium, a strange combination of hotel, theatre, and office building. It stands near the lake on Michigan Boulevard. From the water it looks like a great granite wall or fort. It is immense in size, and the great central tower reaches up two hundred and seventy feet. Here the weather-bureau man has his home. He must enjoy fine views when the weather permits, as a great expanse of the lake and many ships may be seen from this tower. The theatre in the Auditorium is large and elegant. It requires ten thousand electric lights to light this building and thirteen elevators to carry the people.

In this and other tall buildings there are express, local, and freight elevators. The express elevators generally do not stop between the first and tenth floors. They make the ascent, including stops, in less than two minutes.

Chicago has a very complete system of parks. They are placed in different parts of the city so that every family can easily reach one or more of them. They are carefully kept and constantly improved. The people go to the parks in great numbers. I often see whole families eating their suppers sitting on the grass. The children ride in the boats on the little ponds, and play hide-and-seek among the trees.

Chicago has two handsome drives. One leads from the centre southward, over the wide and straight Michigan Boulevard, by beds of flowers and the homes of millionaires. The other is north of the river, the "Lake Shore Drive"; a street called Ashland Boulevard is also very beautiful. No cable or electric cars are allowed on either drive. The Lake Shore Drive has on its left many fine residences and on the right a fringe of sward, which in the summer-time is dotted with flower beds and covered with beauti-

Ashland Boulevard

ful foliage. Beyond this, you see the blue waters of the lake. This drive carries one to the finest of the city parks, named after our great president, Lincoln.

The flat and rough prairie has here been changed so much that we may well be astonished at man's work. We see about us hills and dales, open spaces and rolling prairie, the graceful winding and curving avenues, pond and bridges, little knolls and valleys.

This park has Lake Michigan on its eastern side. My favorite walk is along this side, on high ground over the wide promenade. This commands fine views of the lake, the speedway, and regatta course on one side, and the many beauties of the park on the other.

You know that in size Chicago is the second city in the United States. It has a growing number of industries, and competes with Pittsburg in making steel and with New York in making books. It is the greatest food centre in the world. To carry on all this business requires an enormous number of cars and ships.

There are thirty-five railroads entering the city now, and so many tracks and cars that some people think that Chicago is nothing but a great railroad yard. Nearly all the great trunk lines in America have their terminal point in this city. More passengers arrive and depart, and more freight is handled here daily, than in any other city on the globe.

The natural harbor is very poor, but it has been greatly improved and enlarged by building breakwaters. To-day a greater number of vessels sail yearly from this port than from New York and Philadelphia together.

And now let me, in closing, tell you about the Union Stockyards in the southern part of the city. I go there with father every year, and enjoy the visit very much. The Stockyards form a town of considerable size, laid out in streets, and instead of houses there are pens for cattle, sheep, and horses. Every pen has a gate, a trough for water, and a place for food. Some of the pens are roofed over. Sheep are frequently put under a roof. In this packing town are many miles of railroad tracks, offices for business, a bank, and great slaughter and packing houses.

Animals are sent here, not only from the surrounding states, but from places at great distances in the West. There are several places from which you can get extensive views of this town of pens. Thus we can see in some pens cattle feeding; in others, sheep are moving about; the hogs are nearer the railroad stations. There are elevated streets or passageways through which we often see live stock moving toward the slaughter-houses.

Every part of an animal is considered of value and sold at a profit. The horns are bought by the comb and knife-hilt maker; the head and hoofs make the stock for glue; neat's-foot oil is made from the feet.

After the meat is dressed it is placed in a cold room and chilled. Then it is loaded on great wagons and carried to butchers' shops in this city, or placed on refrigerator cars and sent to you in the East.

Your loving nephew,

THEODORE.

A View in the Stockyards, Chicago

LANGUAGE LESSON

Write a letter like Theodore's about your city or town.

MAP QUESTIONS ON THE CENTRAL STATES

1. What river divides this section into nearly equal parts?
2. What states border the Ohio River?
3. Through what states does the Missouri flow?
4. Are there many mountains in this part of the United States?
5. What fact does the absence of mountains show about the land?
6. In what direction does the land slope?
7. What five lakes touch Michigan?
8. What state has a good many small lakes in it?
9. Where is Chicago, and in what direction from it do you live?
10. Is Springfield the capital of Illinois?
11. What sign shows that a place is a capital? What is meant by "capital"?
12. According to the scale, how far is it from Chicago to St. Louis? From Chicago to Kansas City?
13. Locate Cincinnati, Cleveland, Detroit, Duluth, Madison, Louisville, Kansas City, Omaha, St. Paul, Indianapolis.

CENTRAL STATES.
Scale of Statute Miles.
0 25 50 100 200
145 MILES TO ONE INCH.
Capitals of States thus : ◉ Other Cities thus : •
Cities with over 1,000,000 : . . . . Chicago
Cities with 500,000 to 1,000,000 : . . . . . St.Louis
Cities with 200,000 to 500,000 : . . . . Cleveland
Cities with 50,000 to 200,000 : . . . . St.Paul
Smaller Places : . . . . Marquette
Capitals with less than 50,000 : . . . Springfield
Longitude West 93° from Greenwich
DOMINION OF CANADA
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
MINNESOTA
IOWA
MISSOURI
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
MONTANA
WYOMING
COLORADO
OKLAHOMA
TEXAS
INDIAN TY.
ARKANSAS
TENNESSEE
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
PENNSYLVANIA
N.Y.
ONTARIO
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
L.ONT.
Bismarck
Jamestown
Fargo
Grand Forks
Turtle Mts.
Pierre
Aberdeen
Mitchell
Sioux Falls
Yankton
Black Hills
Lincoln
Omaha
Fremont
Grand Island
Hastings
Beatrice
Topeka
Atchison
Leavenworth
Kansas City
Wichita
Arkansas City
Fort Scott
Duluth
Minneapolis
St.Paul
Mankato
Winona
Brainerd
Fergus Falls
Red Lake
Leech Lake
Lake Itasco
Lake of the Woods
Des Moines
Sioux City
Council Bluffs
Cedar Rapids
Davenport
Dubuque
Burlington
Keokuk
St.Joseph
Jefferson City
St.Louis
Hannibal
Springfield
Joplin
Ozark Mts.
Madison
Milwaukee
Racine
La Crosse
Green Bay
Oshkosh
Lake Winnebago
Superior
Ashland
Chicago
Joliet
Rockford
Rock Island
Peoria
Bloomington
Quincy
East St.Louis
Cairo
Detroit
Lansing
Grand Rapids
Kalamazoo
Jackson
Saginaw
Bay City
Port Huron
Marquette
Ishpeming
Sault Ste.Marie
Indianapolis
Fort Wayne
Terre Haute
New Albany
Evansville
Covington
Columbus
Cleveland
Toledo
Sandusky
Akron
Lima
Dayton
Cincinnati
Wheeling
Frankfort
Lexington
Louisville
Owensboro
Paducah
Toronto
Buffalo
Erie
Niagara Falls
Port Arthur
Isle Royal
L.Nepigon
Georgian Bay
Missouri R.
Mississippi R.
THE M.-N. WORKS, BUFFALO, N.Y.

39. THE WHEAT BELT

Wheat will grow in a great variety of climates and soils, although it is a tender plant. One kind of wheat is sown in spring, another kind in the fall. The latter is called winter wheat. It ripens the summer after planting, and earlier than spring wheat. Spring wheat will grow in a colder climate than winter wheat.

The great wheat belt includes California and the states north and west of Chicago. No other country produces so much wheat as the United States.

Wheat Farms. — The largest wheat farms are in the Dakotas, in the valley of the Red River of the North. Thousands of years ago this section was a great lake. After it was drained off, the bottom of the lake was found to have a very rich soil, well adapted, with the cool climate, to spring-wheat raising. Some of these wheat farms are very large and employ a great number of men. These men work in gangs under an experienced foreman. Most of the work can be and is done by machinery because there are no stones or roots in the soil as in New England, and because the fields are so level and of such great extent.

Ploughing the Wheat Field: Several Ploughs drawn by an Engine

Early in spring or in the fall the land is ploughed, perhaps with a sulky plough. Such a plough is mounted on two wheels and it turns two furrows at once. It requires four horses to draw it. Sometimes several of these ploughs are fastened together and an engine is used to draw them. After ploughing, the land is still further broken up by wheel harrows. Then follows the machine for sowing the seed in drills. This machine furrows the ground, puts in the seed, and then covers it. It is drawn by two horses and will plant ten acres in a day. The shortness of the time for planting requires the farmer to have many machines, horses, and men to do the work.

Harvesting. — The wheat needs to be cut and harvested in a short time after it is ripe or it will spoil. On these large farms several machines are used to do this work. They are called *harvesters;* they have almost as many parts as a locomotive. They cut the wheat, gather it in bundles or *sheaves,* and tie each bundle with twine. Men follow the machine and gather the sheaves together to form a *stook* or *shock,* which means putting the sheaves together so that they will shed rain and become dry.

Harvesting Wheat by Steam Power

Sometimes the harvesting is done with a *header,* which takes off the heads of the spears of wheat and leaves the straw standing.

When the grain is well dried, it is threshed in the field by steam threshers, to separate the grain from the straw. The straw is used for fuel to run the threshing machine. One machine and ten men can thresh more than twelve hundred bushels of wheat in a day. This amount of wheat would nearly fill half a schoolroom.

Making Flour. — In grinding wheat into flour it is necessary first to separate the wheat from the other seeds mixed with it, then to brush off the dust. Both of these things are done by machinery. Then it is ground gradually finer and finer, sifted, and ground again and again. Ten grindings are necessary to make some brands of flour.

In early days the best flour was made from winter wheat; but the invention of a machine called the "middlings purifier" made the hard berry of spring wheat more valuable than winter wheat. This led to the settlement of the Northwest, where spring wheat can be easily grown.

Minneapolis and St. Paul. — In the centre of this wheat section are the Falls of St. Anthony, on the Mississippi River, which afford abundant water power. How natural for flour mills to be built in this place, and for a large city gradually to grow up around the mills and the falls! This city is beautiful Minneapolis, the centre of the flour business. It produces more flour than any other city in the world.

On the other side of the river is St. Paul, built upon the bluff of the Mississippi River. It is a noted trade centre for the Northwest.

LANGUAGE LESSON

Write what you know about the buying of flour and the making of bread at home or in a bakery.

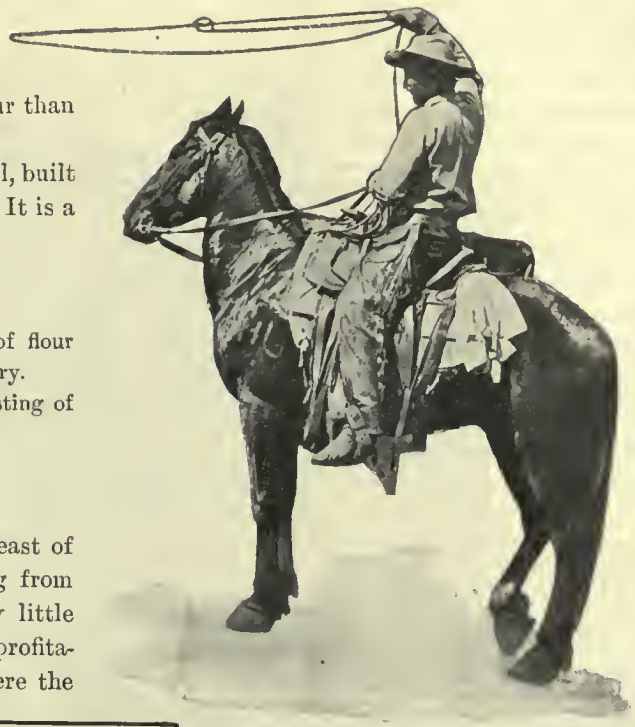
Tell about the growing, cutting, and harvesting of any kind of grain near your home.

40. A RANCH

There is a belt of high plateau land east of the Rocky Mountain foot-hills, stretching from Texas to North Dakota, which has very little rain, not enough to make grain growing profitable, and so it is devoted to grazing. Where the buffalo once fed in countless numbers now graze thousands of cattle. A stranger would think that these treeless plains were quite unsuited for cattle, they seem so bare and brown; but the low, sun-dried grasses are wonderfully sweet and nourishing. No hay is equal to these grasses, dried where they stand, and waiting to be nibbled through the winter months.

A Cow-boy

In many cases the herds are small and are kept in fenced fields, as in New England and the Middle states; but sometimes the cattle are in immense herds, and feed upon great tracts of unfenced land, where it is necessary for men to watch and care for them. These herders are called *cow-boys*.



Throwing the Lasso or Rope

Cow-boys. — The cow-boys almost live in the saddle. They wear overalls of leather and wide-brimmed hats, carry large revolvers, and use big spurs on their long boots. They endure rough fare, hard work, and all kinds of exposure to the weather. They become so hardened that they can live in a tent all winter, and think that it is comfortable. They can sleep on the ground beside a herd of tramping, bellowing, noisy cattle, or make their home for days under a tree. Cow-boys receive about forty dollars a month for all this hard work.

The cow-boy learns to throw the lasso or rope with great skill, for he practises from boyhood. The rope is usually made of leather or grass, and is about forty feet long, with a noose at one end, six feet or more in length. The coils of the rope are held in the left hand, and the noose is swung around the head with the right, and then forward and over the head or around the feet of the animal to be caught. If the throw is successful, the rope is turned around the horn of the saddle, and the trained horse plants his feet to pull well.

The rope is used for catching animals, for pulling cows out of bog holes, for hauling logs, for pulling a team up a steep pitch, and for a hundred other uses.

Rough Riding. — Cow-boys are skilful riders. They ride through the streets, picking up everything thrown toward them; they throw their ropes around pigs, chickens,

horses, and their friends. Two of them try, in sport, to rope each other. As one flings his rope, the other dodges it by dropping down on his horse's neck; then he quickly jumps up and tries to catch his friend when off guard. The horses seem to enjoy such contests.

In summer the cow-boy rides all day among his cattle to see that they do not stray too far from good feed and water. Toward night he drives them to the bedding ground. After a few weeks of training, the cattle will go to the night camp without much trouble. The cattle generally lie down at night and chew their cud. A few cow-boys are on duty to watch them. Wild cattle are easily frightened at night; then they jump to their feet and start to run away. It is not easy to stop the excited animals. Sometimes the men gallop along beside the leaders and gradually swing them around into the tail of the herd until they follow one another round and round in a circle. When the cattle become tired, they lie down again.

An Unruly Cow lassoed

Cattle on the Prairie going to a Round-up

Branding. — As different cattle look much alike, it is necessary for the owner to have his initials or some private mark on every animal in order to prove ownership in case the cattle stray away or mix with other herds, as often happens. These marks, or *brands*, are written on the hides of the living animals with a hot iron for a pen. Private marks are frequently combinations of a straight iron bar and a half circle.

The third one of the brand marks shown below would be called the "nail" — "shoe-nail" — brand; the seventh one, the "duck" brand. The last is known as Quarter Circle Diamond. Specimens of another class of brands are: 777, OX, VI, and 76.

Brand Marks

A Round-up. — The round-ups take place in the autumn and spring. The cow-boys come together from long distances, each one knowing not only his own brand, but that of many of his neighbors. All the cattle in a certain section — between two large rivers, for instance — are driven to one central place. There may be nearly

The Round-up

a thousand of them. The largest part of these belong to one man, but there are among his cattle many animals that have strayed into this section from ranges far away. A man rides among them, and when he sees a cow or steer with his own brand upon it, he runs it out of the herd to a second man, who holds it.

A well-trained horse is a great help in doing this. Many of the best horses for ranch business are bred in Texas, where large herds of cattle are still raised. The Texas ponies are small, but tough, quick, and very intelligent. Some of them are docile and willing, but others are apt to "buck." When a horse bucks, he puts his head down between his legs, arches his back like an angry cat, and springs into the air with all his legs at once. He comes down on his legs with a frightful jar. It takes great experience to keep in the saddle when the horse "bucks."

When the cattle are full grown they are sent by rail to the stockyards of Kansas City or Chicago (see page 130), where they are turned into meat, which is shipped to all parts of the country. You owe the roast beef you have for dinner to the grass that grows on the far-off ranches and the labor of the hard-worked cow-boys.

Ute Indian Brave

SUMMARY

Cattle ranching is often conducted on a high plateau east of the Rocky Mountains. The cattle like the sun-dried grasses there.

Those who take care of the herds are *cow-boys*, or herders. The cow-boy is skilful in riding and throwing the rope.

The "branding" and the "round-up" are two interesting features of ranching.

The cattle on the ranches are sold for meat to firms in Kansas City and Chicago.

LANGUAGE LESSON.

Tell something about taking care of a horse, dog, cat, or any domestic animal or pet.

41. A RACE — THE INDIANS

There are many different races or kinds of people in this country, but the white and black races are most numerous. The latter live largely in the Southern states, while the whites are found in all parts of the country. The yellow race is often seen in large cities. From China and Japan, beyond the Pacific, come the Chinese and Japanese, who are members of the yellow race.

Color. — This country was once inhabited by one race only, the Red Men, or Indians. They are now rarely seen in the eastern part of the United States, but in the West they are often met and talked about. There are still many Indian tribes in North America, and their languages are so different that the people of one tribe cannot understand those of another. They are very different, too, in their habits and ways of living. Some wear blankets and moccasins, which are soft leather shoes without stiff soles. Others dress like white men. Indians are generally copper colored, which gives them the name "red men." Their abundant hair is long, straight, and very black. They have high cheek-bones and broad faces.

Sometimes a tribe is found in which the people are tall, while in others they are short. Some have complexions more nearly white than others; and while some have slanting eyes like the Chinese, in others the eyes are straight.

Indian women are called *squaws*, and the men *braves*.

The squaw carries her young babe about on her back in a box or bag strapped to a board. This is the cradle, and when the mother goes out to work, she stands the board with the baby on it against the side of the tent or beside a tree. Pretty cradles are sometimes made of birch bark.

Children. — Though the Indians are a very solemn people, the children are full of fun. Boys and girls do not usually play together. The boys ride ponies, even when they are very small, and they like to play at shooting with the bow and arrow. If a boy succeeds in killing a goose or a squirrel, his father is pleased and gives him much praise. These boys are as fond as white boys of playing ball, and often use rackets in their games.

The doll is the chief plaything of the girls, and they play with it much as white girls do.

Wigwams. — The home of the Indian is sometimes a tent, called a *wigwam*, which is made of buffalo skins or cotton cloth stretched around a framework of poles. Such a home can be built by two women in five minutes. The smoke from the fire in the centre is supposed to escape through a hole in the top.

Some tribes live in long houses made of poles tied together and covered with bark. The inside is divided into stalls for each family. Perhaps twenty families will occupy one house, thus making it an Indian apartment house. These houses contain little furniture, and a few blankets or skins serve as beds. The cooking is done over an open fire.

Hunting. — The Indian brave is sometimes called "a shiftless creature, willing that the women should do all the work." Those who ought to know tell us, however, that the work is carefully divided between the men and the women. The Indian who lives by hunting and fishing has to work hard to find enough to eat.

Before the white men reached the West the Indians came to the plains from long distances twice a year to hunt and secure a supply of buffalo meat. Killing the buffalo on foot with arrows and spears was hard and dangerous business. On the back of a horse it was much easier, but they had no horses till the white men came.

Ute Indian Squaw

Buffalo meat was cooked by putting it into a basin-like hole in the ground lined with buffalo skin. Water was poured into this skin-lined dish, and hot stones were dropped in to make the water boil. After the meat was cooked, the family ate directly from the dish. Indians are very fond of a stew of beans and corn which they call *succotash*, a name still used in this country.

The Indian is usually quiet, reserved, silent, and grave in the presence of white people. At home, among his own people, he is often noisy, full of fun, and ready with jokes. He has then great power in relating stories, and has a rude oratory full of sublime poetry and telling gestures. Indians usually have good memories and never forget a friend or an enemy.

War. — Nearly all Indians, like savage people in general, are fond of war. Bravery is their idea of greatness. Stealth and craft are thought to be of first importance in carrying on war. They are very cunning in concealing themselves when approaching the enemy, which they do by the help of trees, bushes, and grass. Sometimes they cover themselves with grass and appear to be a part of the field; or they place a gray blanket over their bodies and sprinkle it with dirt so as to resemble a boulder. Indians are generally skilful in drawing the enemy into ambush by pretending to retreat.

6. PICTURE STUDY

Wigwam and Indians

1. How many Indians can you count in this picture?
2. Tell something about their faces.
3. What kind of hair have they?
4. What is the color of an Indian's skin?
5. Is this wigwam or tent in an Indian village?
6. How does an Indian village differ from a white man's village?
7. What do the two children in the picture wear?
8. Of what is the wigwam built?
9. What do the Indians wear on their feet?

A favorite Indian ornament is a circlet of eagle feathers worn on the head. There are as many feathers in it as the owner has killed enemies. Persons taken in war are sometimes adopted as brothers, sometimes set at liberty, but more frequently they are tortured or killed. These savages have a horrid custom of scalping their prisoners and wearing the scalp-lock dangling from the belt.

Customs. — Dancing among these people is not for pleasure, but in honor of religion or war. The snake and the sun dances are both religious. Music for dancing is made with rattles or drums.

Indians have strange ways of disposing of their dead. A few tribes place them in trees or on a platform erected on poles; but most Indians prefer to bury in the ground. In some tribes it is the custom to place the body in a sitting position with the face turned toward the spirit land. With the body are buried many things used in life — knives, bows, arrows, blankets, and belts. In one tribe the man's favorite pony is killed at the grave in order that his master may enter the Happy Hunting Ground, which is their heaven, properly mounted. If a child dies, the cradle and playthings are buried with it.

Indian Camp, showing Wigwams

Indians are very fond of dogs and horses. The dog has been the companion of the Indian for a long time, and has been used as a beast of burden more than for hunting. When the western Indians first obtained horses from the white man, they could easily hunt the buffalo and obtain plenty of food.

Soon afterward came the railroad, and white men who wanted skins and furs could reach the plains where animals abounded. They came and killed off the buffaloes and most of the deer and antelope, and the poor Indian was robbed of his natural food. He had then to change his habits and live in a house like white men, and eat vegetable food instead of meat.

At first he did not like this, and became sad, sickly, and ill-tempered; but slowly a new generation has sprung up, more accustomed to the new mode of life, and they are learning by degrees to live and work in the new way, like white men.

Reservations. — The government gave the tribes large tracts of land, called "reservations," on which to live. As the white people went farther and farther west, and these lands were found to be valuable, the government took them again, promising to support and educate the Indians in payment. Many of the Indians still live on reservations, which are mainly in the West. The white man in charge of a reservation is called the agent.

Many of the Indian children on these reservations are now attending school and learning the elements of English, reading, writing, and arithmetic. Many an Indian mother is very proud of her boy when he can read English.

The men are usually taught farming, and learn to raise corn, oats, potatoes, and other vegetables. The Pine Ridge Agency, in South Dakota, is a very prosperous reservation. The Indians there are in the cattle business. They have thousands of head of cattle, and sell beef to the government. They like the work of ranchmen and are doing well. They have learned, when sick, to consult the agency doctor more often and the medicine man less. The medicine man is the Indian doctor, who pretends to cure sickness by dancing and weird noises.

Tribes. — The Indians that lived in the eastern part of the country, when the early settlers came across the Atlantic, were called the Algonquins. Their descendants are very numerous and live now in the West. They are the Blackfoot, Cheyenne, and Arapahoe Indians, and others.

The Blackfoot Indians became great buffalo hunters. They have very sunny tempers, like children. They enjoy feasts. When a man gives a feast, he cooks the best food he has, and then calls out three times the names of the friends he wishes to invite. When the guests come, each one is given a dish with his food in it. It is considered polite to carry away what is not eaten. After the meal the men smoke a pipe in turn and tell stories.

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INDIANS

The North Cheyenne Indians make good policemen, and are so employed in parts of the northern United States. For this hard work they are paid only ten dollars a month. These Indians are willing to work, and in haying-time may be seen busy in the fields till nine o'clock at night. The women make beautiful lace, which finds a ready sale. Some Indians now live in good houses and dress and work like white men.

Odd Hair Dress: Moki Indian Squaw

One of the noted Cheyenne chiefs is called "Blue Hawk." He was a white boy, and when he was ten years old he lived with his parents in Mexico, in the southern part of North America. While herding mules he was captured by the Cheyennes, carried to their home in the northern part of the United States, and adopted by them. He lived and acted as they did, and was named "Blue Hawk" because of some likeness to that bird. Years after, his brother in Mexico found out where he was and came for him. With much difficulty he persuaded Blue Hawk to return to his relatives and early home. He started, but soon his courage gave out and he went back to his Indian friends.

The Ute Indians live in the Rocky Mountains. They dress partly in citizens' clothes. Where they have a good pasture in the valley and on the plateaus, they have large herds of cattle and sheep. Their children like to go to school, but there is not room for all of them.

The Moki Indians, of whom pictures are shown on this page, live in the southwestern part of the United States. Their appearance and customs are very different from those of other Indians.

The Apache women make journeys of fifteen miles to the mountains near their homes. With great knives they cut the grass, load it on donkeys, and carry it to the market.

When these Indians had no horses, they pulled the plough themselves through the hard soil. If they had no plough, they chopped up the earth with a hoe, and thus tried to raise a crop.

The Arapahoe Indians are hard-working farmers, and raise large quantities of wheat, oats, and hay, which is bought by the government. They have a large number of children in the schools.

Rations. — Many Indians cannot support themselves by farming, and the government issues them rations. These are given out by the agent on certain days. The women pass through his store. Each of them carries a tag on which is printed the number in her family. The agent reads the amounts from the tag, and his assistant puts the articles in the woman's apron. Some of these women are very old and wrinkled, with coarse, white hair. Many carry babies in knapsacks on their backs.

Moki Squaw grinding Corn

The men are furnished with cattle. Each steer is supposed to supply twenty-five Indians with beef for two weeks. The agent calls out the names of two or three Indians, — "Large Looking-glass," "Deer Head," "Red Bird," or others as queer, — and these men ride up and receive a live steer. They drive him off to their camp, where they shoot him. Then they have a feast. Most Indians eat only one meal a day.

42. PACIFIC HIGHLAND WONDERS

In Alaska. — Let us begin our sight-seeing to-day far away to the north on the island-fringed shores of Alaska, the most northern part of the United States. It is a cold country like Greenland. A good many Indians are found in Alaska. Only a few of the Indian children attend school, and their parents are poor, although gold has recently been found in large quantities in different parts of the country. The winters here are very long and vegetation is not abundant. Dogs are often used here for drawing loads, as they are in Greenland (see page 61).

Mountains. — The long western range called the Rocky Mountains extends to Alaska, and throws up several very high peaks not far from the ocean. One of these is called Mount Saint Elias. It defied for years any man's climbing to its summit. At last an Italian duke came over here with some good Swiss climbers, and after serious trouble and much danger, five men succeeded in reaching the top. All around the foot and sides of this peak they found immense *glaciers* or rivers of ice, slowing moving down toward the sea. Some of these frozen rivers were many miles long, several miles wide, and hundreds of feet thick.

The Beehive Geyser

The highest mountain in this section is named, after our former President, Mount McKinley. It is one of the highest mountains in the United States.

Glaciers. — South of this is a region where many of the valleys are filled with glaciers which come down to the edge of the ocean. These ice rivers are frequently visited by travellers. I went there once in a steamer from Oregon. We sailed for several days through the inland sea with high mountains on the right, and a chain of lovely islands on the left. We passed only a few settled places and finally came to the country of frozen rivers. One of the largest of these was named, after a learned man who studied it, the *Muir Glacier*.

Yellowstone Park. — Farther south in the eastern part of the Rocky Mountains, higher up than the top of Mount Washington, is a section of the United States which contains many natural wonders not usually found so close together. The government has made this tract of land a great National Park, in order to preserve the wonders for future generations to see and enjoy.

In this great park, two-thirds as large as the state of Connecticut, are very deep and narrow valleys, lofty mountains, great plains, immense forests, and waterfalls twice as high as Niagara, besides the many geysers. If all the city parks in this country were put together, they would not equal the National Park in size. *Reservation* is a longer and a better word for the place.

When I visited the place, several years ago, I went in by the northern entrance and rode a few miles beyond the end of the branch railroad in a coach and slept at a large hotel. At night we could hear the bears behind the hotel, fighting and growling over the refuse heap.

Hot Springs. — A party of us went out next morning to see the *hot springs*. We found the best ones in a valley on a branch of the Yellowstone River. This is the principal river in the park. The largest spring is near the edge of a hill. As the water, full of mineral matter, pours down the side of the hill, it builds up round basins of various shapes and sizes. The depth of these basins varies from six inches to eight feet. The edges of the basins are adorned with a beautiful kind of bead-work. The colors show every variety of yellow, scarlet, and green. At first the water is almost boiling hot, but it cools as it flows from basin to basin. The bather can thus find any degree of warmth he wishes.

A very long ride the next day from the Hot Springs to the southern corner of the park brought us to the greatest wonder of this strange land, the "Upper Geyser Basin."

Geysers. — On the blackboard in the hotel was given the time when each geyser would spout. The "Beehive" was due to act in about an hour, so our party walked out to see the wonderful show. It was easy to pick it out because its cone was shaped like an old-fashioned bee-hive, as shown in the picture. We patiently waited for the end of the hour, and then, without any warning, a

The Hot Springs

great column of water and steam was thrown up into the air some two hundred and fifty feet. All this was accompanied with much noise and foaming. The water thrown out disappeared in clouds and mists.

Another geyser, called "Old Faithful," spouts very regularly every sixty-five minutes. Each time large quantities of water fall back and flow down the valley. Soap thrown into a geyser causes it to spout at irregular times, and the authorities forbid people putting it in. Each geyser has its growth and decay like a human being. The geysers seen to-day may disappear in a few years and new ones break out.

The times of spouting differ. The "Splendid Geyser" spouts every three hours; the "Giant" once in four hours; the "Giantess" only once in two weeks. The result of all this spouting is to make hot mineral water very abundant here.

The Yosemite Valley. — There is a great state on the Pacific coast called California. It is great in many ways, but it is known far and wide for its Yosemite Valley and its big trees. This valley is near the centre of the state. People go thousands of miles to see it.

The ride from the nearest railroad station, I remember, was up, up, up, till we reached a mountainous district. Our first glimpse of what was before us came when the driver of the coach stopped suddenly and pointed with his whip, exclaiming, "There she is!"

The trees had suddenly disappeared on our right, and we saw in their place an array of peaks, domes, mountains, and falls of water looking like ribbons of silver. Far below, a deep valley wound among them. Descending the side of this valley we reached, in time, the bottom, and followed the river through its winding course toward the upper part of the great gorge.

Here we rested in a good hotel and learned that the valley is about five miles long and from a half-mile to a mile in width. This valley, it is said, was not made, like most others, by the wearing away of the earth by water, but by the sinking of the earth. At the upper end it divides into three forks, down each of which flows a branch of the main stream.

The Yosemite Valley: El Capitan at the Left

As we moved about in the valley, the sides seemed like solid rock walls made by man, they are so nearly perpendicular. In going up the left branch, North Dome was seen rising three thousand feet. A little farther on we came to a beautiful lake, reflecting from its glassy surface the images of peaks, cliffs, and great trees. The Indians called this lake "Sleeping Water"; but the white men have named it "Mirror Lake."

In the middle branch are "Vernal Falls." By climbing up the side of these falls and going about a mile, we saw another fall, considered by some the grandest in the valley because it has the largest supply of water.

Other persons consider the falls on the north side more lovely. They bear the same name as the valley, "Yosemite," which means a great grizzly bear.

They are broken up into three parts. The whole descent measures half a mile; that is, sixteen times the height of Niagara. The upper part is best seen; the large stream of water here makes a clean plunge of sixteen hundred feet. It sways to and fro, and the appearance of the falls constantly changes like the expression of a human face. Much of the water is turned to spray long before it reaches the bottom.

Yosemite Falls

Then comes a series of cascades and then a final plunge of four hundred feet to the bottom of the valley. One lovely fall is called "Bridal Veil."

Near the entrance is a majestic cliff three thousand feet high, called "El Capitan." It is one of the most clean-cut, lofty, and imposing faces of rock to be found in the world. The smooth face is in one place marked by what appears to be a small shrub, but which is said to be a large tree over one hundred feet high. This shows the size of things in the valley. El Capitan is shown on the previous page.

The Big Trees.—Not far from the wonderful Yosemite Valley is a grove of big trees. Several large trees were seen by the roadside on the way to this grove, especially two large sugar pines; but the driver was not willing to stop and waste any time on such small affairs. As the grove drew near, larger specimens were seen which the driver admitted belonged to the real big-tree family. Still, on he went till he stopped before the "Grizzly Giant," the thickest if not the tallest tree in the world.

In walking around this tree, I counted fifty-three steps. Measured exactly, it is ninety-three feet seven inches around. The lowest branch is ninety feet from the ground and it is eighteen feet in circumference. Strange to say, the cones are very small, only about two inches long, while the cones of the much smaller sugar pine are sometimes two feet long. It is said that the seeds will sprout and the trees grow well in the East and in Europe. In Europe one tree grew in ten years to be sixty feet high. The bark of this tree is soft, spongy, of a light brown color, and often one foot or more in thickness. The wood is as red as that of the redwoods.

In the upper grove are more of these gigantic trees. They are all named and many of them bear the names of great men, such as General Grant. One of the largest lies on the ground and is called the "Fallen Monarch." The bark and sap of this tree are all gone, but it still measures nearly thirty feet in diameter and a long ladder must be used to mount the trunk as it lies.

The road runs through one of these trees, and I saw a coach and four horses go through the tree, the archway

measuring ten feet by twelve. The coach may be seen in the picture.

Farther north, and much nearer San Francisco, is another grove of trees containing even more giants, six hundred in all. One tree lying on the ground is supposed to have been, before it fell, forty feet in diameter and four hundred and fifty feet high. Another one has been burned out in the inside, and this has made a hollow large enough to allow a man on horseback to ride in at the big end, and go two hundred feet into the tree trunk before passing out at a knothole.

The Grizzly Giant

The tallest tree standing is called the New York tree. It is three hundred and sixty-six feet high. A summer house is built on the stump of one of these trees.

The names of other trees are "Daniel Webster," "Mother and Son," and "The Three Graces." It is believed that some of these trees are over two thousand years old, for the rings in one of the stumps were once counted and they numbered twenty-seven hundred. In many trees a new ring of wood is formed with every year's growth.

The Grand Canyon. — Another wonder that I have read about is the great gorge in Arizona through which the Colorado River flows in cutting its way out of the Rocky Mountains. It is really a series of gorges in the southern part of the western highlands.

When the summer sun grows warm, it melts the snow on the mountain sides, and millions of brooks unite in ten thousand torrents. These creeks join to make a hundred roaring rivers, and the latter come together and form a powerful stream, carrying countless grains of sand that act like the teeth of a saw. This sand cuts through the hardest rocks, thus making a channel through long mountain ranges and extensive plateau regions. This is the origin of the Grand Canyon, the deepest and longest gorge in the world. It is really one gorge after another in a row.

Only a few persons have ever been through this series of gorges. Major Powell and some companions once made the perilous journey. Two men perished in the attempt. They encountered hundreds of rapids, many eddies, whirlpools, cascades, and falls. They were chilled at night and baked by day. Sometimes the water hurried their boats on with the speed of a railroad train. At other times the boats leaped and bounded over the waves like deer rushing through a forest.

They saw in some places steep walls rising on each side to remarkable heights, tinted with all the colors of the rainbow. They walked over beautiful pavements, polished and decorated with strange designs. In other places the rocks were bare and of sombre hues. The gorge winds about like a great river. It has different widths and depths and many branch gorges. In some places great mountains rise far above the canyon; in others the top of the canyon is finished off in many pinnacles and domes. (See picture on the next page.)

Spring at the Bottom of the Grand Canyon

Another man, Mr. Owens, tells us about going down one side of the Grand Canyon. Starting at the hotel at the top, he followed a path so steep that he walked, ran, and slid down the first three miles to the cabin. The

scenery on the way was very interesting. Some strong point or ledge would be seen far below, and then afterwards it would seem to be a thousand feet above his head.

He kept on descending the side canyon which leads to the main one. At last this side canyon was only five hundred feet wide. After he had gone three miles it became only twenty-five feet wide, and its sides were almost perpendicular. Then he came to the first rope ladder of ten feet, and then down he went, clinging to a rope forty feet long. Beyond this, the gorge narrowed to about five feet, and soon ended in a pool of water which had to be waded. Forty feet beyond, he came to a waterfall fifty feet deep and four feet wide, down which he climbed, clinging to a rope, thus enjoying a good bath at the same time. Sliding down one more steep place he soon stood on the banks of the mighty Colorado River, at the bottom of the great Canyon. The river was an angry, mighty stream, with rapids at short intervals. It flowed between rugged granite walls which rose from the water's edge.

The Grand Canyon

Mr. Owens had a long, hard pull in returning, but he accomplished it in about two hours. What could give a better idea of the kind of scenery here than the story of this trip?

LANGUAGE LESSON

Write a short review or summary of these and other "Pacific Highland Wonders."

MAP QUESTIONS ON THE WESTERN STATES

1. The Rocky Mountain system passes through what states?
2. Where would you find many valleys, gorges, passes, and peaks?
3. Where is the Great Basin?
4. What mountains are farther west than the Rockies?
5. What rivers rise near the Mount of the Holy Cross? Near Yellowstone National Park?
6. Which of these rivers passes through the Grand Canyon?
7. Where is the Yellowstone National Park? The Yosemite National Park?
8. What shows that there is little rain in some parts of this section?
9. Are there any rivers here which do not flow into the ocean?
10. According to the scale, how far is it from Denver to San Francisco?

WESTERN STATES.

Scale of Statute Miles

0 50 100 200

185 MILES TO ONE INCH.

Capitals of States thus : ◉ Other Cities thus : •

Cities with 200,000 to 500,000 : San Francisco
Cities with 50,000 to 200,000 : Denver
Smaller Places : Silver City
Capitals with less than 50,000 : Phœnix

THE M.-N. WORKS, BUFFALO, N.Y.

43. A LAND OF SUNSHINE, FRUIT, AND FLOWERS

When Grandfather was a young man, he went across the country to California to search for gold. He found the gold washed out from the rocks and deposited in the beds of rivers, and in gravel hills, and he found it by very simple processes. He found sunshine in plenty, but little rain, especially in the southern part, and dry deserts all through the south. He found a good harbor in the central part, but only a small town upon it. Wild animals roamed through the great central valleys. There were few people in the state then, few houses, few stores, few towns, and no cities. One met in this lonely place only miners, Indians, and grizzly bears.

Grandfather lately revisited this section, and this is the way he talks about what he saw: —

San Francisco. — "I crossed the country, children, in as narrow strait, called the Golden Gate, into a very large inner bay, forming a splendid harbor, even larger than New York Harbor. The business part of the city is near the water's edge.

"From the old ferry slip a wide and splendid street, lined with fine stores and buildings, runs out nearly across the peninsula. This is Market Street, the Broadway of San Francisco. The enormous Palace Hotel, theatres, banks, beautiful churches, and halls are found on this street. A magnificent City Hall is here in a large open park.

"I went along another street, running parallel with Market Street, and called California Street. In the lower part were banks and big stores. Then I came to a great market occupying a whole square. I never saw such a display of big, handsome fruit and vegetables. By and by this street changed from business buildings to houses; I jumped on board a cable car, and was drawn up a steep grade to the top of 'Nob

Street overlooking the Bay, San Francisco

many days as I was months in going before. I rode in a Pullman car with modern comforts, — a good bed, a dining car, a smoking room, and a bathroom, — instead of in a 'prairie schooner' with no bed, and walking half the way.

"When I reached the harbor the water was there, but the huts and little stores were all gone, and on the bare, narrow peninsula which you see on the map, and on the old sand dunes that I remember, I found a modern city, called San Francisco.

"The Pacific Ocean flows through the

Panorama from Telegraph Hill

Hill,' where I saw several elegant wooden houses, built to imitate stone buildings. The views of the city and harbor from this elevation are very fine, and I was interested to see the wonderful changes in fifty years.

"I next visited Chinatown, a low-lying section at the foot of 'Nob Hill,' where the Chinese live. I found them living in very crowded quarters. I saw them in restaurants eating, as in China, with 'chop sticks,' making tea

A Park full of Beautiful Trees

in little teacups, and smoking opium, a much worse habit than drinking liquor.

"The Chinamen now do much of the hard manual work in this state. They are often cooks and servants in private families, and are liked because they are hard workers and very faithful.

"Hiring a team one day, I drove out toward the ocean, where years ago there was nothing but barren rocks and yellow, moving sand. I found streets of homes full of life and love, and beautiful cemeteries. Then I came to a fine park, full of trees such as are found on the Pacific Coast, flowers, and flowering shrubs. Farther along, I took a road winding by the different headlands, passed some good houses, and arrived at a summer hotel known as the Cliff House. The views of the ocean and of the Golden Gate, on this drive, were sufficient to repay me fully for the time and trouble.

"What surprising changes! but on the way back to my hotel in the afternoon, I noticed one old friend, the same cold, disagreeable fellow of years before, — the chilly fog. His advent was made known by a cold wind which started up about ten o'clock. I put on my overcoat. At one o'clock the fog rolled over me, and soon water dripped from trees and clothing, and everybody was chilled through. The temperature went down more than 10 degrees, and I had to put on more wraps.

"Farther north in California it is cold in winter. In the great interior valleys there is intense heat in summer, especially in the middle of the day, but it is cool at night.

Farming. — "Where we miners wandered about looking for the shining particles of gold, there are now great farms, some of them equal in size to five hundred eastern farms. The coast is usually so dry that it is necessary to water the crops from the rivers and lakes; hence, canals are built to bring the water from long distances.

"One large farm has over three hundred miles of canals. It raises thirty thousand sheep, thousands of hogs, and hundreds of horses. It requires fifteen hundred men to work such a farm. The vineyard on this farm, a friend told me, is the largest in the world. It is divided into blocks and cut up by streets running in different directions. To pick the grapes when they are ripe, in August, requires the work of a thousand boys and men.

A Vineyard in Southern California

"I visited a smaller farm stretching for four miles along the Sacramento River. This farm was about the size of an ordinary New York town. The grounds around the house contained two hundred acres. The vegetable garden was half as large. Beets and pumpkins grew here to be enormous in size. I saw one beet which would weigh as much as a small boy. One large cherry tree produced in one summer a ton of fruit. The wheat raised on this farm in one year amounted to one hundred thousand bushels, and the barley to nearly half as much.

Fifteen hundred acres of land were devoted to orchards and vineyards. The pay roll footed up $100,000 a year. Farming is now much more important than mining in this state.

Lumbering. — "I found the lumber business very important in California. Redwood trees grow in great abundance along the Pacific Coast north of San Francisco. They are gigantic in size, if measured by ordinary trees in the east. They frequently reach two hundred and fifty feet in height, and it often requires ten men with outstretched arms to reach around one trunk. They owe their size to the richness of the soil and the heavy rains.

The Giant Redwood Trees

Mining. — "I inquired about the mining, for I had seen very little while riding about. They took me a long way up among the high mountains. There I found that miners had sunk shafts or bored tunnels far into a mountain and opened a regular mine, as if looking for coal. Out of this mine, broken pieces of rock were carried and then crushed to powder, and the gold was found by the help of mercury. When I proposed to buy a mine and do a little mining on my own account, they laughed at me and said that this mine was owned by a large company of rich men, and it took millions and millions of dollars to run it.

Southern California. — "From San Francisco I journeyed southward through a long, broad valley, well shut in between mountains. I went through the granary of the West, where are raised endless crops of grain and fruit. The farms here are all sizes, from ten to thousands of acres. After passing many wheat fields, we came to large vineyards, and I stopped to visit them.

"I learned that grapes grow well here, where they are watered from the mountain streams by long canals. For six months little rain falls. There is no fog or dew. The white grapes are picked and spread out on trays placed on the ground between the rows of vines. They are left in the hot sun day after day for a month. As the grapes dry, the color changes from white to purplish black. Thus our raisins are produced, and they are equal to those imported from Spain.

"Farther on, the high mountains on the left swing around and join those on the right, enclosing the valley. In order to get out of the valley in this southward direction we had to climb up through a deep pass where the railway winds backward and forward, and finally crosses its own track, plunges into a tunnel, and then goes in and out of tunnel after tunnel till the summit is gained and the other side is reached.

"We were then on the edge of a cheerless desert and hastened across it and over the low Coast Range into a new world known as Southern California, or the 'Italy of America.'

"Look on your maps, children, and see where I was at that time. I was on a long, narrow strip of land between the Coast Range and the ocean. In this section the cold winds from the east are shut out by the mountain wall I had just crossed. The warm winds of the Pacific, passing over warm ocean currents of water, flow landward and produce bright sunshine and cloudless skies, day after day, month after month.

Perpetual Spring. — "In this climate the air is dry and the winter rains are moderate. There is little frost the year round, and no snow. The sudden changes in temperature so common in the East are entirely unknown. It is every day much warmer at noon than at midnight.

Summer and winter lose much of their meaning; perpetual spring is the one season. Sunshine after a while becomes rather monotonous and one longs for a good rainy day.

"Farming was not very profitable here till towns and communities united to build irrigation works and brought water from long distances to supply the lack of moisture caused by the meagre rainfall. Then the land became fertile, and the country and climate were soon found well adapted for fruits and flowers.

In an Orange Grove

Orange Growing. — "Without question this is the land of the orange. The orange tree, I learned, begins to bloom here in March, and the fruit is ready for picking between the January and June following. After picking, the fruit is sorted by machinery and then wrapped by hand in tissue paper and packed in boxes. These are immediately sent to the large cities in the Middle West and in the East.

"If a train-load of oranges reaches Chicago or New York early in the morning, agents meet it at once, and by noon the contents are placed in the hands of those who sell this fruit by the dozen. The success of the business depends upon this perishable fruit's being quickly gathered, quickly transported, and quickly sold. I was surprised to find that oranges cost as much by the dozen in San Francisco as in New York, and that they were no better.

Climbing Rose Bushes, Pasadena

Lemons, Olives, Grapes. — "All through this region orange and lemon orchards abound. There are also many olive orchards. Olives grow on very knotty and gnarled trees, not handsome to look at. The fruit is picked when it is green by boys and girls, helped by men and women. The sound olives are picked and bottled; the bruised ones are crushed and pressed to squeeze out the juice, which makes olive-oil for salads.

"Vineyards stretch away over many acres of ground. A part of the grapes are made into raisins or sent East in boxes; a larger part are pressed and the red juice made into wine. I tasted here for the first time fresh figs, and I am sure that no fruit growing on trees is more delicious. Prunes grow here and are much better before they are dried than afterward.

"All the cities east of Denver have cold storage warehouses where fruit is kept for months. Apples will keep well for eight months in a temperature of 32°. Certain kinds of fruit are sent to market in refrigerator cars. It costs $120 to run such a car from California to New York, and it takes five days. The growing of all kinds of fruits and nuts on this coast has greatly decreased the importation of these fruits from other countries.

Cities. — "The climate and the success of fruit farming have caused this land to increase in population. Cities have sprung up and happy homes have been formed. Los Angeles is a large business city, and not far away are Pasadena and Riverside, both delightful home cities.

"About the houses you see flowers instead of snowbanks in our winter months. Such flowers as roses, violets, geraniums, and nasturtiums bloom out of doors in January. Houses are really embowered in roses, surrounded by orange trees, and the sidewalk is lined with fan and date palms. No wonder the people are contented and happy and willing to remain in such a land."

LANGUAGE LESSON

Tell how people live in California and compare their ways with those of your state.

44. A TRIP ACROSS CANADA

The map of North America (facing page 88) shows a large country just north of the United States which we should visit before going to distant lands. This country is called the "Dominion of Canada." In the eastern part of this country is the city of Halifax. It is noted for its large, safe harbor, one of the best on the Atlantic seaboard. To see it and the city to the best advantage, we must climb the hill behind the town.

We notice also how thoroughly fortified the town is and that there is a large dockyard covering many acres—a fact which indicates that the city is an important naval station. From this city we begin our long trip across the picturesque and prosperous Dominion of Canada.

A fast express carries us northward from Halifax through the forests of New Brunswick, beside lakes and bays and over rivers where there is excellent fishing. The train goes on till we reach the banks of a broad river which flows through the southern part of Canada. This river is a blessing to the country, and it has a noble name—the St. Lawrence. It is one of the largest rivers in the world, and for a long distance it is over thirty miles wide. The size is due to its being the outlet of the five great lakes between Canada and the United States. Most of the water in this river has passed over Niagara Falls. (See Lesson 38.)

Approaching the Citadel, Quebec

A short sail of six miles brings us to Quebec, a place most unlike American cities, reminding us of some old French town. It was settled by the French. It is in one of the old French provinces, and Canadian French is the language which most of the people there speak.

As we go about the city we see much to interest us. Here a small stream enters the St. Lawrence River from the north, and in the angle thus formed, a lofty promontory rises far above the river. This elevation at once suggested to the early settlers an excellent place for a fort. We will go first to this high point, and visit the Citadel. It forms so strong a fort that Quebec is called the "Gibraltar of America," after the strong fortification in southern Europe. The view from this overhanging rock is one never to be forgotten. Under our feet flows the great river, with mountains in the background, while the city nestles under the guns of the Citadel as if for protection. So steep is the side of the cliff next to the river that we look down upon the decks of our steamer and hundreds of ships in the harbor. Many of the streets are very quaint and picturesque.

After a two days' trip up the St. Lawrence from Quebec, we come to a very large island in the river, and on the island is so extensive and busy a city that we stop for a visit. This place is Montreal. Owing to its position, it is the largest city in Canada. It stands at the head of ocean navigation, and at the beginning of lake and river navigation, and it has railroad connection with all the great cities of North America.

Montreal is a much more modern city than Quebec, and has many fine streets and some excellent public buildings. Its cathedral is very large and can hold ten thousand people. We visit the wharves and find them busy places, crowded with ships from many distant ports. Several of the vessels are loading with grain and lumber for England.

Behind the city of Montreal rises an elevation called Mount Royal. If we are good walkers, we can climb to the top of it. The view will well repay the effort. The country below us stretches out like a map. The city is directly beneath our feet; many churches and other public buildings are seen above the trees. The broad St. Lawrence, like a ribbon, winds through a wide plain as level as a prairie. It is crossed by a railroad bridge nearly two miles long. There is no bridge over the river below this one.

One of the largest tributaries of the St. Lawrence enters the river at Montreal. This is the Ottawa River, and some distance up this stream we come to the head of river navigation and to falls which furnish plenty of water-power for manufacturing purposes. As forests are

Panorama of Montreal from Mount Royal, showing Railroad Bridge across the St. Lawrence

extensive hereabouts, it was natural for people to build sawmills below the falls and also natural for a city to grow up here. This city, Ottawa, is now the capital or the seat of government of the Dominion of Canada. On the high banks of the river are the beautiful Parliament Houses, in which the laws of Canada are made.

We return to Ottawa and step on board the Pacific express for a long journey westward. We stop a day at Winnipeg in the grain lands, the present headquarters of the fur trade, which flourishes in Canada. Our route takes us across miles and miles of prairie land, where we see many grain elevators, up the gradual slope on the western side of the great interior basin, through the foot-hills, and into the great mountain region known as the "Canadian Rockies." The little town of Banff is here, in the centre of grand mountain scenery, and we stop over at this place for a few days.

The Parliament Buildings, Ottawa

The Canadian Rockies: Banff

At last we come to Vancouver, in British Columbia. This city is on a magnificent harbor, and we see steamers from San Francisco, China, Japan, and Australia, and realize the growth and extent of Pacific Ocean commerce.

45. BRAZIL AND THE AMAZON RIVER

My little friend Pedro, who lives in Portugal, took a long journey by ship to visit his aunts in Rio de Janeiro. That is the capital city of Brazil, the largest country of South America. It is very nearly as large as the United States with Alaska. The rivers are so big that good-sized ships can sail into the interior of the country. Most of the people of Brazil are descendants of the Portuguese.

The Harbor of Bahia, Brazil

Pedro and his father started from Lisbon in the *Don*, an excellent boat, though not so large as those sailing to New York or Boston. After two weeks at sea the water of the ocean began to look yellow, and they knew that they were at last near the mouth of the Amazon River. This is not only the largest river of Brazil, but the largest river of the whole world, and in many ways the most interesting. The color of the water is yellow from the clay that it brings down to the sea. It carries so much water that it colors the ocean for miles out from the shore.

Rio de Janeiro, Brazil

Para. — Pedro's first stop in the new country was at Para, at the mouth of the Amazon. (See map of South America, page 157.) As the ship was to be some hours in port, he went ashore with his father to visit friends and see the city. It was a charming home to which they went, with large, beautiful rooms, cool and pleasant in spite of hot January weather. Para is in the hot belt, you must remember, and the weather is always very warm and sometimes rainy.

On their way back to the ship they saw many strange sights in Para. Not a breath of air stirred, and the town seemed almost asleep. Grass grew in the streets. The gardens were full of lovely flowers. The street-cars were drawn by mules. Only in the earlier, cooler portions of the day is anything going on in the town. Then the low, white-washed market-houses are interesting, and one sees canoes coming laden with provisions, some carrying monkeys and parrots.

Pernambuco. — Pernambuco was the next port. It looks at a distance, with its buildings of white stucco, like a marble city rising out of the blue sea. It lies very low, and its walls, domes, and spires are seen some time before the trees and grass. A river runs in and out through the town, and many bridges span its waters. This makes it look like Venice. It has no ugly docks and warehouses on the water's edge, as have so many cities. Instead, there are large, green, waving trees, which, with the blue water, bluer sky, and the white walls and towers beyond them, form a most pleasing picture.

Bahia. — Once more they were on the way along the coast. Only one more port before Rio, and that was Bahia. Here they arrived at night, and found themselves in a large circular bay, which was surrounded by a row of brilliant lights. Bahia has one of the best harbors in America, and the largest ships can easily enter. The captain pointed out the two parts of the town — the newer, finer part, high up on a bluff, and the older, low down on the shore. There is a steam elevator, which carries passengers from one part to the other.

They went through the town while the ship waited, passing fruit women, who wore gay shawls over their heads and carried trays upon them full of good things to eat. Negroes drove queer little horses and donkeys in the streets. Then Pedro sailed directly from Bahia for Rio de Janeiro.

Rio de Janeiro. — The harbor of Rio de Janeiro is a magnificent one. The opening to the bay which forms it is so narrow that its discoverer called it "Rio," meaning river; as he made the discovery on January 1, he added "de Janeiro," which means "of January." How surprised he must have been, on passing between the two islands which form a gateway, to find a great bay, and not a river. The bay extends in behind steep mountains rising out of the sea, giving vessels fifty square miles in which to anchor.

It was very warm when they reached land, and Pedro and his father were glad they were going to stay outside the town. All who possibly can, leave the city during the hot months. Pedro's aunts lived about five miles out on a beautiful mountain road. The travellers drove along on the mountain, looking down on a scene that reminded them, in its delicacy, of a water-color painting. In it were both the mountains and the sea. Hills covered with woods are all about Rio, and a cluster of mountains with steep sides and queer shapes seems to rise directly out of the ocean.

Drying Coffee

The road Pedro travelled was a good one, winding up among the trees, many of which were covered with flowers — white, yellow, purple. Everywhere they saw the large two-story houses common in Brazil. In one of them lived Pedro's aunts. It was very plain, having not even a bay-window or a piazza. The garden was full of brilliant butterflies and humming-birds, darting about among the leaves and flowers. There was a bath here, as is customary in this warm country. Bathing two or three times a day seems the only way to be comfortable. Sometimes the basin is in a small house. It is often tiled and four or five feet deep. This one, in which Pedro learned to swim, was enclosed by a bamboo hedge, and stood in a grove of trees. A rollicking mountain brook supplied the water, entering at one end and filling the stone basin. Overflowing at the other, it made a shower bath. Near by, in the brook, the clothes were washed. They were beaten on the rocks, instead of being rubbed on a wash-board, and then were spread in the sun to dry.

Pedro had much to see in Rio. It was dry and hot when he arrived, and he could not go to see the city on account of the yellow fever. This rages during March and April, and May-day is welcomed as the end of summer, and also of this dread disease.

Pedro went to the city with his aunts when the danger from fever was over. The streets seemed narrow and dirty after his cool, clean mountain home with its wide views. They drove through streets full of yellow stuccoed buildings, and houses painted a deep red. They passed large hospitals and asylums, the national library, several academies, and a college, and enjoyed the handsome parks and public gardens. In one of the gardens they saw a magnificent avenue of royal palms one hundred feet high. There are eight hundred kinds of palms in the world, and Pedro saw many of them in Brazil.

The evening is the gay time in Rio. Then the better class of people come out in their fine clothes to promenade. During festivals the streets are brightly lighted, and are crowded with people till daylight. Pedro noticed that the gentlemen wear high hats and dark heavy clothes in spite of the warm weather. Ladies wear silks and velvets. This is to distinguish them from the workers, who dress in thin, white material.

Coffee. — Pedro's uncle owned a coffee plantation, and the boy went to visit him. More than two-thirds of the coffee of the world is grown in Brazil. Rio, and Santos which lies a little farther south than Rio, are the great coffee ports. Inside a walled enclosure stood his uncle's

house, the machine shops, and the quarters of the negroes employed on the plantation. A row of palms led up to the door of the large, low, light-colored house. With its roomy piazzas and growing plants, it looked very homelike. In front of it was an immense space, paved with cement and surrounded by a low wall, in which coffee seeds were spread to dry, and then cleaned.

The coffee fields were on the hillsides. Some were worn out and past bearing, others were full of shrubs with dark green leaves and sweet flowers, and still others were full of young plants just set out. In November the whole force on the plantation is busy gathering the berries, — men, women, and children being at work from sunrise until sunset. They work under an overseer, and each worker gathers in a day what will make fifty pounds of dried seeds. The fruit, when gathered, is about the size of a cranberry and dark red in color.

After a week passed, Pedro's father returned to Para, from which place he took a journey in a private boat up the Amazon.

The Jaguar

The Amazon. — The great basin through which the river flows receives more rain than any other tract of land of its size in the world; so the Amazon, though it is not so long as either the Mississippi or the Nile, carries down more water than both of them put together, and is considered the largest river in the world. Nearly all rivers have flood lands near the mouth; but those of the Amazon are found far up toward the headwaters of the river. The land which is under water during the rainy season is called the flood plain of the river. The mainland is beyond it.

More kinds of fish are found in the Amazon than in any other river. Some of them are unknown elsewhere. One of the sailors in the boat caught, one day, a huge red fish, which is as useful to the natives as beef is to us. They salt and dry it as we do cod.

Great fresh-water turtles were often seen on the journey. The Indians like to eat the turtles, and capture them when they go to bury their eggs in the sand. The Indians surprise them and turn them over on their backs, and then they are entirely helpless. Sometimes the Indians fish for them from boats. They wind a long line around an arrow, and near the point fasten the stone of a certain fruit through which a hole has been bored. They then shoot the arrow with great force into the turtle's shell.

In the Forest. — Our explorers left the canoes one day and went into the dense, tropical forest with Indians for guides. That part of the country between ten degrees north and ten degrees south of the equator is covered with thick forests. Rain is very abundant here nearly all the year, and the greater the rainfall the denser the forest. As one approaches a tropical forest it looks very brilliant and full of bright-colored birds and blossoms and masses of foliage. Once in the thick woods, however, all these disappear, and one rarely sees anything but tree trunks, stems, and branches. Even palm foliage disappears. This is because the leaves and flowers and birds seek the sun. They are all in the forest roof in the light and air. A tropical forest is different from a northern forest in several ways. It is far denser, darker, and damper, and the trees are taller, being two hundred or more feet high. Huge vine stems clamber up the trees and loop themselves in great festoons from bough to bough. Air roots fifty or sixty feet long hang from the branches. These air roots grow from the branches without touching the ground. This abundant vegetation makes it almost impossible to pass through such a forest.

Wild Animals. — The jaguar is as ferocious as the Bengal tiger of India; but most of the animals of South America are not so fierce and large as those of Asia and Africa. The jaguar's coat is tan-colored on the back, with rows of black rings along the sides. The jaguar is sometimes six feet long. The puma is another fierce, cat-like animal, tawny in color. It is not so strong and ferocious as the jaguar and does not often attack large beasts or man. The dense forests of the Amazon make a perfect home for these wild animals.

Several animals of the forest look like the pig and live on fruits and roots. The tapir is the largest of these. It is larger than a boar. It hides in the woods during the day, coming out at night after food. It is a good swimmer, and when it is hot goes into the marshes to keep cool. When young, its skin is covered with white spots. Fuller grown, it has a thick brown skin with a few silky hairs on it. One night Pedro's father saw one running swiftly, head downward, through the deep forest, his trunk pointed straight before him. In this way he makes great speed among the trees.

Once the voice of a howling monkey was heard some miles away. In the rainy season the monkeys fill the woods with their cries. One guide found an armadillo on its back. When it tumbles over it cannot easily get up, so the men had a good chance to look at it. The little fellow is about as large as a baby pig. His short legs and body are covered with scales, making a suit of armor of three parts, so arranged that the body can move easily. The armadillo hides himself in the ground when attacked, burrowing a hole so fast that it is almost impossible to get him out. He eats fruit, worms, ants, and carrion. He does not go out by day and is very timid.

An Armadillo

Snakes and Insects. — In the shade of the trees it is difficult to see the insects and snakes. Their color and shape deceive one. Snakes wind themselves around the branches like vine stems. Some spiders sit folded up on the leaves or drop down like withered flowers, ready to catch the first insect that comes along. One of them even has the scent of a jasmine flower. The butterflies show bright colors when they fly, but resting they look like the twig or leaf on which they sit. Ants are everywhere — red and white — digging tunnels in the ground and making tube-like passages on tree trunk and branch, at the end of which they make a big ball-shaped house out of vegetable matter they have swallowed. There is a big black ant that buzzes like a bee and has a dangerous sting, and a leaf-carrying ant that the farmer dreads.

Birds. — Among birds the *toucan*, with its enormous bill, is the oddest. It is so called from its cry. The bill is white and yellow and often larger than the body, which is covered with brilliant feathers. It throws its food in the air and catches it again in its beak. Another bird is like a clock for the Indians. Its cry, a piercing note, is heard very regularly every hour. Parrots, paroquets, and macaws scream in the trees. There are also pigeons and turtle-doves.

The heat of the tropics is intense in South America, but not so unbearable as that of desert lands. The masses of trees and plants keep it cooler. Vegetation is very rich, and there are many useful and valuable products. The rubber tree, next to coffee, is the most important.

Rubber. — Our party found the true rubber tree, with its white trunk and glossy green leaves, growing in the forest. As the men returned to the Amazon they came to a little rubber town built up along the shore on piles. Part of it stood back on a low bit of sandy country, with swamps all around, and the main street was made up of one bridge after another. There were no hotels, but the people at once gave the strangers food and shelter and they decided to stay a few days. Here the people travelled in canoes.

In the morning the rubber gatherer goes into the forest to tap trees. He carries a basket holding little tin cups and some clay, a hatchet, and a pail. Having selected his tree, he makes gashes an inch

Rubber Tree

long in a circle around the trunk and fastens a cup below every gash by means of the clay. The milky sap flows into the cups, and by noon they are all full. He then empties the cups into the pail and carries the sap to the hut. Each tree yields perhaps a gill of sap, and it looks like thick cream. The next day he goes again and makes another circle of gashes below the first, and so on till the roots of the trees are reached.

It is easier to make pure rubber than butter and cheese. The gatherer makes a fire of fuel that will give a thick smoke. He then dips a large flat slab several times into the pail of sap and holds it for a few seconds in the smoke. A layer of elastic gum is thus formed on the slab. He dips and smokes it again, and so on till he has the proper amount, when he cuts the ball at the top with a moistened knife and removes it. Then he puts it in the sun, which gives it its dark color.

Cacao. — Another lowland product is cacao. The tree is about the size of a cherry tree. The foliage is dense, making a thick roof through which the sun cannot pierce. The fruit is oval, with a ribbed outer shell, and grows, not among the leaves, but immediately from the tree trunk and main branches. The gatherers take out the seeds and sell them for the manufacture of chocolate.

Brazil Nuts. — The Brazil-nut tree attracted the notice of all the party by its superb height and beauty. It is sometimes fifty feet or more above the rest of the forest and rises by a smooth, straight trunk fifteen feet in diameter. For one hundred feet from the ground there are often no branches. Sixteen or eighteen nuts grow together in round, hard, black cases, which fall when ripe. The gatherers run great risk from falling nuts, which sometimes come down with force sufficient to bury them six inches in the ground.

MAP QUESTIONS ON SOUTH AMERICA

1. In what direction from New York is South America?
2. Through what part of South America does the meridian of 80° pass? Through what part of the United States?
3. Which is the largest country in South America? The longest?
4. When it is night in Washington, D.C., what time of day is it in Valparaiso, Chile?
5. When it is winter in Chicago, what season is it in Rio de Janeiro?
6. Where are the high mountains in South America?
7. What city is situated on the equator? What two causes affect the climate there?
8. Why is the Amazon so large a river?
9. In what country is the Isthmus of Panama?
10. Locate the Llanos, the Silvas, the Pampas.
11. Name all the countries of South America.
12. Locate Brazil, Rio de Janeiro, Para, Argentina, Buenos Aires, Chile, and Santiago.

46. CHILE, BETWEEN THE SEA AND THE MOUNTAINS

In the southern part of South America, lying between the Pacific Ocean and the snowy range of the Andes Mountains, is a long and very narrow country called *Chile*. It is a republic, and one of the most important countries of South America.

The Harbor of Valparaiso, Chile

If we were going to Chile, we would probably take ship for Valparaiso, its chief seaport, and the chief Pacific port of South America. It is halfway along the coast of Chile. After our long journey, how delightful it would be to sail into the calm harbor, full of ships, and see before us the houses of the town, rising from the many hillsides and nestling between them. A mountain rises behind the hills, and farther away the snowy line of the Andes appears. Above them all, Mount Aconcagua towers so high that it seems twice the height of the other peaks. Over a hundred ships can find moorings here, and that is a large number for a harbor to hold safely.


Longitude West from Greenwich
Caribbean Sea
Pt. Gallinas
CURACAO (Dutch)
Caracas
Trinidad (To Gr. Br.)
Delta of the Orinoco R.
Lake Nicaragua
Panama Canal
Colon
Gulf of Darien
COSTA RICA
Isthmus of Panama
Gulf of Panama
Maracaibo
Orinoco R.
VENEZUELA
Georgetown
Paramaribo
BRITISH GUIANA
DUTCH
FRENCH
Cayenne
Bogota
COLOMBIA
LLANOS
Tumuc Humac Mts.
Mouths of the Amazon R.
EQUATOR
Quito
Cotopaxi Vol.
Chimborazo Vol.
Guayaquil
ECUADOR
Rio Negro
Para
Maranhão
Ceara
C. St. Roque
Pt. Parina
Amazon R.
SILVAS
Madeira R.
Tapajos R.
Xingu R.
Parnahiba R.
BRAZIL
Pernambuco
Andes
Lima
Callao
PERU
Guapore R.
PLATEAU OF BRAZIL
Bahia
L. Titicaca
Mt. Sorata
Mt. Illimani
Arequipa
BOLIVIA
Sucre
Iquique
Paraguay R.
Parana R.
Serra dos Vertentes
Ouro Preto
TROPIC OF CAPRICORN
São Paulo
Rio de Janeiro
PARAGUAY
Asuncion
EL CHACO
Corrientes
Uruguay R.
Serra Geral
Porto Alegre
Juan Fernandez Is. (To Chile)
Aconcagua Vol.
Valparaiso
Santiago
Mendoza
Rosario
Buenos Aires
La Plata
URUGUAY
Montevideo
Plata R.
ARGENTINA
Concepcion
Rio Negro
PAMPAS
St. George Bay
C. Blanco
PATAGONIA
Wellington I.
Falkland Islands (To Great Britain)
Strait of Magellan
Tierra del Fuego
Cape Horn
South Georgia (To Great Britain)
PACIFIC OCEAN
ATLANTIC OCEAN
SOUTH AMERICA.
Scale of Statute Miles.
0 100 500 1000
640 MILES TO ONE INCH.
Cities with over 500,000: .... Buenos Aires
Cities with 100,000 to 500,000: ..... Lima
Other Important Cities: ..... Caracas
Smaller Places: ..... Concepcion
Capitals thus: ◉ Other Cities thus: •
THE M.-N. WORKS, BUFFALO, N.Y.

Valparaiso. — Valparaiso is famous for this first view. It looks in the distance like a city of marble rising out of the water, so closely do its light-colored buildings cluster around the horseshoe-shaped bay.

Factories and quays are on the water's edge, and the main street stretches for miles along the sea. The poorer homes are on the lower foot-hills back of the town. Sometimes they are so miserably built that they fall, and slide in a mass of ruin to the streets below. On the higher hills, reached by an elevator, are the homes of the wealthy, where nothing is wanting to make life enjoyable.

A Street in Valparaiso

"But," you would say, "I do not feel as if I could be in South America. I see street cars, telegraph wires and poles, electric lights, telephones, stone pavements, libraries, everything to make the city a convenient place to live in." Yes, and that is because so many foreigners from the cities of Europe and America live here. There are many English, not quite so many Germans, and some French.

In taking your first car ride around the town you would find the cars different from ours. They are two stories high and their conductors are women. This is true in all the cities of Chile. Once when Chile was at war with her neighbors, she needed all her men for soldiers and then women became car conductors. They have remained so ever since.

Chile is rich in mines, especially of silver and copper, and the smelting furnace is one of the sights of the country. Valparaiso has the largest one. You would be much interested to visit it and see how the minerals are separated from the ore, which is brought in large quantities from the Andes Mountains.

Perhaps you may be thinking of Valparaiso as a hot place in summer; but it has a good friend in the northeast wind, which blows much of the time across the snows of the Andes, and makes the summer scarcely warm. In winter it is very mild, owing to the nearness of the ocean. There are six squares in the town, with trees and flowers, and a pavilion for musicians in the centre. Every city of Chile has a band-stand.

Santiago. — From Valparaiso we go by rail to Santiago, the capital of the country. We shall find the station and the trains at Valparaiso much like those of our own country. Some of them have the big engines and cars of the United States, and others the small engine and compartment cars of Europe. We seat ourselves comfortably and have a delightful ride for over six miles along the coast, through one lovely suburb after another. The trees are beautiful, and the flowers, too. These places are cool in summer and warm in winter. For four months of the year it rains a little, and then for the next eight it rains not at all. You will wish that you could bathe on the beaches we pass, but you do not

Santiago from the Hill of Santa Lucia

know how cold the water is. You could bear it but a few moments; but the Chileans can stay in it for an hour or two.

Now we are in Central Chile, and gardens are seen all along the way, full of green trees, flowers, and fruit. Such beautiful trees, full of roses, and such delicious peaches in the orchards we pass! This is the central valley of the country, noted for its vegetables, grain, and fruit. Many of the trees are those of the tropics.

Almost before we know it, we have begun the hard climb up the mountains. We are among the mines, and we see the chimneys of copper smelters. The way is among giant rocks and towering cliffs. How green looks the valley we have left, in comparison! Now we cross an iron bridge spanning a gorge, and up and up we go till we are in full view of Santiago, which stands on a plain surrounded by mountains, about eighteen hundred feet above the sea. Then we go down a short distance and arrive at the railroad station of the capital, five hours after leaving Valparaiso. It would take but half an hour to return, for the way would be down hill.

A Railroad Bridge on the Santiago Railroad in the Andes

You learned at Valparaiso to expect all the conveniences of the cities of the United States, so you will not be surprised to find yourself going very fast indeed in an automobile from the station of Santiago to your hotel. What a quiet place, you think! What has happened that the people are so solemn? You will soon learn that in cities of Chile men and boys do not whistle or sing in the streets, and they are never boisterous.

Buildings. — South American houses are built very low on account of the frequent earthquakes, and until lately those of Santiago usually have been only one story high. Now many of these have been torn down and houses of two and sometimes of three stories built in their place. Brick and adobe, instead of stone, are used as materials. The houses are built around a central court, which is open to the sky and is often planted with orange trees. These make a handsome garden. The balconies open on this court. The walls are often painted in bright colors, blue being the favorite. Sometimes pictures are painted on the walls. If you visit one of these houses you will enter through this court. You will find the owner living in the first story and letting the rest of the house to others. In the outskirts of the city you will still find the old-fashioned, spacious, one-story house.

The Low, One-storied House

The finest buildings cluster about the great square, and all the principal streets open upon it. There is a garden in the square and several beautiful sheets of water, a great ornament to the place. Near this square is the fashionable promenade of Santiago and the finest shops of the city. The street is about a mile long, and nowhere else could you find such a magnificent view of mountains. The snowy Andes are spread out in full sight of the many spectators.

Between four and six o'clock every afternoon the wealthiest citizens and the most beautiful women, in the finest of costumes and hats, go in and out of the shops; but the morning hours find the women covered by a large black shawl, two yards on a side, called here a *manto*, in other places a

mantilla. This is the head-dress of the country. The hat will soon be worn very generally, however, except in church, where women are obliged to wear the mantilla. Even strangers dare not appear in hats, as they are not considered dignified enough for a church. On Sunday you can see poor and rich women on their way to church, in these mantos, the material marking the only difference in wealth. Each one carries over her arm a woollen or fur rug, which she will spread down to sit upon, as there are no chairs or pews in the churches.

At the natural history museum you can see a stuffed specimen of the stag of Chile and the great bird of the Andes — the condor. The condor is rarely seen alive except in the Andes, where it lives in small groups. It is the largest of all flying birds. Its general color is black, the male bird having a great part of his wings white. It has a white ruff of feathers around its neck, and its beak is very strong. Condors fly higher than any other bird and are said to be able to soar six miles up in a straight line. Far up on the highest mountains they lay their eggs on the bare rock, for they build no nest. They feed on carrion.

The Condor

The stag of Chile is a beautiful animal. It appears with the condor on the national shield.

Santiago is a very warm place for four months of the year. Wind rarely blows there, as the city is shut in a valley. Winter nights are sometimes very cold, — even as cold as five degrees below zero.

If you had time you could follow the railroad to the south as far as it goes, through the beautiful central valley of Chile. Every year the government builds a new section. It runs through a fertile, uncultivated land, full of mines which have never been worked and streams only waiting to turn many mills. Chile would be rich if she used all her gifts.

Through Santiago runs a railroad which is to pass over the Andes into Argentina and on to the wealthy city of Buenos Aires. You look at the great wall of mountains and wonder where it can be crossed. Between Aconcagua and a neighboring peak is the best known of the six passes over the Andes. Through this, as soon as there is money enough, the road will be built. All the rest of it is finished. In the summer-time cattle are often driven over this pass from Argentina to find pasture in the warm, rich valleys of Chile.

Other Parts. — In southern Chile you would find a strange country, filled with thick, tangled, evergreen forests. If you tried to walk through them in the rainy season, which begins in May, you would find it more difficult than at other times, as the vine stems, which wind themselves around the tree trunks, become soaked and fall down, blocking the way. Sometimes you could get along only by following the bed of a stream. Travellers have been known to crawl for miles in a half-bent position, which is very tiring. At this season you would see many snakes curled up to keep out of the wet, but they are mostly harmless. Bright-colored plants and tropical birds make the woods gay. Giant seaweeds are found along the coast.

You can scarcely think of anything more different than southern and northern Chile. Northern Chile is a desert, and yet Chile has spent much money and lost many men in war to keep it for herself. All her neighbors want it, too. There is good reason for this: there are in this desert vast beds of nitrate of soda. It is valuable as a fertilizer and for making gunpowder, soda, and iodine, and Chile makes money by selling it.

To see the nitrate country you must start at Iquique on the coast, and a very queer country you will find it. A light shower of rain falls here only once in many years. The mountain sides are hidden for one thousand feet in drifts of white sand, and the gorges are full of it.

You cannot see the nitrate until a hard crust of earth has been removed from it. Then it is seen lying in beds ten or twelve feet thick and looking like marble or rock salt. At the railroad stations it is broken up by blasting and carried away to the works, where the soda is extracted and put (in small lumps) into bags for export.

Summary. — Chile is a country in shape very long and narrow. Valparaiso is one of the most beautiful cities for situation in the world. Women are the car conductors. Santiago is in a valley among the mountains. The houses are built low on account of the frequent earthquakes. The women wear on their heads a large black shawl called a manto. In the north of Chile are rich nitrate lands.

The Steamship Ivernia

IN EUROPE

47. IRELAND, AND CROSSING THE ATLANTIC

The Voyage. — Some friends and I once sailed from New York for Liverpool on the ocean steamship Ivernia. The ship was a large iron vessel with several hundred people on board. The weather was fine as we sailed down the harbor and began the trip across the Atlantic Ocean. In a few hours, however, all had changed. The ship sailed into a storm. The wind blew, the waves rose, the steamer tossed and strained, and almost everybody was seasick and miserable. The last days of the voyage were calm and enjoyable. We became acquainted with many pleasant people, whom we met upon the deck. There were several children on board, and they seemed to have a very good time. One of them was a little girl named Jessie, who was almost blind, and whose parents were taking her to Paris to have her eyes treated.

The Ivernia's Saloon Deck

A great ocean steamer is a big hotel with all the comforts of modern life, and often has on board over a thousand souls. To carry the many people who visit the old world each summer, for business and pleasure, requires a great fleet of steamers sailing from New York, Boston, Philadelphia, Baltimore, New Orleans, and other ports.

Four or five meals were served every day. Music, con-

certs, lectures, and religious services were supplied; in the library there was a good collection of books; we had the use of drawing-rooms, a music room, a dining room, a coffee room, smoking rooms, and baths. Every part of the ship was brilliantly lighted with electricity.

The Landing, Queenstown, Ireland

One afternoon after we had been six days out, the captain and almost every one else were looking toward the horizon, as if trying to see a ship. By and by the captain said, "Land!" but only he and the sailors could see it. Finally a black speck was observed on the horizon, which in two hours proved to be a great rock with a dark shore beyond it. This was the southern coast of Ireland. (See map, page 175.)

Queenstown. — We left the steamer at her first port — Queenstown in Ireland. This country is a great island on the other side of the Atlantic Ocean from America. We were glad to stand once again on solid ground, to see the green fields, hear the birds sing, and see the ways of other people in their homes and shops.

Queenstown we found to be a new and modern city, built on an island facing the coast. Many of its white houses are erected in terraces upon the slope of a hill. From this seaport thousands of persons have sailed to America to try their fortunes in the new world. We stayed here only one night and then took a small steamer to go up the river Lee to the larger town of Cork.

Blarney Castle

Cork. — The first thing we went to see in Cork was the church and steeple of Shandon, the subject of the well-remembered poem. Afterward we climbed a hill called the "Sunday's Well," from which we saw below us a grand view of the river, a large part of the city, and the landscape for miles around.

We learned that Cork is the largest commercial city in Ireland and that it has a fine harbor. It exports every year enormous quantities of butter and cheese, great numbers of cattle and pigs, thousands of sides of smoked bacon, and huge crates of eggs, nearly all of which go to feed the hungry mouths in London.

In the afternoon we took a ride in a jaunting car to the groves of Blarney. The jaunting car is a peculiar two-wheeled Irish carriage in which the seats face the outer side of the vehicle, so that the people sit back to back. The grounds around Blarney Castle are of great beauty. In this castle is the famous stone which, if kissed, is said to convey all the gifts of eloquence and persuasion. From this story arises the use of the word *blarney*, meaning flattery or smooth talk.

In the Wild Gap of Dunloe

General View of Lakes of Killarney

Lakes of Killarney. — From Cork we went by rail to the southwestern part of Ireland to visit the lake region. Killarney is the name of the little village near one of the lakes, and so the three lakes are often called the Lakes of Killarney.

Our guide drove us in the morning to the upper lake in a carriage in order that we might return by boat, passing through each lake in turn. We passed several cottages beside the road. We first rode through the wild Gap of Dunloe, a narrow passage between high hills, with steep rocks on each side of the path, looking as if some giant had cleft them with his sword. As we left the gap, the picturesque upper lake burst into view. The surface is dotted with tree-clad islands, looking like so many emeralds set in silver.

We took a boat on the upper lake and slowly passed among the islands, and by the mouths of creeks, all the time shut in between lofty mountains. In one place we heard a wonderful echo. The guide played first a single note, which was caught up and repeated loudly, softly, again loudly, again softly, and then as if by a hundred instruments. Then he blew a few notes, and a multitude of hills sent forth replies. This was followed by a pause, and then a marvellous chorus mingled together strains of sublime grandeur and sweetness.

We found the middle lake less interesting than the upper one. The lower, or third lake, contains a number of very charming islands; the largest is Ross Island, on which are the ruins of an ancient castle covered with English ivy.

The most beautiful part of the three lakes is in and about the island next to Ross, called "Innisfallen." The beauty of this spot is owing to its hills and dales, the small, pretty rivers and harbors, the loveliness of the vegetation, and the grandeur of the surrounding mountains.

From the Killarney lakes we went by train to Dublin, the capital and largest city.

Sackville Street, Dublin, and O'Connell Monument

Dublin. — In Dublin are many fine streets, some fine-looking buildings, and plenty of poor people. The people do not get up very early in the morning. We went out at eight o'clock one morning in July and found the shutters closed and streets empty.

The principal street is called in books "Sackville Street," but all the people call it "O'Connell Street," because at the head of the bridge across the river is an imposing monument and bronze statue of O'Connell, the Irish patriot.

Making Linen. — A few days later we bade Dublin good-by and started north. The first place of importance we came to was Belfast. In this city and the villages round about much excellent linen is made, because this part of the country is well adapted to the raising of flax, a little plant from the fibres of which linen is manufactured.

By and by we came to Fan Head, a promontory near Scotland. Here the views were fine, salt water on one side and fresh water in lakes on the other. We noticed that all the cliffs along this coast were composed of enormous stone pillars, some of them black and some a dazzling white.

Giant's Causeway. — At last we reached the Giant's Causeway, where the pillars are most numerous. There are here forty thousand columns standing close together, their tops so even as to form a pavement. This slopes down to the sea and under the water toward Scotland. The columns vary in shape, from three-sided ones to nine-sided, but most of them are six- or seven-sided. One section is called the "Giant's Organ," another "The Stacks."

The Giant's Causeway

You will wish to know why this place is so called. The people say that years ago it was built by Finn MacCoul, an Irish giant. He built it out of politeness to a Scottish giant, whom he wished to come over and fight him "without wetting the soles of his feet."

This story well illustrates the vivid imagination and extreme politeness of the Irish people, who are by nature kind-hearted and impulsive. The love of the members of a family for each other is strong. They are very sociable and neighborly. They are fond of children and pets. They have also a very strong affection for their native country.

The Irish people may well be proud of their statesmen and generals. There have been some delightful poets among them, such as Moore and Goldsmith. These people are especially noted for their wit. Most of them live in the country, as there are few cities in Ireland except on the coast.

48. ENGLAND AND HER PEOPLE

Central England. — We spent several weeks in a carriage drive through the central part of England. We left London about the first of July. The heat then was not oppressive, as it is in the United States; the temperature was moderate, the sky was a soft blue, and the air balmy and just right for outdoor life. As we passed through town after town it seemed more and more as if we were in some public garden, for on every hand we saw the beauty and fertility of nature, as if man and nature were working together in harmony.

In some towns we passed through lanes hidden between green banks, past quiet hamlets with their thatched roofs and windows gay with bright flowers, under arches of elms and oaks. We saw boys playing in the shadows of these trees, and we frequently came upon men haying.

Skylark. — One day we heard the most joyful sound from a bird warbler that had ever greeted our ears. It seemed to drop from the sky over our heads. After searching we discovered a tiny point of black in the wide expanse of heaven. The music floated out from that point for a short time, then suddenly the spot began to fall swiftly through the air as if it would fall into the carriage; but just before it reached us, wings were outspread and the bird shot ahead a little distance over the ground and was gone. We had heard and seen the celebrated English skylark. Several times afterward we saw these birds suddenly rise from the hay-fields and steadily mount till they seemed to vanish in the upper air, leaving no trace except their happy song.

This experience helped us to realize how faithfully the poet Shelley described this bird in his wonderful poem.

Stately Homes. — As we journeyed northward, we saw constant evidence of the Englishman's love for his home. His idea of a home is first, privacy. A house without a good strong fence around it, so common in America, would not be a home to him. In the next place, he likes plenty of land; the more the better. If he is rich, he demands a big house. The nobility live on great estates, which have been completed by many generations of ancestors.

Mrs. Hemans sings, "The stately homes of England, how beautiful they stand." In several places we drove through the grounds of a nobleman's estate. After leaving the public road, we usually drove several miles through a most charming landscape and long avenues of trees before reaching the mansion. As we passed, we saw servants in livery helping guests to depart.

Haddon Hall: the Terrace

We learned that most of these mansions have several drawing-rooms, a complete set of rooms for the mistress, another set for the master, besides the children's rooms. There is a large library, a music room, a smoking room, a breakfast room, a dining room, a great hall, a grand staircase, and a great number of bedrooms. All these rooms are furnished in the most lavish manner. Almost every county in England has one or more of these stately homes.

In the central part of England we visited a very old home called Haddon Hall, standing amid beautiful surroundings on the banks of the river Wye. These old buildings have beautiful terraces and are erected in the form of quadrangles, on four sides of two great courts. This arrangement gives them ample space and light without their being very high.

A few miles from Haddon Hall we found Chatsworth, a modern estate, the home of the Duke of Devonshire. Here we found the great park divided into two parts by the beautiful river Derwent. The gardens and grounds were marvels of beauty and elegance. One part of the grounds is called the French gardens. It contains, besides the flowers and shrubs, a perfect forest of pillars surmounted by busts of great men. Opposite this is the orangery, and next the sculpture gallery. The beauty of the place charms the visitor.

In the absence of the owner we, and other strangers, were shown through the palace. As we came away we felt that this was a home large enough for any man, a home the result of all that money, good taste, and time could possibly accomplish; and yet this duke has another stately mansion and grounds in the north of England, a castle in Ireland, a summer resort in the south of England, and a winter home in London.

In the western part of England we sailed one day in a small steamer up a lovely river called the Dee. The little steamer stopped at a fine landing, and as we stepped out we saw many terraces rising one above another, and at the top extensive buildings around a fine court. This was Eaton Hall, belonging to the richest man in England, the Duke of Westminster. We visited it, entering the chapel first.

Interior of Eaton Hall

An English Lane: Thatch-roofed and Ivy-covered Cottages

plough have worn away the roughness of the country, which is not true of America. All the lines in a landscape are rounded and soft; the leaves on the trees and vines are velvety and beautifully green. The stone walls and houses are often completely covered with ivy.

We spent a few weeks in a little village in the southern part of England. Many of the houses were over three hundred years old. They had roofs of tile or thatch, and high stone walls around them. The main street of the village was narrow and irregular, having here and there a narrow sidewalk. A few houses came down to this sidewalk, but most of them had a few yards of lawn in front of them.

In this village, as everywhere in England, some classes of people were considered to be much better than others. The squire and the rector are always quite above the farmer, and the farmer is far above the day-laborer.

The entrance to Eaton Hall was paved with many-colored marbles. The walls were panelled in alabaster, and the corridor was ornamented with busts and portraits. The billiard room, the smoking room, the library, the dining room, and the drawing-room were large, splendidly furnished, and ornamented with costly paintings, each painting having been especially made for the place it occupied.

I could never tell you one-half the handsome things we saw that day, both in the Hall and in the splendid stables near, where many racing horses were seen, and in the fine gardens and hothouses as well.

English Country Life. — Life in the country we found to be especially charming in England. As we rode about, it seemed as if we were constantly going through a fine garden laid out with the best of taste. The English are noted everywhere for their excellent landscape gardening, the result, doubtless, of natural taste and centuries of cultivation. Spade and

A Noonday Rest in the Field

Mowing in England

On riding through the country we frequently saw, from the elevations, fields of varied greens and browns. They were divided by no ugly fences or rough stone walls, but by attractive hedges. In some of them the farmers were mowing or getting in the hay. The roads were almost perfect, and the roadsides as carefully cultivated as any part of the farm.

A bank two or more feet high often skirted the highways. Hedges crowned the banks, sometimes shutting out the view just as they do on prairie farms in the western part of the United States.

Many of the farm-houses, we noticed, were large, solid, two-story buildings of stone or brick, covered with ivy. There was generally a fine garden of flowers in front. The hay and grain were usually put into stacks, or "ricks," as the English call them, instead of into barns. We were surprised to notice that women do much of the light work in the fields, such as weeding, tying hops, raking hay, etc.

An English Girl

English Children. — Everywhere we went, we watched the English children. They are generally well and strong. They have clear, rosy complexions, and red cheeks, as they are out of doors much of the time. Owing to the long twilight and the mild climate, they frequently play out of doors till ten o'clock at night. They are often dressed for this play in heavy corduroy clothes and thick, stubby shoes, the soles of which are well studded with broad-headed nails. They like to play in the new-mown hay, throwing it and tumbling in it, till their cheeks are red with the exercise.

An English Schoolboy

Saturday afternoons you can often see a group of boys playing scrub cricket, imitating their elders; also a game in which kicking the ball anywhere in any way is the principal thing to do. Country boys find great fun in trying to go through a horse's collar. The boy first puts a foot through, then his head, and then tries to wriggle his body through. Girls and boys play hop-scotch in the street, just as they do in America.

The English boy, we observed, likes to hunt for birds' nests. In the spring he often eats the eggs, but always leaves one in the nest. They never rob the nests of robins and wrens because —

"Robins and wrens
Be God's friends."

In London we often saw children very poor in appearance, without hats upon their heads, dancing in the rain upon the sidewalk, laughing and chatting as if truly happy.

The children of the wealthy have everything which heart can desire. They usually have ponies of their own and are taught to ride very early. I have seen a girl only eight years old ride her pony very fast without falling off.

English Schools. — Half the children in England now go to government schools, but these schools are inferior to American public schools in almost every particular.

The other half of the children attend church schools, with no better accommodations. The great public schools, like Eton and Rugby, are splendid preparatory schools, in most respects far superior to our academies. In these English schools the younger boys must obey the larger and older ones and wait upon them, doing their errands and work. This is called "fagging." Thackeray says: "When he shouted out, 'Under boy,' we small ones trembled and came to him. I recollect he once called me from a hundred yards off, and I came up in a tremor. He pointed to the ground. 'Pick up my hockey-stick!' He was too great, wise, and good to stoop to pick it up himself."

The big boy makes the little one black his boots, bring his water, sweep out his room, etc. If the little fellow expresses dislike, he gets his ears boxed; if he refuses, he is flogged by the bully. All this bullying is allowed by those in authority as "good for the boys."

SUMMARY

England has a moderate temperature, especially in the summer.

The skylark is a wonderful singer.

There are many grand estates in England. Some of the stately homes are palaces.

The English are noted for their landscape gardening.

English villages are very attractive.

English children like to play out of doors. The wealthy children go to splendid private schools.

English people like manly sports; they enjoy country life. They have great respect for rank and royalty.

49. LONDON, THE LARGEST CITY IN THE WORLD

Fortunately we reached London in broad daylight, and rode for miles and miles on an elevated viaduct, looking down upon acres and acres of houses. It seemed as if we never should reach the terminal station. Nothing gave me a better idea of the vastness of this city, not even the facts that fifteen regiments of police guard its streets, and that these streets, placed end to end, would reach from London to Boston.

The Thames. — We soon learned that the Thames divides the city into two parts, but the part south of the river is the least interesting. There we saw nothing but manufactories and acres of homely brick houses, the dwellings of the working people. The part north of the river is the part we read and hear most about.

Parliament Houses; View of the Thames and Westminster Bridge

Westminster Abbey. — We studied it in three aspects. First, we visited some of the *historical* places. We walked from our hotel to Westminster Abbey, a sacred spot because of its long history as a place of worship, and as the crowning-place of so many English monarchs. We entered, and found it shaped within like most Gothic cathedrals, and filled with tombs and memorials of celebrated men. In the "Poet's Corner" are many marble tablets and busts. Even our Longfellow is here remembered.

Parliament Houses. — A few steps from the Abbey brought us in view of the great Parliament Houses which cover acres of land and have a lofty, handsome tower at each end. One tower has a wonderful clock in it; the other is much higher, and is used as an entrance way by the sovereign when he goes to open Parliament. The best view of these towers, and the buildings between, is from the Westminster Bridge over the Thames.

Trafalgar Square. — We next went to Trafalgar Square to see the Nelson monument and to visit the National Gallery, in which is a wonderful collection of paintings. You will read about these three noted places as you grow older, and the more you know of England's history, the better you will enjoy seeing them and looking at pictures of them.

Busy London. — The next day we rode in a hansom through the very crowded streets of the *business section* of the city. Most of the people here still ride in omni-

buses, but subways are becoming popular. Electric *trams*, or cars, are found only on the south side. As we slowly rode along, we noticed that the streets were narrow, the buildings mostly of brick and stone, dark hued, and very close together. No "sky-scrapers" were seen.

The Strand. — The "Strand" is one of the most crowded business streets, and here we passed by newspaper offices, theatres, law courts, and many stores, or "shops," as the English prefer to call them.

On this ride we saw people of almost every race and nationality, for this great city is the home of people from everywhere on the globe. Some of the people were well dressed, and looked happy and prosperous; but many of them bore on their faces evidences of sorrow and poverty, for London has a vast number of the wretchedly poor within its gates. We noticed that men in different kinds of business wore something to indicate their position. The 'bus drivers had on white hats; the hansom cab drivers wore artificial flowers; young lawyers wore their gowns and wigs, and housemaids their caps, on the street. None seemed ashamed of his work.

Cheapside, London

An extension of the Strand is called Fleet Street, for the English prefer short to long streets. This is another crowded business street, full, as all London is on the north side, of places of historical interest. Many of England's famous men, like Dr. Johnson, Charles Lamb, Daniel Defoe, and Isaak Walton, are in some way associated with this street and the Strand.

St. Paul's. — After passing Ludgate Circus, a little opening where streets cross, we came to St. Paul's Cathedral, a large and very noble edifice, in the midst of the city's toil and noise. Within are buried several of England's greatest heroes. Wren, the builder, was thirty-five years in finishing this cathedral. The dome, on account of its shape and size, reminded us of our Capitol at Washington.

Cheapside is a very busy street near by, lined with handsome jewelry and dry goods shops.

Not far away from St. Paul's, we rode into another place full of bustle and life, the square in front of the Bank of England. Here thousands of omnibuses arrive every day, turn about, and immediately go back over their various routes.

The Lord Mayor lives in one of the large mansions facing this square. His house has six pillars in front, and servants in livery at the door.

By far the largest building facing the square is the great Bank of England, known to the whole world. This building is made of granite, with very thick walls, and not a window to be seen. The rooms are lighted by open courts within and skylights. An immense amount of money is kept here in gold and silver coins. We saw the clerks shovel it up and weigh it, instead of counting it, coin by coin, as we generally do.

West End. — After our trip through busy London, we devoted time to the *homes* of the people. First, we spent several days in the West End of London. "West End" sometimes means a large part of the town west of the old gate called Temple Bar, and sometimes it means only the part still farther west and north, where are fine parks and costly houses.

East End. — From the West End, we turned our attention to the East End, where the common people live and work. What a contrast between these two parts of London, in the appearance of the streets, in the want of squares and open places, and in the looks of the houses!

Our drive took us across London Bridge. Here was built one of the first bridges across the Thames River. This bridge is crowded with carriages, carts, and people all day long. Over one hundred and fifty thousand people cross it every twenty-four hours.

We went back by the Tower Bridge, just below London Bridge. It is the latest and newest of the bridges across the river, and the one nearest the mouth. The part of the river between these bridges is called "The Pool," and is full of shipping. The Tower Bridge has high towers at each end, in which are "lifts," or elevators, and an elevated footway for passengers to use when the draw is open for ships to pass through.

London Bridge

The river on both sides of this bridge was full of traffic. Large and small ships were coming and going all the time, to and from the wharves, which line the banks for many miles. These ships come from all parts of the world, bringing food for the hungry and raw material to be made into cloth. Our own country sends this city every day many barrels of flour and apples, tons of beef, bacon, and lard. Ships go down the stream loaded with manufactured merchandise for abroad.

The Tower Bridge

The East End of London is a hive of working bees, with some lazy, half-starved, skulking drones, who will beg and steal, and who hate honest work. There are said to be two million working people here. The men and women and boys and girls work in factories, in shops, and at home; in docks, on wharves, and in warehouses. The girls make things, sew things, sell things. In the big factories they make crackers, matches, boxes, candy, and jam; they wash bottles and assort papers. The children attend the board or public schools from three years of age till they are fourteen. These schools have educated the children in habits of cleanliness, obedience, and good manners.

While some of the streets are wide and handsome, like "Whitechapel Road" and "Mile End Road," most of them are narrow and unattractive, but clean. Every house has a dingy, gray-brick front, a door, a window, an upper window, eaves, and chimney-pots. The sidewalks are roughly paved, and the street between is filled in with cobblestones. There are in this East End five hundred miles of streets which look just alike. The streets are full of life and are often used as stores, where all kinds of goods for sale are spread on the sidewalk. The people largely live upon the street and may easily be seen and studied.

Some streets are given up to making ready-made garments, others to making watches, furniture, shoes, or to weaving silk. People who work on the docks live near the river. The English workman usually lives near his work. The dwellers here are well dressed, for working people.

LANGUAGE LESSON

Write an account of a trip you are supposed to have taken through the streets of London.

50. GERMANY AND THE GERMANS

Carl and his sister Hilda live in a flat in one of the towns of Germany. Nearly all of their friends live in flats, too, because it costs so much to rent a whole house in that country. Some of the poorer people have only two or three rooms in which to live with a large family. The rooms have stained or painted floors with a rug in the middle. Heavy carpets are not used. There is little furniture to be seen, but what there is, is good, and lasts a long time.

Stoves. — Winter in Germany is very cold and big porcelain stoves are used to warm the houses. Children love their stoves as good friends, as indeed they are. The stoves are square piles of brick covered with pretty tiles on the outside, and reach from floor to ceiling.

A Milk-cart drawn by Dogs

Work. — Poor children often have no stove to warm them. They live with their parents, brothers, and sisters in one room instead of in several. Their lives are then very hard, especially in the long winter months. Mothers must go with the fathers to work in the factory, for wages in Germany are small. Even the little girls of the working-man's family must often be taken from school at thirteen or fourteen to work and help support the family. Women are sometimes seen taking milk-carts drawn by dogs through the streets of the town, and on the farms they do much hard work that is done by men in most countries.

Meals. — Carl and Hilda have five meals a day. That is the way in Germany. The first meal comes so early that it is often necessary to have a light by which to eat it. At that time their good mother gives them coffee and sometimes rolls. At eight o'clock they have another breakfast, often of sausages or eggs. At twelve there is a dinner of soup and vegetables. There is seldom any dessert. At four in the afternoon everybody stops long enough to rest and take a small luncheon. Hilda and her brother have coffee and cake then; but poorer children have coffee and bread spread with lard. About eight in the evening the family sit down to supper. The table is spread with cold meats, smoked fish, salads, tea or beer, and dark, heavy rye bread.

If there is a guest it is the custom to wish that he may have plenty, and then the dishes are handed around the table — except the meat, which, if there is any, is cut at a side table. This is the happiest hour of the day, when work is done and all are free from care. When it is over, all shake hands, saying to each other — "Blessings on the meal!"

Housekeeping. — The German mother is proud of her housekeeping, but she does little cooking. From the baker she gets cake and a huge rye loaf, almost as big as the boy she sends after it. Of meat she uses little, but she buys fruit to eat raw and to preserve, cheese, sauer-kraut, sausage, and smoked fish. These things form the principal food of the people.

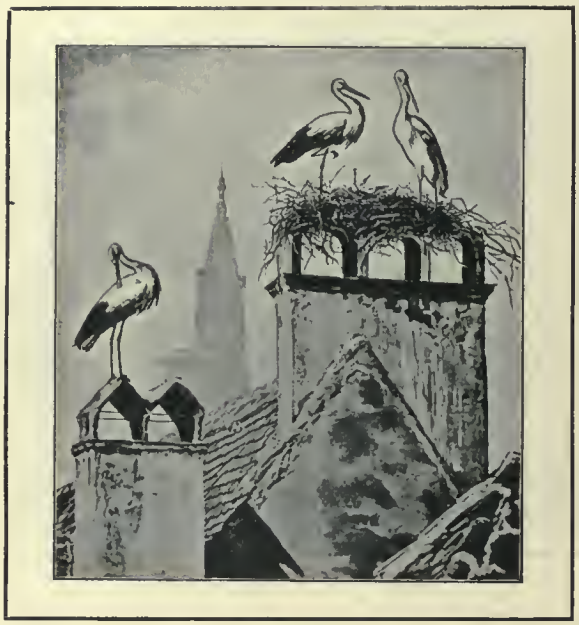
Beds. — Bedtime comes soon after supper; for all rise early and are busy all day. I am sure you would not like to sleep in Hilda's bed. It is very different from yours. Like most German beds it is only wide enough for one person. All the clothes are too small for it, and it cannot be "tucked in" as you would like it. On top, instead of a counterpane, there is a fat feather-bed with a fancy cover, under which, on cool nights, Hilda sleeps. For foreigners the pillows are never the right size and are either too hard or too soft; but Hilda likes her bed better than any other.

Village Life. — Carl and his sister often visit their aunt in a small village not far from their own. There they see houses covered with quaint carved patterns, the upper stories jutting out over the lower. Canals bring the water of the river through the village behind every large street. Nearly all houses have a wooden platform running out behind them into the canal, where washing is done and where the family take supper on warm evenings.

They do not wish to seem to be richer than they are, and do not care who sees them at their simple meal. Around these platforms green vines are planted, and on the shore large elm and lime trees grow. On hot evenings

the people sit out of doors, the men smoking, with bright red handkerchiefs around their necks, and the women chatting while their busy knitting-needles keep up a constant "click, click." There is a buzz of happy voices, and the air is sweet with the perfume of the lime blossoms.

Storks. — The children often go to the old frog pond to see the storks. These tall, white birds walk slowly around the pond on their long, slim legs, now and then curving their thin necks and reaching into the water for food. They are said to arrive in the German towns on a certain day in spring and to leave as regularly in the fall. Often they select a chimney of a house on which to build a nest, and it is considered good luck to have one's chimney so chosen. When the time comes for the birds to go, they fly slowly south to Egypt, leaving a few weaklings behind as unfit for the journey. The people love the stork and are glad to have it return to them each year.



Storks on Chimney Tops

This is a fine old town which the children visit, and some of the peasants still wear the odd dress of the olden time. One seldom sees the old style of dress now in a trip through the country. It has been dropped for the late fashions in all but the sleepiest country villages.

Soldiers. — Nowhere in Germany, not even in the quietest towns, is one out of sight and hearing of brass bands and marching soldiers. Every morning Carl and Hilda are waked up by the sound of the bugle calling the soldiers to drill. They often see mock battles, and when at home they sometimes visit the fortress which guards the border near the village. Germany is surrounded by other countries of Europe that have not always been friendly, so she keeps soldiers and forts ready to protect her from her enemies. There are so many men wearing uniforms in the streets, so much warlike music, so much marching and drilling, that the country seems like a big military camp.

Every boy expects sometime to become a soldier. This is what Carl looks forward to. When he was born, his name, address, and birthday were put down carefully by an officer of the government, and twenty years afterward, if he lives, he will see his name on the bill-posting tower in the town, among those old enough to become soldiers. He will then be examined, and if he is not large or strong enough, he must try again the next year. Should it happen that he were not well enough, or wished to become a minister, or if he should have a family to work for, he would be excused from service. But if he is to become a soldier, he must go into training for seven years. After that Carl may go to work, but he must be ready to go back at any moment till he is forty-five, and even after that, if there is need of him in time of war. Young men who do not become soldiers have to serve in the army for three years and become well hardened to outdoor life.

Strict Laws. — The Germans have strict laws, and policemen are watchful. The people seem to like to be kept in order. They are made to keep the cars and boats, streets and parks, very clean, and to do as their laws direct. Carl will be arrested and obliged to pay a fine if he takes the wrong side on a crowded street, or steps on the grass in the park. A woman who sets a flower-pot on her window-sill will be fined, and also a person who forgets to tell the police that a friend is visiting him. The police wish to know everything they can about strangers in the towns, to be sure that they are not dangerous persons.

Christmas. — The happiest time for Carl and his sister, and for all the German people, is Christmas. This is their great holiday, and no one thinks of work for three days. On Christmas eve each family gathers about its own tree, which is trimmed with tinsel and lighted candles, and generous presents are heaped up on the table under the tree for all members of the household. Germany is the home of the Christmas tree and Kris Kringle, but the celebration is much simpler than ours at that time, though no less joyful, and everybody has part in it. The jails, workhouses, and soldiers' barracks have their trees, and many are seen in the cemeteries, stuck in the snow.

Schools. — Until they are fourteen, all German children must go to school. Then many of them go to work to help support the family. The schools are so good that

people come from other lands to visit them, so that they may learn to make their own schools better. Carl and Hilda, who do not expect to leave school at fourteen, will be well educated. In the lower schools they learn all the common branches of study, besides gymnastics, drill, singing, and sewing. Then there are "scholars' excursions" into the woods and fields, where natural science is studied. Baths are provided in some schools, and in some, luncheons.

In the higher schools this little brother and sister can learn a trade, or have a business training. They can go to the university and become teachers, lawyers, doctors, or ministers; though women generally become teachers at the present time. In the girls' schools, housekeeping is taught to young women, so that they may make good wives and mothers.

Unter den Linden

Berlin. — There are great cities in Germany which Carl hopes to visit sometime in his life. He wishes most to see Berlin, the capital of his country, where the laws are made, where there are many foreigners to be seen, and where the German emperor lives with his court. This city is in northern Germany, in the large province of Prussia. The country about it is not at all beautiful. It is a flat, sandy plain with few trees, — dusty, hot, and uncomfortable on a broiling summer day.

The streets of Berlin are broad. Its public buildings, churches, and palaces are large; but many of them are very plain-looking. There are many elegant houses in the city and many green spaces which make it pleasant. The emperor has put some good statues of the heroes of Germany in the principal streets and has done much more than this to make Berlin an attractive city.

Street Scenes. — Carl would enjoy watching the soldiers; for there are over fifty thousand of them in Berlin, and almost every other man you meet is an army officer in full uniform. Companies of mounted and foot soldiers often pass up and down the streets, and military bands are always playing. Berlin is a great place for manufactories, too — the greatest in the country for electric plants, guns, and machinery of all sorts.

The street of this famous city of which we most often hear and read is called "Unter den Linden," which means "under the lime trees." There are many of these trees on the street. One expects them to be large and shady, and is much surprised to find them small and miserable. "Unter den Linden" is a mile long and very wide and straight. In the centre is a fine walk for foot passengers. On each side of this is a carriage drive and a path for horseback riders. Up and down these walks and ways passes an endless procession of people, horses, and carriages. Elegant shops and palaces and large hotels line both sides of the street.

A magnificent gateway with five passages through it stands at the southern end of the avenue. It is called the Brandenburg gate. All royal visitors enter Berlin by this gate.

Fine Buildings. — It is the boast of Berlin that no other single street in the world can display so many noted buildings as "Unter den Linden." It is well provided with fine statues of German heroes. The most famous one is that of Frederick the Great mounted on his horse.

Berlin is young, compared with other large cities of Europe. No other capital of Europe has grown faster than Berlin, however, and it is a city of the first importance in manufactures and commerce.

LANGUAGE LESSON

Make a summary of this lesson.

51. BEAUTIFUL PARIS AND THE FRENCH PEOPLE

France stands third among the six great countries of Europe. There was a time when she led the list, but now both England and Germany stand ahead of her in importance.

Paris. — You will expect me to tell you of the great cities of France. I did not find many. The capital is so important that all the other cities seem small and uninteresting. Paris is the Frenchmen's pride. They have a saying which shows this — "Paris is France." Many consider it the finest of all cities, because it is so beautiful. It is very old, but it still sets fashions for the world in dress, art, and good manners. It also gives us many of the most learned men of the day. It is now the largest city on the continent of Europe and the third in size in the world.

In shape it is like a wheel, — a little island in the Seine River, the oldest part of the city, forming the hub; the walls are the tire, and the radiating avenues, the spokes. Once these were crowded, unsightly parts, with narrow streets and miserable houses and no parks. Now Paris has no slums. The city was made over by Emperor Napoleon III. He had two great lines of boulevards made, one within the other, parallel to the tire of the wheel; many trees were uprooted, churches and building after building were destroyed, to make room for these streets. He saved the historic buildings, which he improved by clearing spaces around them. He then made fine avenues leading up to them and showing their beauties.

Place de la Concorde

The Eiffel Tower is the highest structure in the world. It was built for a great French exposition, but it is still standing, and in the summer-time it is visited by hundreds of people. In it are restaurants, shops, and a theatre, and it will hold ten thousand people at one time. There are two galleries, to which elevators constantly run. I went to the top, where I saw a magnificent view of the city. It is a city of trees. I was told that they were counted some years ago, and it was found that there were ninety thousand. The green foliage looks well with the gray walls of the town. There are many parks, one for nearly every section, where the people enjoy themselves; for they are fond of outdoor life. From this high point I could see the Seine

INTERESTING FACTS ABOUT EUROPE

Europe is one of the smallest of the grand divisions in area, but it contains many people of great wealth and refinement.

The British Isles are near the centre of the great land masses of the world. This is one reason why Great Britain leads in commerce.

The Germans are fast growing in industry and wealth.

France produces great quantities of wine, silk, and works of art.

In many parts of Europe the women work in the fields.

Belgium is a busy workshop.

Holland has many canals and windmills.

Hans Christian Andersen lived in Denmark.

Norway has many picturesque fiords, or narrow arms of the sea, running through breaks in the mountains near the ocean.

Sweden has many small farms, and its people are very thrifty.

The Rhine is noted for its picturesque scenery, and is visited by tourists more than any other river in Europe.

Ring Street, in Vienna, is said to be one of the finest in the world.

Russia is a country of many villages and few large cities.

MAP QUESTIONS ON EUROPE

1. In what direction is Europe from the United States? Point toward it. (See map of the Hemispheres.)

2. How would you go there from your home?

3. How has the shape of the coast helped the people of Europe in business?

4. What country in Europe looks on the map like a boot?

5. In what direction do many of the rivers of Europe flow?

6. Name three large rivers and locate them.

7. What rivers are often mentioned in the newspapers?

8. Name and locate four mountain ranges.

9. Do any of these mountains keep off the cold north wind?

10. What countries do these mountains thus shelter?

11. Name in order several countries in Europe.

12. Which one is the largest?

13. In what countries do you find London, Paris, Berlin, and Constantinople?

River curving through the city from east to west, crossed by many bridges — almost as many bridges as there were streets running to the river.

Streets. — To see the city, one should drive through it. What clean streets it has! They are all well paved. Early in the morning they are washed, and sweepers brush up the rubbish through the day, and throw it into the tall boxes placed for that purpose on the edge of the walks. There are various booths on the pavements. Those where newspapers are sold are called "kiosks." When lighted at night, they look like large Japanese lanterns set down on the walks, for they have panes of colored glass and are covered with advertisements. Women usually have charge of them. There are also stands where lemonade and soda are sold.

When my driver came to the fine open square called the Place de la Concorde, I knew I had reached the beginning of the grandest of the many avenues of Paris. It has a long name — Avenue des Champs Elysées. It is a park as well as an avenue, being very wide, with several rows of trees, between which are driveways, footpaths, and paths for horseback riders. For two cents one can hire a little green chair and sit under the trees to watch the passing throngs. A stream of vehicles passes, three rows going up and three down the driveway at certain hours of the day. I saw there omnibuses with people leaning from the top, and market wagons full of vegetables, as well as elegant four-in-hands of rich Americans and stylish turnouts of Paris and foreign cities. I saw, too, gay wedding parties in holiday dress. As I passed along, I noticed many shows in the avenue — dancing girls, performing dogs and birds, acrobats and singers. They say the avenue is lovely in the early morning, when the trees are full of birds and dripping with dew. On sunny days, like all the open spots in Paris, it is full of nurses, children, and strollers. In the evening it is gay with visitors going to the shows and the open-air concerts.

French Peasants at Work in the Fields

The Park. — At last we reached the great arch at the end of this avenue, where twelve streets centre. Driving off to the left, we were soon in the large park or wood just outside of the city walls, called the Bois de Boulogne. It was between the hours of five and six, and all the fashionable people of the city were out driving. Such crowds of elegant carriages as thronged the roadways and lake shores! You will be sure to meet wedding parties on the way. After driving around the lakes and stopping at the "cascade," they return to the Champs Elysées, and drive thence into the boulevards, where they go to a restaurant for a feast. While this is going on, every guest is obliged to do something to make the feast lively. Even the bride herself must at least sing a song.

Boulevards. — The boulevards begin at the church of the Madeleine, near the Place de la Concorde. This is a famous church, built like a Greek temple. Twice a week the stranger is surprised to find the space about it turned into a flower market, the pavement covered with ferns and white paper cornucopias filled with roses. During the late afternoon and evening the boulevards are very gay. Before the cafés, chairs and tables are placed on the pavement. There the Parisian comes, before going home, to rest and read his paper and to watch the varied street scene. He uses this place as an office, and meets his friends to talk over matters of business, books, or art, rather than be disturbed at home. He even has his letters addressed to his café.

Outdoor Life. — One never tires of watching the busy life of the streets. They are full of cabs and carriages, and the cafés are glittering with electric light and mirrors. There come the street pedlers with flowers, fruit, jumping-jacks, pipes, and apples on sticks, and they find a good market. Sometimes a showman comes with trained birds and dogs. The scavenger is here, too, and watches the crowd for cigar ends that fall. These he gathers up with a hook and carries away to sell. Beggars bring their sad tales, and receive many a *sou* from the good-natured crowd. Now and then I have seen the chickweed man and the bread girl on the street. The bread girl will bring delicious bread to your door when-

ever you wish. For six months of the year the chestnut man is on the streets of Paris. The French are great lovers of chestnuts, which form a national dish. One thousand of these merchants are in the city.

The most important building in Paris is the Louvre. It stands next to the Garden of the Tuileries. First it was a palace, and now it is a museum of art. It is very important because of its fine architecture and the rare sculpture and other art treasures it contains. The gem of the whole collection is the beautiful marble Venus of Milo, which every one visiting Paris goes to see.

French People. — The peasants of France are a thrifty, industrious people. They own their farms and houses, and men and women work side by side in the field, the men in blue blouses and the women wearing white caps and kerchiefs. Work is their chief pleasure, and they cannot bear to lose a day. On the plains they raise grain, and near the cities, vegetables, fruit, and flowers, which they take to the markets.

A Glacier: a Great River of Ice

Economy. — The people go into the forests and pick up dead wood, which they carry home on their backs. Some of them get all their winter fuel in this way. They are very saving and rarely spend any money, except on a *fête* day.

Work and Play. — Little Jean, whose parents are French peasants, went at the age of seven to be a servant. Many boys and girls from seven to ten years old do this. They wait on the table, answer the bell, and even help with the cleaning. When older, the peasants come to despise this work and will not go out to service. Jean, as well as his father, mother, and sisters, and all French people, loved flowers, music, and dancing. He was glad to go, when he could, to the good public school provided for him. The museum in the village was open on Sundays and feast-days, and there he could examine the curious and beautiful specimens of art.

Home Life. — French mothers make pleasant homes. They give up all their time to it. They will sacrifice anything to the good of their children. All the boys, when they become citizens, must serve three years in the army unless they are to become clergymen or teachers. Little girls are always with their mothers. They are fond of all household duties. As young ladies they always make their own beds and dust their rooms. They know how to sew, clean silver, and take care of china and glass.

LANGUAGE LESSON

Write a letter from Paris to your teacher.

52. SWITZERLAND, THE LAND OF HIGH MOUNTAINS

No matter how far we travel, we shall not find so small a country with so much to show us as Switzerland, — the smallest of all the European countries. Tourists cross oceans to see its wonderful scenery.

Mountains. — Many of them go to the southwest to see the Alps, the range of mountains in which is Mont Blanc. This is the highest mountain in Europe. All the highest peaks of this range are snow-capped through the entire year, and make a picture never to be forgotten, sparkling in bright sunshine or on moonlight nights.

Walking at the foot of the chain, you can see many glaciers, some far up near the summits and others down on the mountain sides almost at the road. They are great rivers of ice instead of water. They always have at least two branches, and they wind slowly down the mountain until the warm sun melts them; then they run away over the land in a stream of leaping, sparkling water. These glacier streams are sometimes the beginnings of big rivers.

Glaciers. — Little Anton Rey lives near Zermatt, which is farther east in southern Switzerland. His father is a guide, and when he takes a party up the mountains, Anton goes with him to take care of the donkeys. He knows some of the glaciers near his home as well as you know the park near yours. Perhaps he does not know that the glaciers move, for they go slowly. He knows that, in

summer, the wild flowers grow in the midst of the snow, wherever they can find a bit of earth to cling to. Many a bunch of the rare, starry *edelweiss* he has found on the slopes near the glaciers, and carried to his mother and sisters in the valley, or sold to visitors in the town. As he walks on the ice he finds cracks so deep that they seem to have no end. He drops a stone in and listens as it clinks against the blue ice walls until its sound is lost. Anton can jump over a narrow crack; but some of the cracks are so wide that men have fallen into them and have never been found.

The Matterhorn

When his father takes a long journey among the glaciers, Anton cannot go. Only strong men and women can endure such trips. Many brave travellers and guides, too, have lost their lives in the fierce storms of wind and snow that come up suddenly among the mountains. There is a famous mountain in sight from Anton's home — the Matterhorn, a great horn of black rock, towering above all the other peaks. When he looks toward it at night, its snowy sides and sharp, black summit shining in the bright moonlight, it is awful to see! But the boy loves the mountain and hopes some day to climb it.

How would you like to go tobogganing on a glacier? It is dangerous sport. Men drag their sleds up four thousand feet sometimes — higher than Mount Monadnock in southern New Hampshire — for the fun of riding down. They do not take the climb all at once. They go first to a hut on the mountain, where they sleep, carrying big bags of provisions with them. About three o'clock the next morning they begin the walk toward the glacier, driving stakes as they go. They start early to see the glorious sunrise, and the stakes are to help them find their way back.

Can you think of anything more splendid than all the peaks as the sun rises and seems to set them on fire, their snow-fields ruddy and sparkling in the light? At last the sleds start, moving slowly at first, but soon rushing along, shooting over great cracks, and filling noses, eyes, and ears with flying snow. Finally no one can guide them, and they whiz along at an awful speed till they stop on a level plain of the glacier. What a short ride! only five minutes; but it took an hour to climb to the starting-point.

A Chalet, or Swiss House

A Swiss Maiden

Swiss Children. — A little Swiss child does not live as you do. If his parents are wealthy farmers, his home will be a cottage called a *chalet*, with overhanging roof and prettily carved front. On the ground floor, where your mother would have her best rooms, the farmer keeps his cattle. On the middle floor the family lives, and the third, up under the roof, is the hay-loft. It is barn and house combined. For breakfast there is bread and honey; for dinner, soup, potatoes, and now and then a little bacon. For dessert there is pudding. In

the summer there are many kinds of vegetables, but rarely is there fresh meat, except for Sunday dinner. A peasant's food is much more scanty and not so good.

A Swiss child goes to school from October till Easter. The rest of the year he is out of doors learning to do farm work. At school he learns much; for the schools are good and he works hard, and by and by he may go to the university, which is free to all.

Swiss Farming. — One bright spring day the little Swiss boy is up very early. The cows are leaving the valley for the mountain pastures, to feed through the summer months. The village is astir long before daybreak. All are in holiday dress, and the cows are decked with wreaths and bright ribbons. Girls in their gayest dresses lead the long procession. There is a band of music, and the cows seem to dance along the road to the merry airs. When the procession reaches the hills, all the people except the herdsmen turn back. The latter go to the *chalets* above the pine forests to live, while the cows wander about on the mountains, eating the sweet grass.

Lauterbrunnen, a Swiss Village, and its Waterfall: the Snow-capped Jungfrau in the Distance

The Swiss are a very industrious people and the herdsman is not idle all summer; he is making good Swiss cheeses from the cream and milk, and sending them down the mountain on the backs of horses, which carry an odd-looking machine to hold them.

Some morning early, when the grapes are nearly ripe, the tinkling of cow-bells will tell the village that the cattle are coming home. For days they will come in from all the mountains around and feed in the valley pastures until winter shuts them in the barns.

If you were Peter, the farmer's little boy, you would learn to make hay and, after the harvests in the valley, you would go to gather the coarse grass that ripens late on the mountains. You would help put the hay in little huts. There it would be left till the deep snow fell. Then the men would go up through the drifts to dig out the huts, tie the hay in bundles, pile it on sleds, and ride down on it to the farms below. This is a dangerous thing to do; but only so can they get this good hay for the cattle.

When not in school during the winter, Peter learns wood-carving, and his sister learns to make lace. Many girls may be seen in summer along the Swiss roads, sitting with their mothers at the cottage doors, making lace on cushions. The lace and the carving are sold to buy Peter a good bow and arrow, and Frieda a new string of bright beads, and perhaps new clothes, too.

Mountain Life. — Swiss boys and girls are not so merry as those of France. Much of the year they must work beside their parents, who lead such busy lives that they grow quiet and stern. Perhaps the grand mountain scenery sobers them. The great winds that sweep down the valleys are so powerful that they must put heavy stones on their roofs to keep them on, and some day a great avalanche may come and bury the whole village. It is not strange that the Swiss should be sober with such terrible things to fear.

An avalanche is a mass of snow, ice, earth, and stones, that slides down steep mountain sides. It moves with force enough to mow down whole forests and destroy villages in its way. A very little thing sometimes is sufficient to start one — the crack of a driver's whip, a hunter's call, the light step of the mountain goat up among the crags near the mountain tops.

One of the most beautiful and majestic of Swiss peaks is called the Jungfrau, which means *maiden*. It is covered with snow, even in summer-time, and stands out grandly among the green sister peaks.

LANGUAGE LESSON

Write about the life of Anton Rey.

53. SUNNY ITALY

Of all the countries we have thus far visited, the one we shall now talk about is the most fascinating, because it combines its own natural beauty with so much that is pleasant to remember in history.

Italy, in brief, is the home of poets, orators, painters, sculptors, architects, and warriors known and honored the world over.

If you look upon the map of Europe (page 175), you will observe south of Switzerland the country called Italy. It is strangely shaped, and looks on the map like a great boot. A few years ago, I crossed the great mountain wall of the Alps, and descended into this country. How cold, foggy, and bare it seemed, even in summer, upon those Alpine heights; but the low plains of Italy were warm and sunshiny, and were covered with a rich mantle of grass and many fruit trees. Italy was on the south side of the fence. As the sun set that day behind the great mountains, it lighted up lake and villa with soft and brilliant hues, producing a most charming effect.

Lake Maggiore

The Lakes. — We first came to several wonderful lakes, among which we stayed two weeks. These lakes are at the foot of the mighty Alps, and are fed by the melting snows from the mountain sides. Every day we went to row or sail upon their clear, blue waters. In many cases, the mountains rose from the edge of the lake to a great height, as they do around Lake George, in New York State, their sides covered with rich, green foliage. Among the trees along the edge of the lakes we often saw stately white marble palaces, or villas, the homes of wealth and culture. We were especially pleased with Lake Maggiore.

Climate. — Although the Italians are very poor and beggars abound wherever you go, they are a very contented people. One reason for this is the delightful *climate*. The great Alps protect the land from the cold winds of the north, the seas wash its shores on the other sides, and the heat from the desert of Sahara, tempered by its passage across the Mediterranean Sea, makes a semi-tropical climate which is the envy of people in all other countries. January in Italy is like April in New England, and flowers bloom out of doors all through the winter months. Oranges and figs flourish, although the country is so far to the north.

Cities. — From the lakes we went by rail to Milan and Genoa. In the former city, we enjoyed a visit to the great white marble cathedral, which has been building for hundreds of years, and which is not yet finished.

Genoa, the early home of Columbus, still lifts itself in great beauty from the sea, its splendid palaces, churches, and other buildings rising tier above tier on the steep sides of the hills. Most of the people, however, are very poor, just as they were in the days of the great discoverer.

Venice. — From Genoa we took a long ride across the northern plains, where we saw excellent farms, on which were growing crops of wheat, corn, oats, and rice. In the afternoon we reached Venice. The railroad station was in appearance

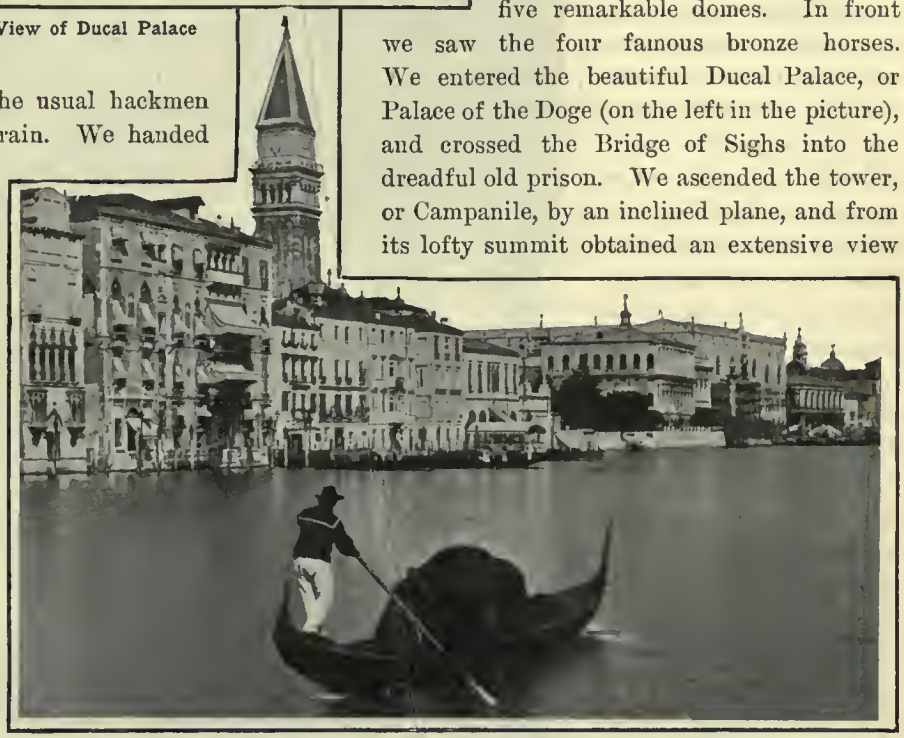
The Great Square of Saint Mark's, with View of Ducal Palace and the Grand Canal

much like other such places, and the usual hackmen seemed to be there waiting for the train. We handed one of them our checks and were ushered by him, not into a cab or carriage, but into a long, black boat called a *gondola*, — for this city is built upon hundreds of islands, and all its wide streets are salt-water canals. In this ride there was no dust, no jolting of springs over the cobblestones, no noise of wheels, no tread of horses' hoofs.

We spent several weeks in this strange city and enjoyed many rides with our gondolier, Dandolo. Sitting in his comfortable, dry, clean boat, we passed many happy hours upon the water, going up and down the Grand Canal, which is lined with old palaces. In the golden days of Venice, these were the houses of Venetian nobles and merchant princes; now they are used for stores and hotels. In the second picture you notice the posts before each house for fastening the boats. In the first picture you look from St. Mark's Square across the mouth of the Grand Canal to a beautiful church upon an island.

Sometimes in the afternoon, as the sun was sinking behind the great Alps, Dandolo would take us far beyond the limits of the city, upon the great lagoons where the water was very shallow, and show us how the fishermen ply their trade, and how mussel-gatherers sleep in their boats tied to poles driven into the yielding mud. In these trips the gondolier would sing Venetian songs in his rich, tenor voice, or tell us how the common people live.

Several days were spent in and about the great square of St. Mark's. Again and again we visited the wonderful church, with its mosaic pictures on the walls of the interior and even on the outside, and its five remarkable domes. In front we saw the four famous bronze horses. We entered the beautiful Ducal Palace, or Palace of the Doge (on the left in the picture), and crossed the Bridge of Sighs into the dreadful old prison. We ascended the tower, or Campanile, by an inclined plane, and from its lofty summit obtained an extensive view of the city and harbor. The tower is shown in the second picture on this page. It fell down in 1902, but is to be rebuilt exactly as it was.



A Gondola on the Grand Canal; also the Famous Campanile which fell down

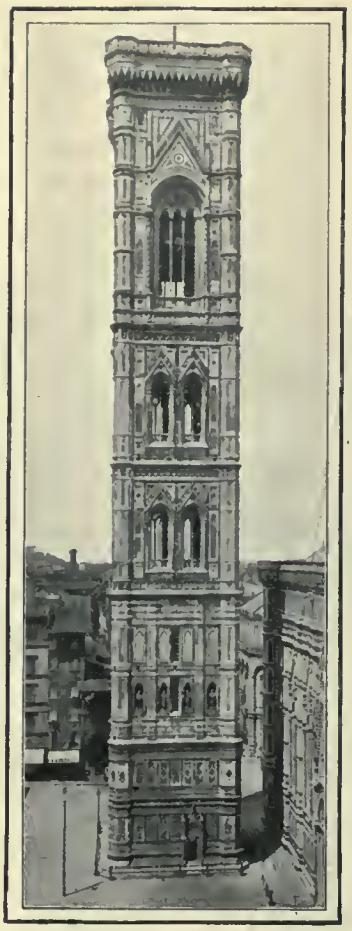
We also fed the sacred doves which are always flying about this square. They are very beautiful and tame, and come in great numbers to be fed by the city officials

every afternoon at two o'clock. No one is allowed to kill them, as they are supposed to protect the city.

In our journey from Venice southward we saw much of the raw silk industry, and passed many orange, olive, grape, and chestnut orchards, in which the peasant folk were busily engaged. As we crossed the Apennines we had many glimpses of fine mountain and valley views.

Florence. — At last Florence was reached, a city which seemed more quiet, restful, and homelike than any other Italian town we had yet visited. Here, as elsewhere, the centre of life is around the cathedral, which is built of white and black marble. The campanile of this church is much more beautiful than was the one mentioned in Venice. The one in Florence was built by Giotto, the celebrated painter. It is very tall and slim, encased with strips and small pieces of different-colored marbles, making a most pleasing mosaic. No wonder that Charles V said, upon seeing it for the first time, "It is so beautiful that it should be preserved in a glass case," — and yet it is three hundred feet high. As you see in the picture, it stands by itself.

We stopped in Florence mainly to see the great works of art, and we were never disappointed. There are two immense art galleries, one on each side of the river Arno. Many happy hours we spent in them.



Giotto Campanile, Florence

Rome. — From Florence we journeyed farther south to Rome. How can I ever tell you about the wonderful sights to be seen in the "Eternal City"! Once the capital of the Roman Empire, now the seat of the Roman Catholic Church, and the capital of United Italy, its history is more wonderful than that of any other place in the world. It takes people longer to see the interesting places, paintings, statuary, and works of art, modern and ancient, in this city, than in any other. There is space here to speak of a few only.

No one mentions Rome without thinking of St. Peter's. Many times we visited St. Peter's, which is the largest church in the world, being twice as large as St. Paul's in London. A whole army can worship within, and hardly be noticed by the visitors. The church stands on the spot where Nero put to death so many Christians in his Circus, more than eighteen hundred years ago.

We never lifted the heavy leather curtain, which serves for a door, without being deeply moved by the beauties and grandeur of the interior. Climbing to the dome for the view, one day, we found up there a busy village of streets, shops, and dwelling-houses, in which lived smiths, carpenters, and painters, who spend their lives in keeping this majestic cathedral in repair.

On the right of St. Peter's is the Vatican, or palace of the Pope. It is more like a town than a home, as it con-

View in Rome, showing Castle of St. Angelo on Left; St. Peter's in the Distance

Italian Boys

tains over ten thousand halls, chapels, and chambers. There are miles of staircases and galleries, and hundreds of servants to take care of them all. We found the art and antique treasures here beyond all comparison. On the left is the Castle of St. Angelo, which has often been besieged.

Our visit taught us that Rome is one vast museum of antique works of art and well-known masterpieces. Michael Angelo, Raphael, Guido, Canova, and many others are now very real to us, for we have seen their great works.

The view of the city from the tower on the old Capitoline Hill is one never to be forgotten. Away to the north is St. Peter's; in other directions are many churches, noted buildings, and the seven hills on which ancient Rome was situated.

Naples. — Finally we reached Naples, the lovely City of the Bay. Our hotel stood upon an elevation, from which we looked down upon acres of houses, painted in pale, flat tones of brown, red, and white. Through the various streets were seen the dark streams of human life struggling along. Beyond the houses and streets appeared the great curve of the bay, dotted here and there with many fishing boats.

We saw many curious sights in Naples. One evening we found a man milking a cow on the street, and we learned that the Italians, in order to prevent cheating, always prefer to see the milk taken directly from the cow before buying. In some stores macaroni is sold to the boys, who eat it on the spot. Italian boys are often seen playing games in the street.

Vesuvius. — One afternoon I visited the celebrated volcano, Vesuvius. A ride of twelve miles, partly along the bay, carried our party to the foot of the cone. From this place the side of the mountain was ascended by an inclined railroad. We were then carried over the soft, volcanic ashes in chairs to the edge of the crater. As darkness came on, the terrible effect was greatly increased. We looked down into the huge caldron of boiling lava, watching the fiery mass as it moved and hissed and roared.

Italian Milkman

LANGUAGE LESSON

Write about the habits of the people and children in Italy.

Write an imaginary letter from any city in Italy.

City and Bay of Naples: Vesuvius in the Distance

54. RUSSIA AND THE RUSSIANS

We will speak now of Russia in Europe. Its emperor, who is called "The Czar of all the Russias," rules over about one-half of Europe; and European Russia is only one-third of his dominions. To be able to speak to all of his subjects, he would need to know at least forty different languages and dialects. Russia in Europe is the most important of all the Russias. Over most of this country it is winter nearly all the year round, and exceedingly cold. This is because it is so far north, and open to the freezing Arctic winds, besides being far inland, away from the warm ocean currents.

The Capital. — St. Petersburg, the capital, is built on several islands in the mouth of the winding river Neva. It is interesting to know that it is as far north as the southern end of Greenland, and this helps one to remember what climate it has. Emperor Peter the Great planned this modern city, and said it should be the capital instead of ancient Moscow. He placed it so it should be like an eye looking into and watching the rest of Europe. Now, where once were desolate marshes, stands the splendid city bearing Peter's name.

The Nevsky Prospect

The houses which line the fine wide streets and avenues are of great size. They are usually built of brick and covered with stucco. Then they are painted white, yellow, pale blue, green, or pink, as the owner may wish. These, with the bright-colored, onion-shaped domes of the odd-looking Russian churches, make a striking picture. Some domes are covered with gold, which glitters splendidly in the sun, and others are blue, with gilt stars.

I am sure you would like to know about the little house on every important street corner. It is a policeman's house. His duty is to keep peace in the city and awaken those who fall asleep in the snow on cold nights. Sometimes it is so cold that fires are kept burning all night in the public squares and in front of theatres for the cabmen and others who must be out of doors. The policeman must attend to these fires as well as to his other duties.

Street Scenes. — The streets and avenues of St. Petersburg are wide and the squares large, so they never seem uncomfortably crowded. The greatest of the avenues is the Nevsky Prospect.

Even in the gay season it is quiet on the Prospect till noon, for the sun himself does not rise till nine o'clock so far north. In the afternoon almost every kind of people may be seen walking on the avenue. The strange costumes of Asia are there, as well as those more familiar to us. The Russian gentleman hurries along in his furs and long felt top-boots, afraid that his nose, the only part of his face that can be seen, will freeze before he knows it. He is thankful to the passer-by who stops and tells him that his nose is whitening, which shows that it has begun to freeze, and waits to let him rub it warm with snow. Many uniformed officers are on the crowded pavements. There, too, are Russian peasants, in their red shirts and sheepskin coats, walking with their wives or daughters, who wear bright red bodices and head covering. It is a brilliant scene.

While the snow lasts, the better classes ride in elegant sleighs. Sledges take the place of the familiar droshky or cab until March, when the droshky again appears in the streets. It is usually an odd-looking cab, with four wheels about large enough for a wheel-barrow, and two narrow seats, one in front for the driver and one behind for the passengers. The droshky driver is very good-natured and he drives at a furious rate. His horse is small and very fleet of foot. Over its shoulder is a tall bow, three or four feet high, to which bells are fastened.

You and I would find it very entertaining to walk on this fine avenue and watch the people. We would spend some time looking at the magnificent displays in the goldsmiths' shops and in those of the furriers. Nowhere else are the furs so fine as here. We should see some curious things in the way of fruit and other food, — pine-

apples at five dollars and ten dollars apiece, tiny oysters from the Black Sea, at twelve and a half cents each, fishes in jelly, and game cheeses. We should hear the bells of St. Isaac's Cathedral, the deep rich boom of the large bells and the soft harmonies of many smaller bells chiming all through the day.

The Winter and Admiralty Palaces, St. Petersburg

The great Alexander Park, the Winter Palace, and the Palace Square, where twenty thousand troops can drill at once, are at the end of the Prospect.

The Neva. — The Neva freezes six feet in winter, and becomes a boulevard covered with skaters and with sleighs full of people, dashing along at a mad pace and jingling with bells. At night the river is lit up with lamps driven into the ice. The canals about the city are sometimes turned into "skating gardens," and skaters appear in fancy dresses which make foreigners shiver. A band plays through the evening, and the ice-hills around are all lighted by electricity and are black with skaters and sledges. Sledge roads are marked out on the river with evergreen bushes, and plank walks are laid down for foot-passengers. Russians on skates push green chairs, in which are seated one or more persons well wrapped in lap robes, over ice-paths made for the purpose. These chairs take the place of the ferry-boats, and you can cross from one shore to the other for less than one cent. If you visit the Laplanders' camp on the river, you may have a ride with real reindeer.

Moscow. — Moscow, the old capital of Russia, is the city next in importance to St. Petersburg. It is in the centre of the country and is reached from St. Petersburg by rail. There are not many railroads in the Czar's country, and they are almost all owned by the government. Before many Russian stations one finds a huge kettle of hot water for passengers wishing to make tea. The Russians are great tea-drinkers. Tea with lemon is named for them because it is their favorite way of making tea.

Moscow is loved by the Russians as the ancient capital and the crowning-place of all their emperors. So strong is their feeling for it that the people burned the city when Napoleon reached its gates rather than let it fall into the hands of the stranger. Like all Russian cities, Moscow has a Kremlin, or fortification. If you could look down on this ancient city from the great tower of the Kremlin, you would find it different from St. Petersburg. It looks like a city of the far East, while St. Petersburg is so modern that it reminds one of Chicago. In place of St. Petersburg's wide, straight streets, and magnificent stone and brick buildings, there are in Moscow narrow, winding streets, lined with odd-looking buildings, mostly of frame, painted white, pink, or yellow, and nearly all with roofs painted green.

St. Petersburg from across the Neva

In Russia there are only a few large cities like St. Petersburg and Moscow, Warsaw and Odessa. (Find them on the map of Europe on page 175.) Then there are some middle-sized towns, and the rest are small, poor

villages. In these the buildings are of wood or logs, and among them rise the domes of a Greek church, the state church of Russia.

Country Life. — The nobles and their families leave the city in the spring and go far into the country to attend to their estates, unless they are very rich and can afford

Russian Peasants

to employ an overseer. Then they prefer to remain in the city. The change to country life is very great after the gay winter season.

They leave the fine houses and palaces of the city and go to live in a house usually made of square beams from one foot to a foot and a half thick. These are laid horizontally upon each other to form walls, and are fastened together with wooden bolts a yard long. All the little spaces are filled in with moss soaked in pitch. Planks are then laid over it all, inside and out, and when the outside is painted and the inside plastered, you have a house warmer than one made of brick or stone. The cold wind cannot possibly blow into it.

Although the house is made nearly air-tight, the Russians need good stoves to keep them warm in cold weather. The stoves are much like those in northern Germany. They reach nearly to the ceiling and are set in the wall, between two rooms, to heat both. It takes ten or fifteen of these stoves to heat a large country house. The peasants are glad if they can have one. They use its broad top for a bed. Sometimes they crawl into the oven to keep from freezing.

Russia is so far north that daylight lasts a long time. At ten o'clock the sunset colors are still in the sky, and they are often there until time for sunrise.

Peasants. — About four-fifths of all the people of Russia are peasants, and they are a most important class. They were serfs or slaves for so long that they are very ignorant. Rarely can one read or write. They are good-natured, and honest in their dealings with one another. They work best in gangs like slaves, with an overseer. That is because they were serfs so long. Now they are free, they often do not know how to care for themselves. This is not true of all of them. Some go to the cities in the winter-time and become skilful in manufacturing and in the arts.

Most of the people employed on the country estates are peasants; sometimes the housewife on one of these estates will have fifty or sixty of these people to feed every day. Many of these were serfs on the estates in the old days before they were made free. The owner of the estate often cannot afford to pay them in money, so he gives them a part of his crops for their labor, which helps to keep them from hunger through the winter. Many of these poor people die of famine when crops fail or when they cannot get work.

Panorama of Moscow: the Kremlin in the Distance

IN AFRICA

55. ON THE DESERT

An Arab Boy. — Murad is a bright-eyed, dark-skinned, white boy, fortunate enough to be born in a tent. This tent is pitched beside a spring of water, under several date-palm trees, in the wide-spreading desert. His mother taught him to follow the *Koran*, or Arab bible, and bathe five times a day. If water were not found for bathing, she took sand. After bathing he must say his prayers, kneeling on a mat, several times every day. His sister, Fatoom, was not taught much, except to look after the sheep and sweep out the tent.

The tent where Murad sleeps is supported in the centre by an upright pole. His mother made the covering out of black camel's-hair cloth. The tent pegs are made of camel bones. The inside of the cloth house is divided into two rooms by a camel's-hair cloth. On the ground is spread a mat made of grass. At night this is the bed.

Tent on the Desert in which Murad lived

As Murad grows up, he plays about in the open air. His father often takes him to see the horses and camels, and by and by teaches him to shoot and hunt.

Murad dresses just like his father. He wears over his body a linen shirt, wide trousers reaching down to his knees, a waistcoat with silver buttons, and over these a white garment, a kind of loose cloak. On his head he wears a fez cap with a small tassel, over which he may put on a wide turban.

The Sahara. — Murad grew up on the Sahara, a land of sand in northern Africa. This great extent of sand, known as a desert, is caused by the small amount of moisture, the great amount of heat, and the general lowness of the country. Yet the land is not as smooth and level as a floor. In some parts are high mountains or sharp-pointed hills, table-lands covered with stones or pebbles, and low-lying plains, crossed by winding valleys, dry most of the year.

The sand of the desert is as impossible to measure as the water of the ocean. Both are greatly affected by the wind. It banks up the sand in low ridges, and all is silent and without life. Possibly one bird may be seen in a whole day's ride. The colors most seen are brown and yellow. Sometimes the horizon seems very near; then it seems miles away.

Murad's land is one of silence. The sand and the limestone reflect the rays of the sun by day, causing a great longing for shade. At night the heat is rapidly given up and it is cold. A thick blanket or robe is very comfortable on the mat.

Camel. — As the ship is needed to cross the ocean, so a creature made to live in the sandy and dry wastes is needed for Murad's travels. Such an animal is the camel. The camel's long neck gives a wide range of sight over the desert, and it enables him to reach far for the shrubs on each side of his path. His upper lip projects so that he can easily grasp his food. The inside lining of his mouth enables him to eat hard and thorny plants, such as grow in the desert. His ears are small, but his nostrils are large for breathing; they can be closed at will against the wind-driven sand. His eyes stick out, but they are protected by a heavy overhanging upper lid, which guards them from the burning rays of the noonday sun.

Murad's Father: the Sheik on his Camel

Like the horse, the camel has teeth in both jaws, which makes his mouth a weapon of defence. His feet, being divided, spread apart on the sand and do not readily sink into it; they are also cushioned, which makes it easy for the rider. His hump is a real storehouse of food. His stomach is a reservoir for water, enabling him to travel four or five days without drinking. The camel is very strong and tough. A large one can carry a weight of a thousand pounds because his backbone is constructed like an arch.

Murad's father obtained from his camels good rich milk and hair for making tent-cloth, ropes, and shawls. From the dead camels he obtained meat and leather. All of his camels were the one-humped kind, but some of them belonged to better breeds than others. He had two Osman dromedaries that were as fleet as race-horses. His common camels would go only about eighteen miles in a day, but on one of the dromedaries he once rode over two hundred miles in three days.

Desert Life. — Murad lived near a living spring of water in a green spot in the desert called by his father an *oasis*. There were a few trees and some grass there. The trees were principally date-palms. This tree has a single trunk some sixty feet high without a branch. It has a cluster of leaves and the fruit is at the top.

His mother could cook this fruit in nearly a hundred

A Caravan on the Desert

An Oasis

different ways, and it was their principal article of food, just as flour is with us. His father also obtained from these trees a kind of soap, a syrup, vinegar, nuts which are ground up and fed to the cows and sheep, and a kind of rattan for making beds, tables, chairs, boats, bird-cages, and crates. From the bark of the tree he made baskets, fans, and string. The wood in the trunk supplied him with the little lumber he needed.

Caravans. — Murad's home was a stopping-place for many travellers. He frequently saw large parties coming and going with their camels and horses. Such a party is

called a *caravan*. A large caravan of camels and camel drivers is a picturesque sight on the desert. The camels follow one another in single file, unless the caravan is very large. They move slowly across the sandy plain and disappear on the horizon.

The heat on the desert increases till about two o'clock, when it is given off from the sand so strongly that it shows itself in rippling waves in the air, often causing an image of the principal objects in the landscape to appear upside down in the sky. Sometimes the heat waves dance within a few yards of the eyes. A line of rocks two hundred yards away may keep time and look like a regiment of men marching in line. Beautiful groves of trees, lakes of fresh water, grass, and houses appear and then disappear, deceiving the onlooker. Murad learned from his father to know that these appearances were not real, and to call this deception the *mirage*.

Arabs. — Murad and his parents belong to that branch of the white race known as Arabs. The Arabs who live in cities and towns are generally called *Moors;* those who live on the desert are known as *Bedouins*. The latter have dark brown complexions, regular features, and deep-set, piercing eyes. They are noted for kindness to their guests.

A Veiled Arab Woman

Murad's sister Fatoom was glad that, when she grew up, she would not have to cover her face with a veil like the Moorish Arab women; that she could wear very bright colors like her mother, and plenty of silver jewelry. Now, she was quite content with her dark blue dress, which seemed good enough for the work around and inside the tent.

Fatoom never liked the idea that she could not eat with her father and brother, but had to help her mother in waiting on them.

Murad's father was a sheik, or chief; his business was to guard and protect and guide the caravans. He escorted them on their way from the seaports in the north across the Sahara to the Sudan. This was a very good business and one that Murad hoped to learn. Hence his father sometimes took him on the short journeys.

On these trips he learned to ride the camel. He says: "You mount them while they are lying down. First you notice a furious heaving backward when the camel rises to his knees; then a hurl forward as his hind legs are raised; this is followed quickly by a milder pitch backward when the front legs are straightened, and then the deed is done."

Night in Camp. — As soon as the hot day's work was done the Arabs would gather, from the vicinity of the camp, brush and roots for a fire. When a bed of coals formed, they threw upon it a large cake of dough and quickly covered it up with ashes. By and by the heap of coals was opened and the cake was turned over; in a few minutes more the bread was ready. It was then broken up into a pot with other things and a porridge was made. All the men gathered around this central dish and ate the contents with their fingers. After this they lighted their pipes and smoked, talked, laughed, and sang till late at night. Murad liked to join the camel drivers and sit around the camp-fire to listen. Thus he grew up to know nature and men.

SUMMARY

Murad is an Arab boy, living on a desert in Africa. His sister's name is Fatoom. They live in a tent. Murad, like his father, wears wide trousers and a turban. The desert is a great extent of sand, hot and dry, with little water. The camel is well adapted to the desert because he can go so long without water. Dates are a common article of food on the desert. People on the desert generally travel in large parties for protection; such a party is called a caravan. The camels follow one another in single file in a caravan. Murad liked to go with his father on trips across the desert. He liked to sit by the camp-fires and hear the Arabs talk.

56. AFLOAT ON THE NILE

Egypt. — Egypt is one of the oldest countries in the world, and is mentioned in the Bible many times. Running through this country is a celebrated river called the Nile. This river forks near its mouth. The land between these branches is called a *delta*, because it is shaped like that Greek letter. Not far from one of these branches is a seaport called Alexandria.

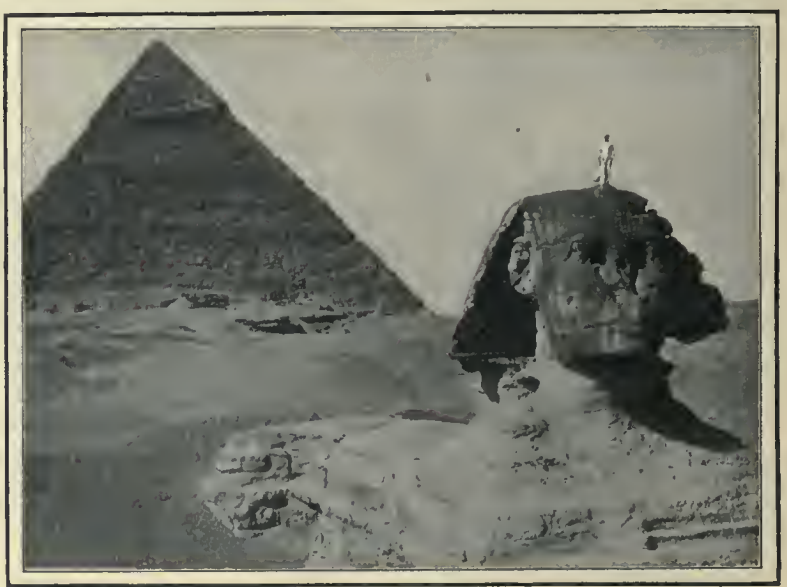
An Arab School, Cairo

Cairo. — The largest city in Africa, however, is Cairo, situated at the forking of the Nile, and visited by many sightseers every year. Every one should visit the citadel fortress, for it is one of the important sights. It is built on high ground, and has within its walls the mint, the government offices, barracks for the soldiers, and the palaces of the chief ruler, who is called the Khedive. There is also a beautiful mosque, all of alabaster and marble, built by one of the former rulers. You would never forget the view from the citadel. Some have said it is the finest of its kind in the world. The domes and minarets of the churches and the flat roofs of the houses lie below you. In one direction are the villas of the rich, who are mostly Europeans. In the distance is the ribbon of the river, and the great iron bridge over it. Away to the left are seen the ancient *pyramids*.

Pyramids. — The pyramids stand upon a rise of ground, on the edge of the Libyan desert. This ridge stretches south for about twenty-five miles, and many pyramids or pyramid ruins and tombs are seen along its course.

It is a hard climb to go up the great pyramid, because the steps, or courses of stone, are irregular and sometimes far apart. It is like trying to climb up the side of a room by piling up tables of different sizes and stepping from one to the top of the next one. Travellers do climb the great pyramid, each one having three guides to help. One guide takes hold of each hand and the third pushes behind. From the top one sees Cairo, with its many mosques and minarets; the farm-lands of Egypt, which look like a chess-board of green and brown; the river Nile, the sandy desert, and close at hand, the other pyramid.

Cairo



One of the Pyramids and the Sphinx

MAP QUESTIONS ON AFRICA

1. What is the general shape of Africa?
2. In what direction is it from Europe?
3. What body of water separates it from Europe? from North and South America?
4. Where does the equator cross this grand division?
5. Where would the hot belt be found?
6. Where is the Desert of Sahara?
7. Where is there a group of lakes?
8. What three rivers rise in or near these lakes?
9. In what directions does the land slope from these lakes?
10. What river flows through a desert?
11. What river has a delta?
12. Locate Cairo, Alexandria, Zanzibar, and Cape Town.
13. Find the Suez Canal in the northern part of Africa.
14. What countries in Europe have possessions in Africa?
15. In what belt is Mount Kenia? Mount Kilimanjaro?
16. Near what city are the Pyramids?
17. Where, in South Africa, is Kimberley, the diamond town?
18. Where is the Island of St. Helena, on which Napoleon was imprisoned?

On coming down, one naturally pays a visit to the Sphinx. This is an immense stone lion with the face of a woman. It is carved out of solid rock, and is one hundred and fifty feet long. It is always more or less covered by the drifting sand.

Bazaars. — At midday the bazaars, or street fairs, are crowded with purchasers; women with veiled faces, Turks, Nubians, camels, donkeys, and horses, all mingled together, for there are no sidewalks. Sharp bargains are driven, and a long time is spent over every purchase.

The Voyage. — If the traveller is in Cairo the first of December, he will be likely to hire a house-boat, or *dahabeah*, and enjoy two months afloat on the Nile. These boats are under the charge of a captain called a *dragoman*. Every boat is a floating house furnished with the comforts of a home.

A Dahabeah or Nile House-boat

On this trip one sees small Egyptian farms, divided into small squares and rectangles by the ditches dug for running water. In these fields are grown wheat and other grains, beans, and lentils, a kind of small pea. Mud cottages are seen now and then, with their groves of palm trees and flocks of pigeons.

Water-wheel. — The ancient water-wheel for raising water is frequently seen. It is called a *sakiyeh*, and is a large wheel having earthen jars tied to the rim. As it goes around, these jars dip into the water and fill. As they come to the top of the wheel, and begin to turn to go down on the other side, the water runs out into a trough, whence it flows into the ditches, and so to the soil. The wheel is turned by oxen or buffaloes.

As the boat moves up the river, other boats and steamers are seen, and there are sometimes exciting races between different house-boats.

The River. — There is much movement and life along the banks. Natives are travelling with loaded donkeys and camels, boats are loading and unloading, women are coming down to fill their water-bottles, which they poise gracefully on their heads, and children quite naked are playing about.

SUMMARY

Alexandria is a seaport, where cotton and sugar are bought and sold. Cairo is the largest Arab city in the world. There is a fine view of the city and River Nile from the Citadel. The pyramids are very old and very large. The Nile changes Egypt from a desert to a fertile strip of land. The best way to see the Nile is to go up the river in a *dahabeah* or house-boat. The people drink the water from the river and use it to make the crops grow.

57. AN AFRICAN SCHOOL

Early Life. — Not many years ago a child named Besolow was born in Bendoo, Central Africa, west of the Niger River. He was the son of a king, and hence enjoyed many privileges. He was kindly cared for and spent the first part of his life in a pouch-like bag fastened to his mother's back with tough leather thongs.

His home was a hut, cone shaped, and built of burnt clay and grass. In other parts of Africa the huts are very different in shape. The doorway was very small, being only twenty-five inches in height and narrow in proportion. This was for protection from enemies. The furnishings of the hut were two stools, two hammocks, a spear or two, and a few rude cooking utensils.

If the boys were disobedient in Bendoo, they were punished very severely with leather straps, and sometimes a finger was cut off.

Without any clothes to bother him, for the climate is very warm, he grew up, played, and enjoyed life. The boyish games of his village were those in which skill in running and throwing were required. Besolow became very swift footed, and soon was able to outrun all the boys of his own age.

A Village on the Kongo: the Home of Besolow. The Walls are about Five Feet in Height

When eight years old, he was made very proud by receiving, as a present from his father, a bow and a quiver of well-sharpened arrows. From fifty to one hundred boys would meet him every day, to practise shooting at a target placed forty feet away. The boy whose arrow hit the bull's eye was allowed to take all the arrows of the boys who had tried and failed. Besolow was often successful in this sport, and then his companions would cheer him and carry him on their shoulders about the village. If he was successful in wrestling or in running, a wreath of palm leaves was given him. He also learned to swim like a duck, and to paddle the native canoe.

School. — At twelve years of age Besolow, with many other boys, was sent a long way from home to an African school. This school was held in a dense jungle on a peninsula.

The forests in this part of Africa are very thick and full of animals, such as monkeys, zebras, antelopes, deer, wildcats, elephants, and lions. Many gaily feathered birds and some with beautiful songs live in the trees, and great snakes and poisonous insects are common.

In this jungle school four hundred boys were educated at one time, under fifty teachers. Their teachers were old warriors and hunters. The principal's name was Zolusengbe. He was a hard, cross master, very severe with his pupils. The boys were not allowed to go home, nor were their parents allowed to visit them. The boys were first taught to use the bow and arrow, then the spear and sword. Every morning they practised with their weapons. In the afternoon they were sent out into the forests to hunt, and great displeasure was shown if every one did not bring back as much game as the teacher thought he ought to. The usual punishment for poor luck was to go without food. Many a time Besolow went to bed without his supper.

The second year the children were taught how to fight. Besolow became, at the age of fifteen, so good a fighter that his father praised him for his courage.

Besolow was afterwards sent to a mission school on the coast to learn English, because it was valuable in carrying on commerce. He then hated the white men so intensely that he ran away several times from school and home to his mother. He was a whole year learning the alphabet, because he did not wish to learn it, and two years in learning to read. Then his ideas changed and he made good progress, and afterwards came to America to complete his education.

An African School

Girls. —Girls in Africa are sent away to schools as Besolow was. One kind of school for girls is called a *sandy*. In such a school the girls learn to sing, play, and dance. In a *boyale* they learn to carry water, gather wood, and light a fire. There are a few mission schools where girls are taught very differently.

A View of Cape Town, showing Table Mountain

58. SOUTH AFRICA

Cape Town. — In the southern part of Africa is a city of some size called Cape Town. It was settled by both Dutch and English people, and newspapers there are printed in both languages. The view of this place from the water, as it nestles below Table Mountain, is striking and beautiful.

The streets are narrow and bordered with low, one-story houses. In these streets are seen Dutch, English, Hindus, Negroes, and Malays.

Table Mountain is a steep and partly wooded slope, so level on top as to suggest the name. Looking from the summit, one sees the intense blue sea, the busy streets and wharves of the town, and farther away the surrounding country.

Products. — This part of the world produces large quantities of wool, gold, diamonds, and ostrich feathers. The feathers come from the many ostrich farms in Cape Colony. The greatest diamond mines in the world are at Kimberley. (See map, page 191.)

The ostrich has long legs and is a fast runner. It can go faster than a horse. It can give a very hard kick, and a man must look out for himself when he attempts to take care of these big birds. When taken from one place to another, the ostriches are frequently blindfolded. The hen ostrich sometimes lays twenty eggs in one nest. These are hatched in the sun. Wild ostriches are still found in South Africa; their feathers are finer than those of the tame ones.

Animals. — The desert is good hunting-ground, and here are found the most graceful of the wild animals of Africa — the *antelopes*, of which there are many kinds. The *eland* is the largest of these creatures, being frequently the size of an ox, and stands six feet tall. He has slim legs and moves upon them swiftly and gracefully. Like the camel, he can go a long time without water. The flesh of the eland tastes like young beef. His favorite haunt is the lonely parts of the Kalahari desert.

In this same part of Africa is found the handsome *gemsbok*, carrying aloft his sharp, spearlike horns, sometimes four feet long. With these horns he can resist dogs, lions, and leopards. He stands a little under four feet tall and his general color is gray. His black tail is long, full, and sweeping. His white head is

Ostriches and Eggs

marked with black, so that it looks as if he were wearing a head-stall.

A smaller antelope, more frequently seen, is the fleet, agile animal called the *springbok*, because when excited, he arches his back, raises the crest of white hair upon it, and begins a wonderful series of leaps from all four legs, from eight to ten feet straight up in the air. This leaping is repeated several times, then he runs away very fast. The springbok stands about three feet high and weighs about seventy pounds. His color is a common fawn. His horns are lyre-shaped, and about twelve inches long. It is a beautiful sight to see a number of these animals moving about over the plain.

Inside the Kraal: the Home of the Kaffir

Natives. — The *Kraal* of a native is often built upon a grass-covered tract of land. In the centre of this pasture is an enclosure for the cattle, formed of upright poles stuck in the ground. If there is a scarcity of trees, a stone wall is built. Near this enclosure are the various huts forming the home of the chief. A hut is shaped like a low beehive, and is between twelve and twenty feet in diameter. Sometimes its sides are perpendicular, and the top is covered with a grass roof. The sides of the huts are made of sods or of wattles covered with mud. In the centre are a few stones showing the position of the fireplace.

The floor is usually swept clean, and the sleeping mats, made of rushes, are rolled up by day and placed on end against the wall. The front door of one of these huts is only four feet high.

Kaffirs are negroes of the Bantu tribe. There are many of them in South Africa. They have few wants. A Kaffir loves his cattle. Instead of racing with horses he races with oxen, the latter running without riders over a course ten miles in length. Cattle are used as money. When a girl marries, her father gives her a cow. This cow is called "a doer of good," and is considered sacred. A hair from this cow's tail is tied around the neck of each child when it is born.

The work in the diamond mines at Kimberley is done by Kaffirs. They are locked into a vast enclosure from which they cannot go out while working for the company. This is done to prevent the men from getting liquor and from stealing the diamonds.

In Cape Colony the English and Dutch carry on most of the work. The Boers are the Dutch who have "*trekked*," or moved farther north upon the uplands. They are mostly farmers and owners of cattle. Besides farming proper, ranching and mining are the leading occupations of the people of South Africa. Owing to poor coal and a lack of water-power, this part of the world is not likely to become a manufacturing country.

A Boer Farm

SUMMARY

Cape Town is the largest city in South Africa. Table Mountain, behind the town, is level on top. Ostriches are raised in South Africa, on farms, like cattle. The greatest diamond mines in the world are found in Kimberley, South Africa. On the Kalahari desert are seen herds of antelopes. The kraal is an enclosed place for the cattle and the huts of the Kaffirs and other negroes. The Boers are the Dutch who live in the Transvaal.

COMPOSITION

Write a letter to your teacher from South Africa.

59. THE INTERIOR OF AFRICA

Lakes and Forests. — Once more look at your map of Africa, on page 191, and find a "land of lakes" at the sources of the Nile River. You can count here a number of lakes of varied shapes and sizes, most of them in the Hot Belt. Around them live many tribes of strange black people, and here is the home of "big game," as the hunters call the native animals.

The Negroes. — Around the northern end of Lake Nyassa lives a tribe of negroes not very dark in color. They are pleasant people and build neat and pretty huts. Some of the huts are square and some round. Many rest upon clay foundations, and have a drain to draw off the water when it rains. These people work skilfully in metal. They are prosperous and have cattle, goats, and sheep. They raise various kinds of vegetables, and play with some skill upon simple musical instruments.

Huts near Lake Nyassa

Most of the people in Central Africa have no idea of time; they would not do an hour's work, if promised a fine watch. They are happy and have scarcely any wants. One stick makes them a spear; two sticks rubbed together make a fire; fifty sticks and a few leaves make a house; the bark taken from these sticks makes the few clothes needed; the fruits which hang upon these sticks make the food. Is it any wonder, then, that men who need so little should work so little?

These people are so ignorant that they are filled with awe to see a man button his coat or strike a match. Nothing astonishes them more than to see a person set fire to the grass with a burning glass. White men are looked upon as spirits, which they greatly fear; hence, white men are rarely killed by them.

The White Ants. — The land north of Lake Nyassa is where the white ants have their home. These creatures live upon wood, and very soon destroy anything made of that material. The wooden house is quickly turned into sawdust; leather bags are also devoured. Nothing defies them except tin and iron. They are greatly dreaded by travellers. If there is a dead limb on a tree, these ants build a tunnel of reddish-brown earth up the side of the tree so that they have a safe passage to the limb. This is made for protection from their many enemies.

Every company of white ants consists of males, workers, soldiers, and the queen. Every ant-worker is defended from other ants by two or three soldiers who have powerful jaws for fighting.

Where these creatures abound, every fallen branch is eaten, and the floor of the forests has a clean appearance quite unlike those of other African woods.

These white ants dig out great underground tunnels and mine the earth to the depth of several feet. The material from the underground chambers and galleries is carried above ground and forms great ant-hills. These are sometimes thirty feet high, and as many feet in diameter. They stand out against the sky like columns. Excellent clay for making bricks is supplied by the ant-hills. Sportsmen often use them as a screen in hunting lions.

A Lion

The work of these creatures is that of the earthworm — to break up and mix the different layers of earth and thus make the soil lighter and more fertile.

Lion. — The terrible roar of the lion is heard around these lakes, when he comes down to the water in the evening for his daily drink. A hunter in this region says that one day he saw a very large and noble-looking lion quietly gnawing the ribs of a zebra. Some two

hundred vultures formed a circle around the lion, keeping very carefully away from the switch of his tail. Farther away, and behind the circle of birds, sat four little jackals in a row, watching for the king of

Elephant

beasts to finish his supper. The old lion leisurely chewed and crunched the tidbits, regardless of his audience.

Elephant. — The African elephant has very large ears, which cover the whole of his shoulders. Wild elephants were once found in many parts of Africa, but now they are seen in the interior only. On the bank of a river in this region is a large reservation where they roam. Here they are sometimes seen moving nimbly about in play.

Rhinoceros. — In the interior are several large animals besides the elephant and lion. One of these is the *rhinoceros*, which, next to the elephant, is the largest animal in the world. It is a slow, sluggish beast with poor eyesight, so it is easily shot, and only a few are left. It has a good friend in a bird that utters warning cries when a hunter approaches. When startled, it goes madly forward like a bison, charging right and left through everything which happens to be in the way, be it a span of oxen, a wagon, or a caravan. The hide of this great brute is so thick that it makes good whips, shields, and even canes.

Hippopotamus. — In the rivers and some lakes in the eastern part of Africa is found a huge and unwieldy creature, called a *hippopotamus*, a name which means "river-horse." This creature often weighs six thousand pounds. He has an enormous mouth, large teeth, narrow, slanting eyes, small ears, and a thick hide of a bright brown hue. He is only five feet high, because his legs are short, and he is about ten feet long. He frequently stands in the mud and water and can stay under water several minutes without coming up to breathe. It is hard to kill him, for he has a thick skin and skull like the rhinoceros. The meat of the young cow is very good eating, tasting somewhat like beef. The hippopotamus feeds mostly on grass and vegetables, and does much damage to crops by his depredations.

Rhinoceros

Giraffe. — The tallest animal in the world is the giraffe, found in Africa. His legs and neck are both long, so he sometimes stands nineteen feet high. His skin is beautifully marked in patches of all shades from common fawn to tawny orange upon a creamy ground. This curious animal has a long tail, which ends in a tuft of wiry hairs.

Hippopotamus

His tongue is very long, as well as his neck, to enable him to feed on the leaves and twigs of trees. It is a beautiful sight to see a herd of giraffes feeding. Strange to say, the giraffe has no voice and makes no sound.

Monkeys are very numerous in Africa. They run in troops through the tree tops, and often play mischievous tricks upon the natives. The chimpanzee, shown in the picture on this page, is one kind of monkey.

REVIEW

Tell about the animals found in the central part of Africa. Look at the pictures of the giraffe and the hippopotamus. Tell some of the important differences in appearance between them.

MAP QUESTIONS ON ASIA

1. For how many miles does one inch stand on this map?
2. How far is it, then, from the Red Sea to the Japan Sea?
3. How far is it across North America?
4. Is Asia about as large as North and South America?
5. Where are the mountains in Asia?
6. Tibet is surrounded by what?
7. Where is Mt. Everest, the highest mountain in the world?
8. What three rivers are in the north? in the east? in the south?
9. What three capes are on the north of Europe and Asia (Eurasia)?
10. What three seas are on the east?
11. What three peninsulas are at the south?
12. Locate Bombay, Calcutta, Hongkong, Shanghai, Peking, and Tokio.
13. What countries in Asia are very warm?
14. What parts are very cold?
15. Japan is called the "Land of the Rising Sun." What reason for this can you find on the map?

A Giraffe

A Chimpanzee

IN ASIA

60. THE HOME OF THE CHINESE

One of the largest countries in the far-away East is China, in the eastern part of Asia. My friend Mr. Smith, who lived in the country for over twenty years, has told me many interesting facts about the people.

Chinese Children are well taken care of. When one month old the little yellow baby has his head shaved. Friends are invited and a feast is given. At this time a fanciful name is given to the child, as "Number Two," or "Rose." This name is called the "milk-name." After the first shaving, the hair is left to grow on the back of the head so as to form the beginning of a pigtail.

When the child is a year old, another feast is made, and his parents place before him and within his reach several things, such as money-scales, a pen, a book, a pair of shears, a foot-measure, silver or gold ornaments, fruit, or a looking-glass. Then they carefully watch to see what he will take up first, because that choice decides what he will do in his future life.

A Chinese child is taught to be polite, to bow very low to his parents or those older than he, and to speak of his papa as "Venerable Father." Before the boy is two years old he is dressed like his grandfather. Around his neck he wears charms to keep him from evil.

The Chinese have great respect for education and most villages have a school. The school-teacher, who is always a man, is greatly respected.

The school is usually in a room in a private house or in a temple. The schoolroom has little furniture in it — a few tables and heavy benches, and sometimes the life-sized figure of the god of literature, before which the children burn incense sticks every day.

When a boy is five or six years of age, he goes to school and receives a school name, such as "Promising Study," or "Ink-Grinder." At school, for the first six months, he is taught to read, not by learning his "A, B, C," because the Chinese language has no alphabet, but by

ASIA.
Scale of Statute Miles.
0 100 500 1000
800 MILES TO ONE INCH.
Cities with over 1,000,000: Calcutta
Other Important Cities: Manila
Capitals thus: ◉ Other Cities thus: •
THE M.-N. WORKS, BUFFALO, N.Y.
ARCTIC OCEAN
ATLANTIC OCEAN
PACIFIC OCEAN
INDIAN OCEAN
EUROPE
RUSSIA
RUSSIAN EMPIRE
SIBERIA
CENTRAL ASIA
Kirghiz Steppes
RUSSIAN TURKESTAN
CHINESE EMPIRE
MONGOLIA
Desert of Gobi
MANCHURIA
CHINESE TURKESTAN
TIBET
CHINA
INDIA
HINDUSTAN
NEPAL
AFGHANISTAN
BALUCHISTAN
PERSIA
ARABIA
TURKISH EMPIRE
OMAN
SIAM
FRENCH INDO-CHINA
UPPER BURMA
LOWER BURMA
KOREA
EMPIRE OF JAPAN
PHILIPPINE ISLANDS
(To United States)
BORNEO
AFRICA
Mediterranean Sea
Black Sea
Caspian Sea
Arabian Sea
Bay of Bengal
China Sea
Japan Sea
Yellow Sea
Eastern Sea
Okhotsk Sea
Bering Sea
Red Sea
Persian Gulf
Gulf of Aden
Gulf of Siam
North Sea
TROPIC OF CANCER
ARCTIC CIRCLE
London
Paris
Berlin
Vienna
Rome
Madrid
St. Petersburg
Moscow
Constantinople
Cairo
Alexandria
Teheran
Calcutta
Bombay
Madras
Delhi
Lucknow
Benares
Peking
Tientsin
Shanghai
Nanking
Hankau
Canton
Hongkong
Manila
Saigon
Bangkok
Rangoon
Mandalay
Singapore
Tokio
Osaka
Nagasaki
Seoul
Vladivostok
Yakutsk
Tobolsk
Tashkend
Bokhara
Khiva
Kabul
Khelat
Yarkand
Aden
Mocha
Maskat
Smyrna
Damascus
Jerusalem
Baghdad
Ural Mountains
Caucasus Mts.
Himalaya Mts.
Thian Shan Mts.
Hindu-Kush Mts.
Altai Mts.
Stanovoi Mts.
Yablonoi Mts.
Khingan Mts.
Lake Baikal
Lake Balkash
Aral Sea
Ceylon
Formosa
Hainan
Sumatra
Celebes
Cyprus
Crete
Sakhalin I.
Kurile Islands
Kamchatka
New Siberia Islands
Nova Zembla
Wrangel I.
C. Chelyuskin
East Cape
North Cape
C. Guardaful
C. Comorin
C. Cambodia
Longitude East from Greenwich

learning three thousand signs. Each one of these stands for a word; as, for instance, the following: —

耳 眼 口 水

EAR EYE MOUTH WATER

Chinese Children

The little boy does not have any easy lessons at first from a primary reader, but after learning his three thousand characters or word signs, he reads at once from the wisest and hardest book in the country.

School begins at sunrise, stops for breakfast, continues till noon, and keeps several hours in the afternoon. In the hot weather, teacher and children often take a nap during the afternoon session.

In school every pupil studies out loud at the top of his voice, in order to show his teacher that he is at work. The number of pupils in a room is very small. When one of them recites, he turns his back upon his teacher. The teacher pronounces a line, and the children look at the strange words or signs and try to pronounce it after him. When the pupil has done this several times, he goes from the teacher and says the line aloud to himself, till he remembers the sounds and puts them with the proper signs.

In many parts of China the children learn first from "A Classic," composed eight hundred years ago, which contains about one thousand Chinese sign-words. The first sentence is the following: "Men, at their birth, are by nature radically good; in their natures they approximate, but in practice differ widely." Another sentence is, "If men neglect to learn, they are inferior to insects."

The Chinese pupil spends year after year in committing to memory. The children are taught separately; there are no classes. Ten pupils is the average number in a school. They begin to write by tracing signs upon thin paper, using small brushes instead of pens, and India ink, which is largely made in China.

If a boy goes to school, he then stops working. He feels above working with his hands, except to cook for himself. He is never taught in school how to count money, or *cash*, a common Chinese coin. Grown-up Chinese scholars have great trouble in doing simple examples in arithmetic. The object of the Chinese teacher is first, to make his pupil remember; second, to make him remember; third, to make him remember.

Nearly all schools are private, and the parents pay the teacher a small sum of money, not more than five or ten

Chinese Girl with Compressed Feet

dollars a year. They give him besides an allowance of food and a little extra food at annual festival seasons.

Girls. — Chinese girls do not receive much education, and it is not considered at all necessary for them to learn to read. The little girls wear jackets and trousers of gay colors with bangles and chains.

The feet of the girls are compressed about the sixth or seventh year. Long bandages are used. The object is not so much to make the foot very small, as to cramp its growth into a certain shape. Four of the toes are bent under the sole, the big toe being left free. In this way the instep is forced upward into a bulge, or what is supposed to be a beautiful arch. The girl must then walk by taking short, quick steps, supporting herself by leaning on some other person, or upon her umbrella used as a cane.

Boys. — Chinese boys love fun and games. They go through the streets, and enjoy the shows of dancing dolls and of shadow figures which swallow knives, turn somersaults, and do other strange things.

The boys play "dragon," by making a dragon of bamboo hoops covered with cloth, lighted up inside with lanterns and held up on poles. It can easily be turned and twisted about so as to make it look alive. Another lively game is played by two boys, dressed up to look like lions, chasing a third boy who carries a ball and runs and dodges to keep it from the others. But the favorite game is that of the kite, played by both boys and grown-up men.

A Chinese Boy

The kites are of all sizes and shapes. They are made to represent bats, butterflies, flowers, pagodas, buildings, snakes, birds, trees, men, and women. Kite day comes every year on the ninth day of the ninth month, and all the boys and men go out to fly kites.

Chinese children are often frightened by their parents and told that unless they mind, a terrible creature in the parent's sleeve will catch them. The boatman tells the children who call after him that he will pour boiling water upon them.

When Chinese children become of age, they "go through the door." A door is placed in each corner of the room, and a procession is formed of priests, musicians, and the youth or the maiden. They go through the doors and round and round the room many times. "Coming of age" does not mean that the child is free to do as he pleases. He must obey his parents as long as they live, or be punished. All his wages go to them, and his business is managed by them while they live.

Adults. — The ordinary Chinaman is a very queer man. He does things and thinks so differently from the people in our own country! Many of his ways are just the opposite of ours. When a Chinaman makes a call, he keeps his hat on, in order to be polite. He goes up to his host, closes his fist, and shakes his own hands. He begins his dinner with nuts and sweetmeats, and ends it with soup. He pays his doctor when he is well instead of when he is sick.

The Chinese read their books from the back toward the front, from the top to the bottom, following the columns from right to left. The title of the book is at the bottom of the page, and the foot-notes are at the top. When we would say, "How do you do?" they say, "Have you eaten rice?"

Chinese Habits. — The Chinese have many good qualities. They are the most *patient* of people. The student goes on year after year, taking his examinations for a degree, until sometimes he becomes eighty or ninety years old, or dies in the attempt. He makes a good hunter, fisher, or beggar. Chinese servants rarely complain. They are willing to work a long time for small rewards. They rise early and work late in China just as we see them do in the laundry business here. They should therefore be called very *industrious*, or as one says, "They have a passion for work."

They are very economical and can live comfortably upon a few cents a day. The fuel used in cooking consists usually of leaves, straws, stalks, and roots of the crops. This fuel is largely gathered by the children. Even the dead leaves are picked from the trees. Small children go naked in summer to save their clothes. The wheelbarrows creak to save the oil. They cannot afford clocks and so tell the time of day by the sun. They live almost entirely upon rice, beans, vegetables, and fish. Beef and mutton are rarely eaten.

The Chinese are very *cheerful* and *contented*. They believe "What can't be cured must be endured." They are ready talkers, and whether they are old friends or per-

fect strangers makes no difference. There is little sympathy among them for those who are suffering, and they have a habit of laughing when a beloved friend dies.

Homes. — There are few comforts in the homes of the poorer Chinese, in which respect they are far behind the Japanese. Their houses are not warmed, even in very cold weather. They have few articles in the kitchen, and cook only one kind of food at a time. Their benches are narrow; their chairs very uncomfortable. Their shoes are so made and the roads so poor that they stay at home when the weather is bad.

All business is generally suspended during a rain. "Stopped by the rain!" is a common excuse. Even their money is constantly changing in value, which makes travelling through the country very annoying. "Cash" to the value of one dollar weighs not less than eight pounds. The standard of comfort and convenience in China is the same that it was three hundred years ago.

On the Canton River, where the Chinese live on Boats for Houses

The Chinese are usually spoken of by those who live with them for a long time, as very *insincere*. They are not apt to speak the truth or to believe it when others speak it. A fact is hard to get in China.

A Chinese City. — The buildings in a Chinese city are crowded together. The streets are narrow and carriages cannot pass through most of them. Sidewalks are very uncommon. Mats are often stretched across the street from one building to another, to keep out the terrible heat. A Chinese city is apt to be dirty, and foul smells abound.

Pedlers are seen everywhere, and from them almost everything can be bought. They usually carry a gong which they beat to call attention to their wares.

Canton is now the largest city in China. It is perhaps the cleanest. The older part of the city is surrounded by a wall seven miles in length. This wall has sixteen gates and every gate has a name. The houses are very near together, and most of the streets very narrow, often not more than six or eight feet wide. Strange names are given to the streets, like "Golden Flowers," "Green Pea Street," "Dragon Street."

Thousands and thousands of Chinese in Canton live on the river. There are miles and miles of river boats, used as houses, where children are born and grow old, knowing no other kind of home. When the children are young, they are tied by ropes to the masts of the boats to keep them from falling overboard.

There are many other very large cities in China, among them the capital city, Peking, which is the home of the Emperor. Life in these cities is very much like life in Canton.

LANGUAGE LESSON

Write a review story of the Chinese children.

Imagine you are living in a Chinese village, and write a letter from that place to your teacher telling about your life.

61. JAPAN, THE LAND OF THE RISING SUN

Off the coast of China is a group of many islands, known as the "Land of the Rising Sun," or Japan.

Children. — This country has been called "the Paradise for children." Children there are called by parents "treasure-flowers," and the Japanese spend much time in making them happy, father and mother playing with them by the hour. When seven days old, the baby receives a name. This name is changed when he is seven years old, and again when he is fifteen, as is the Chinese custom. The Chinese and Japanese children look somewhat alike, as both have sloping eyes and a yellow tinge to the skin. The Japanese children are more apt to be of a brownish yellow hue.

Chinese children grow up to be much taller and heavier than the Japanese, and the Japanese never wear pigtails like their Chinese neighbors.

Some travellers say that the Japanese baby and the Hindu baby never cry; but it would probably be nearer the truth to say that they seldom cry, because they are so comfortable. They are both dressed in loose, flowing garments, with no pins to prick or strings to cut. Children here are rarely scolded or whipped, and yet they are usually obedient.

Young children are carried about a good deal, often on the backs of their sisters, who run and play at the same time. (See colored picture of Japanese children on first page.) This is one thing that prevents much crying, as the child's attention is largely occupied with what is going on around him.

The Japanese baby does not learn to creep, but to sit on his heels. When he is about four months old, he eats rice for the first time; and rice he will eat every day of his life afterward.

A Japanese Schoolroom

Almost the first words a child learns are "please" and "thank you." In the morning he bows his head to the ground to his father and mother. By the time he is ten years old, he has become very polite, and would never think of saying, "I don't want to," "I won't," "I sha'n't."

Many story-books and Mother Goose books are supplied to the children by their indulgent parents. They bring their joys and sorrows to father and mother to be shared or healed. They are taught to be very patriotic. The boy baby has a banner standard, to remind him that he must become a soldier. When children are about ten years old, they begin to take up their share of the family work.

School. — Much attention is paid here to education. The Japanese children go to school at seven o'clock in the morning, and come home for the day at noon. They have all the afternoon for play or work. Badly behaved pupils have to be punished, but they are never whipped or kept after school. They are burned! A little "moxa" is made upon the finger by putting a piece of lighted pith or punk upon the finger of the naughty boy, and allowing it to burn as long as the teacher thinks best.

Play. — All children are encouraged by their parents to play and have a good time, and their parents often play with them. The common games are "blind man's buff," which they call "eye hiding," "jack-stones," "puss in the corner," "hiding the shoe," and "procession." When playing, these children are gentle and kind, and rarely bully one another.

They play at sham battle, where every boy has a flag, and the object of each boy is to snatch the flags away from the other boys. The boys walk on stilts and fire off pop-guns. In winter, which comes at the same time as with us, the boys in Japan play in and on the snow. They coast and slide and make snow forts and snow men.

Japanese boys play with kites as do the Chinese boys; but they do not have so many differently shaped kites. They have a game with them, the point being to cut the string of the other boy's kite while it is in the air. This is done by making a file of a part of the string by covering it with powdered glass. The fallen kite belongs to the boy who cuts the string; and the boy that loses his kite, cheerfully gives it up. Sometimes they send a message up to the kite. When it reaches the kite, a jerk of the string opens a package, and out falls a shower of colored paper.

Both boys and girls have a festival each year. The boys' comes the fifth day of May, when the banners flying from almost every house are all in the shape of gigantic fishes. Some are painted blue, some red or gray, with silver scales, and every one is shaped to resemble a big carp. These fish banners are made of paper or cloth and are hollow, so that they rise and sink as the wind fills or empties them. They look very natural, with their gaping mouths, huge eyes, and fins, as they float in the breeze from the top of the gilt poles.

The carp in Japan is the emblem of a boy, and also of good luck. On the birth of a son, the friends

send or bring live carp, swimming about in tubs of water. At this feast, parents display a paper fish for each son, and the younger the son the larger the fish.

Fish Banners for the Boys' Festival

Girls.— Japanese girls are very winning and sweet, but they are not considered so important as boys. They dress like their mothers, except that the girls' dresses are of brighter and gayer colors. The dress is made somewhat like a slip with very wide sleeves, simple, and so long that it hangs down and sweeps the floor. The skirt is beautifully embroidered around the lower part, and the sash, or *obi*, is very wide, and gaily colored. This is the most useful part of the dress, as from it hang the school books, and in it are carried the fan and several dozen paper handkerchiefs. The pocket is made by sewing up the front of the sleeve, thus making a bag of it. The girls are very clever at stowing things away in their pockets.

The hair of the Japanese girls is allowed to grow and is often worn in bangs in front. It is done up in different styles, according to their age and condition. The way a woman's hair is done up tells whether she is married. A boy's head is shaved while he is growing up, except a tuft of hair on top, and perhaps one over each ear.

Dolls. — The girls are very fond of playing with dolls. They have dolls of all sizes and kinds. Some of them can walk and some can dance. They are taken out to tea, dressed and undressed, put to bed, nursed as if sick, and treated in all respects as if they were living beings.

On the third of March comes the girls' festival, called the Dolls' Festival. The shops at this time of the year are full of dolls, and parents go with the children to buy dolls and doll furniture. Then the storehouse is opened and dolls by the dozen are brought out. Tables are prepared, and the dolls are set out with their toys, and with flowers and food. Many of these dolls are dressed to represent people in different stations, or noted historical persons, such as the emperor or empress, or some well-known general or poet.

Some of the Japanese girls learn to dance when very young, and do it gracefully. They are frequently taught fancy steps, and show great freedom and grace in their movements. Their little bodies sway over to one side and then come back to the right angle. They seem to rise from the ground on their long, wing-like sleeves, and then strike it in anger with their little white heels. They turn and twist and whirl their skirts like a wheel.

Dress. — The Japanese men and women, both old and young, wear a garment like our long dressing-gown, called a *kimono*. It is sewn together so loosely that it can be taken to pieces when it is washed. The women wear dark-colored ones, with a purple or striped sash; but the girls dress in such brilliant colors that they remind one of Indians in their graceful picturesqueness. The women take great pains in dressing their hair. The people wear socks made of a white cotton material, with a division for the great toe, like that which our mittens have for the thumb. Through this the thong is passed that keeps on the clog, or soft-soled shoe; but it keeps it on only when the wearer shuffles along. If obliged to run, he goes barefooted, or uses straw sandals.

A Japanese Girl in a Kimono

Instead of shaking hands, the Japanese make deep bows to each other. If a woman makes a present, both giver and receiver bow to the floor. Politeness is common to all classes of people in Japan and this makes life there very agreeable.

Customs. — Many of the ways of Japan seem strange to us who live in America. The workmen sit down to work more than ours do. Screws and nuts turn in the opposite way from ours. In building a house, the roof is first made on the ground and then raised on bamboo poles. The houses are made principally of wood and paper.

Japanese Girls in a Jinrikisha

Horses wear straw shoes tied on with strings. The horse is backed into his stall.

Grown-up people ride in baby carriages drawn, not by horses, but by men. In the cities these men are now dressed in dark blue cotton, and wear big, mushroom hats. They generally go on a run and splash gaily in and out of the puddles. As they hurry around the corners they utter sharp cries to warn the foot-passengers and other baby-carriage men. These carriages are called *jinrikishas*, which means *man-carriages*. Most foreigners like this method of moving from place to place. The men can run fifteen miles in a little over two hours, — about as fast as a horse would draw a carriage. They make a journey of forty miles in a day.

Houses. — The Japanese are small in size, the men being no taller nor larger than our women. Their houses are therefore small, and sometimes seem like dolls' houses. They are usually one story high, and have no doors, no chimneys, no stoves, furnaces, nor cellars, and no windows, unless you call a screen, with a piece of paper stretched over it, a window. The strongest and most important part of the house is the roof. These houses are not made to be very firm, but are elastic, so as to withstand the shocks from the frequent earthquakes. The wealthy have very beautiful gardens about their houses.

The side of the house next to the street is usually made of paper stretched upon frames, which can be slid back and thus open the front room to the gaze of the passers-by. All the rooms are divided inside by these paper screens, which are usually drawn out in the night and slid back in the daytime. If you wish to go out of your room, or out-of-doors, you simply move away one side of the room and walk out. There is no privacy in such a house. One can always hear what is said in the next room; but the Japanese do not mind that.

As you see in the picture, the house can be made in the daytime into one large room or grand saloon. The size of a room or of a house is arranged by the number of mats which can be spread upon the floor.

Interior of a Japanese House: notice the Sliding Paper Walls

The Japanese have little furniture in the rooms, and very few pictures. If they own several pictures, they rarely show more than one at a time, the others being kept in the store-room. They usually sit upon the floor, which is covered with clean, soft straw mats, so fine that foreigners in a little while learn to use them, especially in hot weather.

Tea is made by the heat from a charcoal brazier, which is carried from one room to another. Most of the cooking is done over a small bed of coals placed in a box of sand, sunk in the centre of the floor.

Meals. — The meals are served in tiny bowls about the size of tea-cups, upon a small table which stands only a few inches above the floor, and the persons eating sit upon the floor. A regular meal in a Japanese hotel may consist of cold soup, hot soup, curry, rice, tiny

bits of radish, ginger, cooked chestnuts, two kinds of fish, and little cups of tea. The food is eaten with chopsticks, which foreigners find it hard to use. The Japanese rarely eat bread and butter, potatoes, pies, or custards; they do not usually drink milk or coffee, but are fond of tea without milk and sugar.

Going to Bed. — When the Japanese are ready to go to bed they usually take a hot bath and put on their day clothes. As many bedrooms as are needed are made by moving screens so as to divide off one room after another. Thick quilts are spread over the soft mats upon the floor. A wooden pillow, with a wad of paper on top, is placed at the head, which must be toward the north. Near the head is placed some food and a light, which burns all night, for the Japanese are afraid of the darkness. Over their day clothes they put on a long wadded wrapper; for their houses are not heated. Over this they draw another quilt and go to sleep.

In the morning the members of the household get up, roll the quilts, pillows, and wrappers into packages and put them in a closet, slide back the screens, and the house is in perfect order for the daytime. The wooden pillow is used by the women to protect their hair. The men use a hard bolster.

Japan is a most interesting country. The people are very active, quick, and progressive. You will learn more about these people in the large geography.

Maseh and his Mother

LANGUAGE LESSON

Write what you can remember about Japanese children. Tell other facts that you have learned about Japan.

62. LIFE IN INDIA

In the southern part of Asia is a great peninsula, the three sides of which are each about two thousand miles long. It lies at the foot of the highest range of mountains in the world. This country is called India, and it is about half the size of the United States.

The people of India are divided into several classes, or *castes*, and a person of one caste will have nothing to do with those of a lower caste.

Childhood. — There was born in this strange land, one hot day, a baby boy, who was at first called Laska. His home was a leaf-thatched cottage, the walls of which were made of mud, which becomes hard in this dry climate. A great feast was given, and the priest made an offering of bran and mustard to the god of fire. Then, if the stars were favorable, he helped the parents choose a suitable name. The name was, as is usual, that of some favorite god. If the baby should be ill, the mother would not send for a doctor, but she would put a pan of rice in the street, believing that any one who touched the pan would carry away the illness from her dear baby boy.

When Laska was six months old, there was another feast, and friends gathered to see baby eat his first dish of rice. Laska was so good-natured that he rarely cried, even if he had to lie all day in his cradle or be carried on his mother's hip while she was at work. It was so warm that he was not troubled with clothes till he was three or four years old. His parents thought so much of him that they put on, in place of garments, all the jewelry they could buy. He had rings, chains, necklaces, armlets, bracelets, and anklets, just like his sister.

Laska played with a little toy elephant made of wood, feeding it with rice and giving it water to drink. He had a funny-looking wooden cow also, and a dog with a red head and tail. As he grew older he and his boy friends played puss-in-the-corner, odd and even, and blindman's-buff. Boys in India also play jackstones with nuts, marbles, and tops. They fly kites without tails, and make mud pies.

School. — At three years of age the boy was sent to school. His name was now changed to Maseh, and he put on a muslin cap and coat. He was not expected to run about and play, for that would make him a beggar.

His schoolhouse was under a tree. Sometimes the schoolhouses are in a thatched shed. His slate or paper was the sand on which he sat and in which he worked his examples. His lessons were learned "by heart" and shouted to his teacher, as is the way in schools in the East. Only a few of the boys in India go to school.

Zeida. — Maseh's sister Zeida was very shy. When she was old enough to go to school, she was dressed in gauze and loaded with jewelry. At home, she played with a doll made of wood and painted in bright colors. If Zeida had been wealthy, she would have had many dolls and a room for them, and her parents would make feasts for the dolls.

At a very early age the father selects a husband for his daughter and her school days end. Then she wears a veil, the ends of her fingers are dyed pink, and she lives apart from her friends. Her mother now teaches her cooking and religion. A man's wife in India always cooks and serves the food for her husband, no matter how many servants she may have. She never eats with him.

Village Life. — Maseh and Zeida live in a small village. In India such a place is a little world in itself. A large part of the people live in little villages. There is usually a cluster of cocoanut, tamarind, and mango trees; a group of dwellings made of palms or mud,—some thatched, some tiled; a small temple in the centre, and near it a tank of water for bathing purposes. There will be, perhaps, sixty houses and three hundred people in such a village.

The great man of the town is called the *headman*. He owns about fifty acres of land. He is a kind of judge, lawyer, and collector of taxes. His assistant keeps the accounts and writes letters for the people. There is a man like our policeman who watches the village at night. Another important man is the astrologer, who tells the people by the stars when to begin to build a house, what day to select for the marriage of a daughter, or who has been stealing the jewelry.

The temple has two priests, who live upon the gifts to the god worshipped there. The schoolmaster is also important. He knows by heart thousands of stanzas. He teaches each boy spelling, reading, arithmetic, and writing. He governs the children not only in school but at home. If a boy behaves badly at home, his parents send for the schoolmaster to make him mind.

The village doctor tells sick people, in verse, what to do for themselves, and gives them many kinds of pellets. He always asks the relatives to go to the temple and make offerings to the gods. Besides the carpenter, who makes ploughs, carts, boxes, and houses for the people, and the blacksmith, who makes axes, scales, spades, and crowbars, there is in each village a herdsman. He is a very busy man, looking after his own cattle and those of his neighbors. He milks them all, drives them to pasture, and goes after them.

Two Priests of the Temple

The washerman and his wife wash the village clothes in the river, beating them on stones. They are paid in rice. The potter makes the lamps, cooking dishes, and drinking vessels, and mends these things when they are broken. The barber is usually a musician also, and he arranges marriages. The storekeeper, whose shop is called a bazaar, is a money lender and charges high rates. The goldsmith is a busy man, for the people love ornaments.

Below the villagers in rank are those who work on the land. They are required to live outside the village. They plough the land, sow the rice, water and weed, reap and gather. They work for the same family from generation to generation, and receive as wages about one dollar's worth of rice each month.

At the village well in the evening, men are washing clothes, women are washing their cooking utensils, and the water seller is filling his skin bottle and then carrying it away on his brown back.

The women in the village rise early, sweep the house, and then go to the temple tank to bathe and to wash their clothes. Here they talk, laugh, and tell the news.

Every person in a village does the work allotted to him, and everything goes like a machine. All work hard from morning till night, leading peaceful, contented lives, happy in their humble cottage homes, and caring nothing for what goes on beyond their village.

Animals. — Maseh's country contains some interesting animals. It is a great place for birds, for the native people rarely shoot them. In the cities they feed them carefully, and in some places they build bird-houses on every street. These rest on poles about as high as the lamp posts. The birds find here food and drink supplied by the people. Wild ducks, geese, and cranes are frequently seen; sparrows and crows are very common.

A Leopard

A Tiger

Leopards and bears are found in many hilly parts of India. Wild elephants were once very common, and are now sometimes found wandering in herds through the dense forests. Tame elephants are employed to some extent to move and pile up lumber, to carry stores for the army, and to hunt the tiger.

Elephants that Work

Maseh and his family have to look out constantly for danger from three kinds of creatures. In all parts of India poisonous snakes are found, and they kill thousands of human beings every year. Always when Maseh thinks of going in swimming, he must find out if crocodiles are common in that part of the river or in that pool. As the people never kill any living thing, and as they are constantly bathing out of doors because it is so warm, terrible accidents often occur.

The third, and most dangerous of all the wild animals, is the tiger, found wherever forests abound. The tiger is about as strong as the lion. He can crush in the head of a bullock with a single blow of his paw, and carry a large cow in his mouth while running up the side of a mountain. When the tiger grows old and less active, and is unable to catch deer and such wild animals, he takes to preying upon sheep and cattle, and even human beings, because he can catch them more easily. Then he becomes very dangerous, and Maseh calls him a "chetah," that is, a man-eater.

In some parts of India buffaloes, like those in Africa, are used in place of horses or oxen. Maseh's father owns two white humped cows. These animals draw the wooden plough, haul the cart-loads of rice, and take the family on journeys.

Maseh's Father ploughing

63. AUSTRALIA AND STRANGE ISLANDS

Crossing the Pacific Ocean. — One day we stepped on board a steamer in the harbor of San Francisco, and sailed through the Golden Gate into the Pacific Ocean. Our ship was headed toward a group of islands two thousand miles away, belonging to the United States. They are called the Hawaiian Islands, and their position is marked on the map of the Western Hemisphere by the letter H. (See map, page 82.)

As we sailed day after day over the wide Pacific, we noticed that it was very blue by day, and at night fire-like in color from the millions of small, phosphorescent creatures it contains. Jellyfish now and then rose to the surface of the water near the side of the ship, and flying fish leaped out as if pursued by an enemy. One day a school of porpoises entertained us with their play.

Honolulu Bay

Hawaiian Islands. — As the ship approached the coast of one of the Hawaiian Islands, mountain tops first appeared, and then green slopes and fern-clad hills. Later cocoanut groves, sugar plantations, and green pastures came clearly into view. This island is called Oahu. As we approached the city of Honolulu, on the southern side of the island, it seemed half buried in groves of trees. (See map, page 211.)

The country around Honolulu is flat, but a few miles inland, bare rugged hills rise to a considerable height. Most of the streets of Honolulu are broad. In the business part they are lined with brick blocks in which are stores containing every variety of goods. In the suburbs the houses are deeply embowered in shrubbery. Most of the houses have verandas where the young people dance by the light of the moon to the soft music of the natives. As we strolled about, we felt all the charm of this pleasant island life and climate.

Trees, Fruits, and Flowers. — The vegetation in and about Honolulu is tropical and very interesting. There is one long avenue of trees which have tall, dark red trunks. The tops are umbrella-shaped and they bear bright scarlet flowers. Another tree, called "the golden rain," has masses of yellow bloom and deep green leaves. Some trees have royal purple flowers; others, flowers of white and gold; the *hibiscus* shows crimson blossoms, and the mango tree is laden with yellow fruit.

The mango grows on a wide-spreading tree, making a dense shade. The fruit is about the size and shape of an orange. The pulp is very delicious. It is often made into sauce and has the flavor of rhubarb.

When hanging from the tree, the breadfruit looks like a large orange, but it is more like a vegetable than a fruit. It is baked like a potato, and the inside resembles a sweet potato in taste, but the color is white.

After leaving this volcanic island the ship's prow was turned toward another group of islands far away to the south. The trade-winds blew regularly every day, and the ocean kept up a deep, heaving motion. There was no storm to disturb the scene, and only one ship passed us in a week. Wonderful sunsets were seen day after day.

Samoan and Society Islands. — The Samoan Islands appeared in sight on the seventh day and we stopped a few hours at Apia, the principal town. The natives of these islands are fine-looking men and women. Their houses are simple huts with thatched roofs and floors of stone. Matting is the usual bed. One of the smaller islands in this group now belongs to the United States.

East of the Samoan Islands is another group called the Society Islands. The location of these islands is shown by the letter S on the map of the Western Hemisphere (page 82). We reached them in a small steamer from Apia. The name of the principal town, Papeite,

Apia, Samoa

on the largest island, means "a basket of water." The island is called Tahiti. The streets of the town are heavily shaded with double rows of tropical trees. The common trees on this island are orange, lemon, bread-fruit, mango, and cocoanut. Several cocoanut trees are shown in the picture at the right. The native huts are thatched with palm-leaves. The fashionable hour of the day is five o'clock in the morning, when the people go to the market. The mayor and other officials are also out at that time. The women are dressed in bright colors and wear sweet-smelling flowers in great abundance, as the picture of a family in Tahiti plainly shows. The color of the skin is tawny, sometimes almost fair. The hair and eyes are usually black.

Copra, the meat of the cocoanut, is the principal production carried from many of the small islands in the Pacific Ocean to Europe and the United States. From it soap and oil are obtained.

In many of the coral islands where the water is not fit to drink, the natives drink cocoanut milk. They become quick and nimble in climbing trees for fresh nuts. In doing this they move hands and feet alternately, like the toy monkey on a stick.

A Tahiti Boy climbing a Cocoanut Tree

A Tahiti Family

New Zealand. — Our next stopping-place was Auckland in New Zealand. We entered a pretty harbor, but the town is less attractive than many other places in this part of the world. It is surrounded by a fertile, hilly country.

Here we learned that New Zealand consists of two large islands and many small ones. Sheep raising and gold mining keep many persons busy. The natives look like gypsies. Most of them are lazy and good beggars. The country has been settled largely by people from

INTERESTING FACTS ABOUT AUSTRALIA, THE PHILIPPINES, AND OTHER ISLANDS

Australia has little moisture, and its rivers are short. It has many valuable mines. Australia means "Southern Land."

Wool-growing and mining are two important kinds of business.

The kangaroo mother carries her young in a pouch.

The northern part of Australia is the hottest part.

October is the coldest month of the year.

Tasmania, south of Australia, is spoken of as "a fairyland." Hobart, the largest town, has a fine situation.

New Zealand has snow-clad mountains which are so picturesque that they are called "Alps."

The natives of the Tonga, or Friendly Islands, wear mats of reeds around their waists and garlands of flowers about their necks.

The Philippine Islands contain as much land as New England, New York, and New Jersey together. Earthquakes and volcanoes are common there. Mosquitoes are very troublesome. Snakes are used instead of cats to catch rats. There are many different tribes, and many languages are spoken. The weather is hot. These islands are governed by the United States.

MAP QUESTIONS ON AUSTRALIA AND PACIFIC ISLANDS

1. In what direction is Australia from the United States?
2. How could you go to Australia? From what city?
3. When it is night here, what time of day is it in Australia?
4. Which is larger, Australia or North America?
5. How many miles is it across Australia from west to east?
6. What is the largest island in the world?
7. How many groups of islands are there in the Pacific Ocean?
8. To what countries do these islands belong?
9. What islands belong to the United States?
10. Why are certain islands called Spice Islands? Near what country are the Philippine Islands?
11. What is the largest river in Australia?
12. Why are there so few rivers in the interior?
13. Where did Admiral Dewey win his great victory?
14. Name and locate four large cities.
15. Where does the equator cross this map?
16. On what island is Manila?

Bourke Street, Melbourne, Australia

Great Britain and Ireland. The mountains along the west coast are very beautiful and remind the traveller of Switzerland.

Australia. — It is a voyage of twelve hundred miles from Auckland to the nearest seaport of Australia, the southern grand division. This seaport, the city of Sydney, has a beautiful harbor, shaped like an oak leaf. The shores are hilly and the hills nearest the sea are dotted with summer homes. The points of land that we passed were crowded with beautiful houses.

Sydney. — The city of Sydney, with its crooked streets and its Common, reminds one of Boston. The plans of the two cities are also similar. Its suburbs are beautiful, but the bay is its chief attraction and its great pleasure park. Every holiday finds the people on its waters in all kinds of sailing craft. There is plenty of coal in this part of Australia, and it is so cheap that Sydney is a great manufacturing centre.

To see as much of the country as we could, we travelled for several weeks over the railroads of Australia. These are owned by the different colonies and, strange to say, are of different gauges, thus preventing the passage of through trains. Even the mails have to be changed from one car to another every time a border-line is crossed.

From Sydney to Melbourne we rode nearly all the way through a farming country. The land was level or rolling, with only a few elevations. Gum and wattle trees were frequently seen.

Melbourne. — Melbourne is the largest city on this island grand division. Its streets we found very wide, but lacking in shade trees.

Climate and Products. — This part of Australia has a dry, healthful climate. The heat in the summer is not hard to bear. The soil is rich and very productive, if watered. Wheat, oats, and barley, hops, fruit, and grass, are all raised with profit. Sheep raising and the export of wool and mutton form a large business.

The Kangaroo. — The remarkable animal of the country is the kangaroo, noted for its long leaps and its strong legs and tail. The mother kangaroo has a pouch or pocket in which she carries her young wherever she goes. For self-defence the kangaroo uses its long legs, with which it can easily kill a man.

Adelaide. — Adelaide was reached by rail from Melbourne after a ride of several hours. We were delighted with this city and gave it the name of "White City," on account of the light-colored stone of which its many public buildings were made. The wide streets in this place were very clean, and were lined with trees or shrubs.

People. — The people of this country are a manly race. They have vigorous bodies and bear the stamp of independence and self-reliance. They live better, work fewer hours each day, and enjoy outdoor sports to a greater extent than their cousins in Europe.

A Mother Kangaroo, with a Young Kangaroo in her Pocket

As we travelled north from the southern part of Australia, we were at first surprised to find that it grew warmer instead of colder, till we remembered that we were in the southern hemisphere, and were going nearer and nearer to the Hot Belt or Tropical Zone. It was summer in Australia, though we knew that it was winter at home.

Papaw

New Guinea and Coral Seas. — Our ship next proceeded to the strangely shaped island called on the map New Guinea. Here we found the bread-fruit trees with their big leaves, also the straight-stemmed papaws, the betel nut, and sago-palms. The fruit of the tropical papaw is of a green color. It looks like a small melon and has a similar taste. The juice of the fruit and the sap of the tree make tough meat very tender. The natives use the leaves in place of soap in washing clothes. The strangest animal we saw here was the flying-squirrel. It is small, but its fur is beautifully marked. It has between the legs folds of skin which are spread out when the squirrel jumps from a high tree and which act as wings.

Pearl Diving. — The people on the islands in this part of the world make a living by collecting pearl-shell and diving for the pearl-oyster. The men put on the diving-dress, and search at the bottom of the sea for a bed of pearl-oysters. When found, the oysters are sent up and dumped into the boat. In the large boat or on shore the oysters are opened and the pearls are taken out and shipped to London. The business of gathering the oysters is very dangerous, on account of the great pressure of the water at a depth of one hundred feet or more.

Java. — At last we reached one of the largest of the islands, called Java. We greatly enjoyed our stay with the Javanese. These people are small in size, of a coppery brown color, with straight, shining, black hair. They do their hair up in a handkerchief tied around the head. They usually wear umbrella-like hats and look somewhat like the Japanese. They are a hard-working people. When at work, they wear very little clothing. The native houses have a framework of bamboo, walls of split bamboo, and a roof of grass thatch.

64. THE PHILIPPINES

After leaving the Island of Java, our steamer took us to Hong Kong in China, and thence directly to Manila, the largest city on the Philippine Islands. This group of islands now belongs to the United States.

Manila. — Manila is on the island of Luzon, the largest of the group, and the fourteenth island in size in the world. It is thirty miles from the mouth of the bay to the city. As one sails up the bay, the city, which is on very low ground, comes into view so suddenly as to surprise one. A strange, busy sight meets the eye as the vessel nears port. The bay is full of craft of all sorts.

Street Scene in Manila: Carabaos drawing Carts

Besides foreign steamers and schooners, there are great canoes, each made of one tree trunk, which carry cargo, and small dugouts, with awnings, for passengers. Brown Malay boatmen in short trousers push the canoes and dugouts up the bay with long bamboo poles.

The city is divided into Old and New Manila. Old Manila is also called the citadel. It is walled in, and

surrounded by a moat over which are eight drawbridges. It is a sleepy place. Inside the walls are public buildings, including the city hall, the cathedral, and several churches, but only a few shops and homes of the people. Extending along the bay, from the end of the wall, is a drive and promenade, the pleasure-ground of Manila. On it are band stands and chairs for public use. Fine concerts are often given in the evening, when the place is crowded with gaily dressed people; but by day it is deserted.

In New Manila there are many fine houses standing in well-kept grounds. One needs a large house in this tropical land, so as to be able to run away from the sun. Carpets and curtains are never used, and the floors are made of polished wood.

Buildings and household arrangements in this part of the world are made with reference to earthquakes. Buildings are rarely over two stories high. The Cathedral and a few churches are the only fine structures in Manila. When the earth begins to shake, all petroleum lights are put out, and cocoanut oil is burned instead. Heavy pieces of furniture are often bolted to the wall that they may not be thrown over and injure some one. The shells of a kind of oyster are used instead of glass for windows, because they are not so easily broken. These shells are called *conchas*.

A Group of Filipino Boys and Girls

Philippine Houses. — Many houses in the city have a central court. Some are heavily built, of stone, and others are light and airy looking, being made of bamboo. These stand on piles to lift them above the floods of the rainy season. The upper stories of the houses are often made entirely of frames filled with conchas, which slide back, throwing the rooms open to the air. These stories are used by the family, the lower floor being given up to servants' rooms, store-rooms, shops, and offices. In the living-rooms, stone flower-pots, full of palms, ferns, or flowering plants, are placed about on pedestals as ornaments.

A Philippine bedroom, with its high-post bedstead and little other furniture, seems bare to us. The bed nearly always has a mosquito bar, and is usually draped with lace. It has a cane netting like our cane-seat chairs, instead of springs. On this is laid a fine grass mat, the coolest thing one can find, one or two sheets, a pillow, and a bolster. To get into bed without mosquitoes is difficult.

Baths are almost necessary to life in this hot land. Large earthen tubs brought from China are found in the bath-rooms of the houses. They are filled at night so that the water may grow cool before morning.

We may see native houses in the small towns near Manila. They have frames and floors of bamboo, and roofs and sides of a kind of palm. In the hot season they grow so dry that they are easily

A House made of Bamboo and Palms, near Manila

set on fire. As many as seven thousand of them in one village have been burned in two hours.

The People. — One sees here many kinds of people and many interesting sights. The Escolta is the principal busy street. It is crowded with shops, many of them Spanish. Ladies do not often go shopping on account of the heat and the dust. They are glad to buy from the Chinese and other merchants who bring goods and "notions" to their doors.

Manila girls and women are often very attractive. They have beautiful hair hanging almost to their heels. If they have small feet, they are very proud. Their slippers have no heels, and only a strip of leather across the toes. They wear no stockings, and sometimes their slippers are so small that some of their toes are crowded outside.

Sometimes the dress of the Manila women is very pretty. It consists of a bright-colored skirt with a train, around which is tightly drawn a square of black material from waist to knees. The waist of the dress is often of thin goods, with flowing sleeves, and is used over an embroidered garment. Around the neck is a white kerchief, with the ends crossed.

A Bamboo Tree

Island Tribes. — The best of the Filipinos are the Tagals of central Luzon. They keep themselves clean, and wear more clothing than the others. Of their hair they are very careful, washing, oiling, and scenting it. Some of them own rich bracelets and chains of gold, which they love to wear. The people of this tribe have light-colored skins and graceful figures. It is astonishing how quickly they learn, especially in music. These people have settled homes, and the wife and mother is respected by her husband and children. The Tagals love their sons and daughters, and desire, above all things, that they be well educated.

Plant Life. — Plant life in the Philippines is very luxuriant. The cocoanut palm flourishes on the lowlands, growing in very poor soil where nothing else will live. It brings wealth to the islanders from the nuts it bears. In some provinces there are many of these trees and the business of making cocoanut-oil and copra, or of sending them to the Manila markets, is thriving.

These islands make more money from hemp than from any other production. This is really a kind of plantain, and looks so much like the banana that only an expert can tell them apart. It grows best where there is volcanic material in the soil, and it likes to live at a certain distance above the sea. It also loves the bright sun, the heavy rain, and the Pacific breezes which it gets in the Philippines. In exchange for these it has made the islands rich and famous. The fibre is separated from the pulp in presses, and it makes the best and cheapest cordage and sail-cloth. As no hurtful insect injures the tree, it is easily raised.

The Filipino thinks the bamboo the most useful of all the plants in his land, and he is right. A native once said that if he had a large knife and some bamboos he could get a good dinner. He then went to a clump of bamboos, got a dry joint, and cut it in two. Rubbing the two parts together, he made a spark and kindled a fire. He made a pot out of a green joint, boiled water in it, and stewed some young bamboo shoots, which make very good greens. Then of bamboo he made a plate, and a knife and fork with which to eat the greens. These people make the frame, siding, and often the roofs of their houses of the bamboo canes. Besides dishes, knives and forks, and spoons, they make their farming implements, sledges, fences, bridges, rafts, boats, fish-traps, bows, bowstrings, lance-heads, arrows, water-pipes, and musical instruments from bamboo.

INDEX

GUIDE TO PRONUNCIATION

ă, as in *cap;* ā, as in *cape;* ä, as in *far;* ą, as in *fall;* ȧ, as in *last;* ã, as in *care;* å, as in *senate;* ĕ, as in *pen;* ē, as in *mete;* ẽ, as in *her;* ê, as in *event;* ĭ, as in *pin;* ī, as in *pine;* ŏ, as in *not;* ō, as in *cold;* ô, as in *for;* ŭ, as in *tub;* ū, as in *mute;* û, as in *furl;* o͝o, as in *pool;* o͞o, as in *foot;* oi, as in *oil;* ow, as in *cow;* g, as in *get;* ġ, as in *gem;* c, as in *cat;* ç, as in *cent;* n̰, as in *bank;* s̰, as in *wise.*

A, e, i, o, and u marked thus: ạ, ẹ, ị, ọ, ụ, indicate a sound obscured. Accent is shown by the sign ′.

LIST OF MAPS