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ASSIGNMENTS IN GEOGRAPHY



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ASSIGNMENTS IN GEOGRAPHY

BY

R. H. WHITEHOUSE, D.Sc.

INDIAN EDUCATIONAL SERVICE, RETIRED

BASED ON

OUR WORLD—A HUMAN GEOGRAPHY

By CAMERON MORRISON, LL.B.

MACMILLAN AND CO., LIMITED
ST. MARTIN'S STREET, LONDON

1930

PRINTED IN GREAT BRITAIN

INTRODUCTION

ALTHOUGH teachers recognize the value of the Dalton plan of study for schools, there are often reasons which prevent its adoption in its entirety. The system of assignments, however, can be applied to any subject, and admittedly it is the best method yet devised for school pupils. If the assignments given here are conscientiously worked through, there need be no fear that the pupil has not understood his reading ; the exercises cannot be done without a complete understanding of the text-book.

Assignments supplant most of the ordinary geography " lessons " and only occasionally need the teacher address the class as a whole on some part which he feels needs special common emphasis. The pupils will be able to proceed at the pace at which their respective abilities permit and the teacher will be free to move about giving assistance where it is needed.

If the teacher insists on the shortest possible wording in answers to exercises, he will not find the marking excessive ; indeed it may be done during the geography periods in the presence of the pupil, who can correct his work on the spot.

A careful record in chart form of each pupil's progress should be maintained, and in this way the teacher can see at a glance where attention is needed among his pupils.

The assignments are not of similar length ; any attempt at equalizing the length of the assignments is impossible without splitting related subjects. They are progressively difficult, and as the end of the series is approached fuller answers are demanded.

The author feels convinced, from his experience of assignments in science, that teachers will appreciate the aid that the assignment method gives. Apart altogether from learning geography more intelligently, by the assignment method the pupil's English becomes vastly improved. The collective answers to the exercises will provide excellent material for revision.

R. H. W.

LONDON, *September* 1929.

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ASSIGNMENT No. 1.

CHAPTER I.—INTRODUCTION. (PAGE 1.)

Remember : The best answers are those which

- (1) have the fewest words possible ;
- (2) answer *only* what is asked in the question ;
- (3) have no spelling or grammatical errors ;
- (4) are written in your best hand-writing ; and
- (5) are neatly arranged.

I. On pages 1 and 2, you are told what a study of geography teaches you. Some of the points mentioned may come under the heading Physical Geography, others under Productions, and others again under Human Activities.

Exercise 1. After reading page 1 and half of page 2, write the three headings given, and under each write down the points mentioned in their proper place. A single word or sentence will be sufficient for each entry, thus :

Physical Geography. Productions. Human Activities.

Winds,	Animals,	Canals,
Deserts,	Minerals,	Harbours,
etc.	etc.	etc.

(Leave a space at the bottom of each list so that you can add to it as you read further.)

Exercise 2. Why is geography a science ? (See para. 1, p. 1.)

Exercise 3. Why is geography a story ? (See para. 2, pp. 1 and 2.)

Exercise 4. Write and learn by heart this sentence from page 2 : “ Geography is the *story* of how man has made the earth his dwelling place.”

II. The Earth is a Heavenly Body. (Page 2.) The science which deals with the heavenly bodies (Sun, Planets and Stars) is called Astronomy. Geography is made much more interesting by reading some elementary astronomy. See if the school library has some books on the subject.

Exercise 5. What is the Solar System ?

Exercise 6. What is a planet ? (Consult a dictionary and also read elsewhere in your text-book—the Contents, page xiii, will help you to find the place, and so will the index at the end.)

Exercise 7. Find out from somewhere the names of the planets which revolve round the sun and write them down in a list.

III. The Shape of the Earth. (Page 3.)

Exercise 8. This section gives you five proofs that the earth is shaped like a globe or ball. Which do you think are the two best proofs ?

Exercise 9. Draw Fig. 1, page 3, putting in all the measurements mentioned in the first paragraph of this section.

Exercise 10. Draw a sketch similar to Fig. 1 to shew the “line of sight” if the earth were flat.

IV. The Size of the Earth. (Pages 4 to 6) The various measurements of the earth are here calculated by easy mathematics. Be *quite* sure you understand each step in the calculations ; if you have any difficulty ask your teacher to explain it. In Fig. 4, page 5, remember that *SB* and *S'A* shew the parallel rays of light from the sun, and that *S* and *S'* do *not* shew the position of the sun, but only its *direction*. If *S* actually represented the sun, the line *BS* would need to be roughly 24,000 times the length of *BC*.

The circumference of the earth is usually said to be approximately 25,000 miles.

Exercise 11. Draw Fig. 4, page 5, and instead of the letters *A*, *B*, *C*, *S* and *Z*, write the full names of what they represent.

Exercise 12. Define "Zenith." (Consult a dictionary.)

Exercise 13. Which are the two zenith points shewn in Fig. 4 ?

Exercise 14. Write down and commit to memory : (1) the circumference, (2) the diameter, and (3) the area of the earth as given on page 6.

V. The Earth Rotates. (Page 6.) Paragraph 1 of this section tells you that the sun, moon and stars *appear* to move across the sky because the earth itself is moving round on its axis, just as the school globe turns (or rotates) on its axis or spindle.

Remember the distance of the sun from the earth and the size of the sun compared with the size of the earth.

Exercise 15. Calculate the rate in miles per hour at which the earth rotates on its axis.

A "satellite" (see para. 2) is a planet which moves (revolves) round another planet. Sometimes we call those people satellites who attend and move about with another person (perhaps a big official).

Exercise 16. In which direction does the earth rotate on its axis ?

Exercise 17. Explain very briefly what is meant by "The sun never sets on the British Empire."

Exercise 18. By using the map of "The British Empire and Trade Routes" (the last of the coloured maps at the beginning of the text-book) write the names of these places in the order in which the sun rises at each : Bombay, Honolulu, the Bahamas, River Nile, Hong-Kong.

Exercise 19. Read the last sentence in this section—"If a telegram . . . over an hour"—and explain why this is so.

VI. The fixed points and circles in a rotating globe. (Pages 7 to 10.) After reading the first paragraph in this section you

will understand that if we make the school globe spin round at exactly the same rate for ever, it would resemble the rotation of the earth, except that the school globe's axis is real and the earth's is only imaginary.

Exercise 20. In what position are the earth's poles ?

The remainder of this section tells you about the parallels of latitude and meridians of longitude, and the use they are to us.

Exercise 21. Define : (1) Equator, (2) Parallels of latitude, (3) Meridians of longitude, (4) Meridian of Greenwich (pronounced Grin'itch).

Exercise 22. State briefly the use of : (1) Parallels of latitude, (2) Meridians of longitude.

Exercise 23. At the beginning of the text-book are a few maps. From the map of Asia give the positions of these places as nearly as you can by latitude and longitude : Mecca, Bombay, Delhi, Lahore, Dacca, Cochin, Hong-Kong, Peking, Tokyo. (Do not forget to use the letters N. and E.)

VII. Rotation and Time. (Pages 10 to 11.) This section is most interesting. It tells you the difference between sun time and standard time.

Exercise 24. Why is it necessary to have a standard time in India ?

Exercise 25. When a ship sails from India to England, will the ship's captain put the clock on or back ?

Exercise 26. Here is a statement from *The Civil and Military Gazette* of 4th September, 1927 :

Sunrise on 4th Sept. :

Peshawar, 6.18 ; Lahore, 6.9 ; Delhi, 6.0.

Sunset on 4th Sept. :

Peshawar, 19.7 ; Lahore, 18.53½ ; Delhi, 18.40½.

Why does the sun rise and set later at Peshawar and earlier at Delhi than at Lahore ?

VIII. How the Revolution of the Earth explains the movements of the Stars during the year. (Pages 11 to 14.) Follow the experiment described in this section very carefully; imagine yourself carrying out the experiment.

Exercise 27. Why do we not see the same stars in the sky every night throughout the year?

Exercise 28. When it is mid-day in Madras, at what places will it be about 6 a.m. and where about 6 p.m.? (Consult a map of the world.)

ASSIGNMENT No. 2.

CHAPTER II.—PLANES OF ROTATION AND REVOLUTION. (PAGE 15.)

Remember : The best answers are those which

- (1) have the fewest words possible ;
- (2) answer *only* what is asked in the question ;
- (3) have no spelling or grammatical errors ;
- (4) are written in your best hand-writing ; and
- (5) are neatly arranged.

I. This chapter explains to you how it is that we have different seasons (like summer and winter) and also why the length of the day-time varies at different times of the year. The best way of making sure you have understood the explanations in your text-book is to try and explain to somebody else :

- (1) Why it is warmer in summer than in winter ;
- (2) Why the days are longer and the nights shorter in summer than in winter ;
- (3) Why the day-time is short in winter ;
- (4) Why it is winter in the southern hemisphere when it is summer in the northern hemisphere ;
- (5) Why, on certain days in the year, the length of night and day is equal ; and
- (6) Why the sun is higher in the sky at noon in summer than in winter.

First read pages 15 and 16 and make sure you understand what is meant by the “ plane of revolution ” (ecliptic) and the “ plane of rotation.” When you think you understand these planes, go to your teacher and explain them to him ; he will tell you whether you are right or not.

You will better understand page 17 onwards if you mark Fig. 8, page 16, thus :

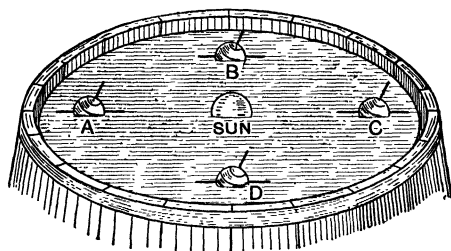


FIG. 1.—Shewing how the axis of the earth is inclined to the plane of the ecliptic.

In both diagrams of Fig. 11, the dotted line representing the direct rays of the sun corresponds to the water level in the tub in Fig. 8.

II. Pictures to shew different positions of the Earth in its yearly revolution. (Page 18.) When reading this section you should compare each picture with the corresponding position in Fig. 8, and imagine you are in the middle of the tub with your head where the “sun” is.

Before you read the section, answer these questions :

Exercise 1. In Fig. 12, page 19,

- (a) Why is the prime meridian (N.-S.) vertical ?
- (b) Why is the equator not shewn as a straight line ?
- (c) Why is the south pole not visible ?

When you have answered these questions correctly, read the section, following each point in the diagram (Fig. 12).

Exercise 2. Through which countries does the prime meridian pass ? (Look in your atlas too.)

Exercise 3. Where in the sky is the sun at noon ?

Exercise 4. What do you mean by “zenith” ?

Exercise 5. Name six places at which people will see the sun at the zenith at noon on 22nd June. (Consult your atlas.)

Exercise 6. What is the position of the sun at noon on 22nd June at Rockhampton in Queensland, Australia, and at San Paulo in Brazil, South America ?

Exercise 7. Would you like to live within the Antarctic Circle in June ? Why ?

Exercise 8. Which is the best time of the year for explorers to try to reach the North Pole ? Why ?

III. The Seasons. (Page 20.) In reading this section, keep looking back at Fig. 12 on page 19 and follow each remark.

Exercise 9. When reading the first paragraph make a list of the provinces and towns through which the tropic of cancer passes. Begin your answer with :

“ The tropic of cancer passes through (1) in
 (2) in ”
 etc.

with the town first, then the province.

2nd Paragraph (i.e., page 21). Look at the circles in Fig. 12 as you read. *Note :* The diagram is not perfectly accurate ; the equator line should touch the W.-E. line at the edge of the map.

Exercise 10. On 22nd June, (a) where are day and night equal ?

(b) where is it about 16 hours day and 8 hours night ?

(c) where is there no night ?

3rd Paragraph (i.e., page 22). It is easy to remember the two facts mentioned if you remember which hemisphere you live in, because you know whether it is summer or winter on 22nd June.

Exercise 11. Make a list of the countries in which it is winter on 22nd June.

IV. Our Cold Season. (Page 22.)

Exercise 12. To whom does “our” refer in this heading?

The foot-note on page 22 tells you that Fig. 13 is not correct. Here it is drawn correctly so that you can refer to this figure instead of that in the text-book.

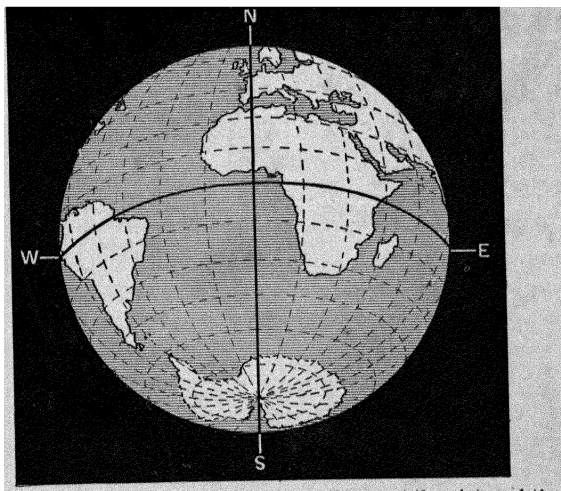


FIG. 2.—Position C. The earth as seen from the sun at the winter solstice, Dec. 22. Noon at Greenwich.

When reading this section, refer to Fig. 8, page 16, in your text-book to remind you of the position of C in the plane of revolution.

Exercise 13. Answer *in writing* the questions asked on page 23 in your text-book.

V. The Equinoxes. (Page 23.) Again refer to Fig. 8 page 16, as well as Fig. 14, page 24, when studying this section.

Exercise 14. In Figs. 12 & 13 the equator is shown as a curved line, but in Figs. 14 & 15 it is a straight line. Why?

Exercise 15. Where, on the earth's surface, will people see the sun directly overhead at noon on (i) 22nd March (ii) 22nd June, and (iii) 22nd December?

Exercise 16. In which direction (N., S., E. or W.) do people face when looking at the sun at noon in (i) Australia, (ii) India, (iii) Argentine Republic (South America), and (iv) South Africa ?

Exercise 17. Name the dates when, all over the world, day and night are equal. What names are given to these dates ?

Exercise 18. Read the first four lines on page 25, then answer this question : Does the length of the day vary at the equator ? Why ?

Near the top of page 27 (5th line) you read, " We can watch these changes in the sun's position day after day by noticing the shadows at noon lengthening and shortening." Test this at home by fixing vertically in the ground a stick, or at school by noticing and marking the length of the shadow of a telegraph pole or part of the school building, at different times of the year. Measure the length of your own shadow at noon on 22nd June, 22nd September, and 22nd December. But perhaps you had better make allowance for the amount you have grown during this time.

Try and find out whether there is the same difference between the length of the day and the length of the night on the same date in the Punjab and in Ceylon ; and give an explanation of the fact you discover.

Exercise 19. Explain why, in Europe, the farmer has only one harvest in the year and in India he has two.

The Earth rotates and revolves regularly and steadily. (Page 27.) This section merely explains that the earth moves on its own axis (which always keeps the same direction) and also round the sun, always in the same direction and at the same rate.

Why the Stars do not appear in the same part of the sky at different places. (Page 28.) Though this section is not very important, you will find it interesting if you read it through.

ASSIGNMENT No. 3.

CHAPTER III. THE MOON. (PAGE 31.)

For the third time, remember : The best answers are those which

- (1) have the fewest possible words ;
- (2) answer *only* what is asked in the question ;
- (3) have no spelling or grammatical errors ;
- (4) are written in your best hand-writing ; and
- (5) are neatly arranged.

In India, it is only rarely that a cloudy sky prevents people from seeing the moon at night. Everyone in India is interested in the “ phases of the moon,” for the holding of so many festivals is decided by the appearance of the moon. You are all familiar with the phrase “ provided the moon is visible ” in connection with the dates of holidays ; you should therefore be particularly interested in this chapter.

I. The Moon : Its movement in front of the stars and round the earth. (Page 31.)

1st Paragraph. In reading the first paragraph, do not misunderstand the text-book and think that it means that the moon rises in the west and sinks in the east ; it does not. The moon follows a path similar to that of the sun. Look at the moon any night when it is visible at, say, 8 o'clock, and note its position ; look again at 10 o'clock and you will find it nearer the west. However, the stars which appear all round the moon at 8 o'clock do not move at the same rate as the moon, but apparently faster ; so that the moon moves, in relation to the stars, eastwards.

Notice the sentence in line 6 : “ she has moved *among them* (*i.e.*, among the stars) to the east.”

2nd Paragraph. Verify each of the remarks in this paragraph by your own observations during a month.

Exercise 1. In what part of the sky do Muslims look for the moon at the end of Ramzan ?

Exercise 2. In what part of the sky, just after sunset, will you see (a) the half-moon and (b) the full moon ?

Exercise 3. Sometimes you see the moon in the early morning after sunrise. Is this the waning or the growing moon ?

3rd Paragraph. (Bottom of page 31.) *Note :* For the present take no notice of the parts which are labelled *a* to *h* in Fig. 16. Read the paragraph carefully in order to do these exercises.

Exercise 4. In what direction does the earth spin on its axis ?

Exercise 5. Of the places mentioned in this paragraph, which would not be visible " from a great height above the North Pole " ? Why ? (Consult your atlas.)

Exercise 6. In Fig. 16, page 32, why is the moon represented by circles half black and half white ?

4th to 7th Paragraphs. (Bottom page 32 to page 34.) Follow, in Fig. 16, all the positions mentioned in the text. Then do these exercises.

Exercise 7. Why is the new moon invisible on the earth ? Draw a diagram to illustrate your answer.

Exercise 8. Remembering what you have read in paragraphs 1 and 2, say why, just after new moon, you see the moon near the setting sun.

Exercise 9. When the moon is in the position N. (Fig. 16) is there any possibility of the moon being invisible on the earth according to the diagram ? Discuss the matter with your teacher, or see page 36.

Exercise 10. Draw a diagram to shew the positions of the sun, earth and moon when it is half-moon.

Exercise 11. What is a lunar month ? How many days are there in a lunar month ?

Exercise 12. Answer the questions asked at the end of paragraph 7 (middle of page 34). (The year referred to is 1925, but this does not matter.)

II. Phases of the Moon. (Page 34.) You will now have to consider the parts *a* to *h* in Fig. 16, page 32. Read to the middle of page 36.

Exercise 13. What do you mean by “ phases of the moon ” ?

Exercise 14. How could you prove that the moon is a dark body ?

Exercise 15. From where does the moon always appear full ?

Exercise 16. When the full moon is in the west, where is the sun ?

Exercise 17. When does the moon rise when it is half-moon ?

Exercise 18. Draw a diagram to shew the positions of the sun, moon and earth at new moon.

Exercise 19. Answer the questions asked in the first two paragraphs on page 36.

III. Eclipses : Why they do not take place every month. (Page 36.) In the first paragraph of this section, the point raised in Exercise 8 on page 12 is dealt with. Science students should understand eclipses after they have studied Light ; those students who do not study science should ask a science student or the science master to explain eclipses.

Read the remainder of this section, i.e., from the bottom of page 36 to the top of page 38. It would be a good thing to get a vessel of water, two corks (one for the sun and one for the earth) and a disc (*e.g.*, the lid of a small round tin), and arrange these things to illustrate the plane of the ecliptic and the plane of the moon's orbit. Your teacher will tell you if your arrangement is correct.

Exercise 20. What conditions are necessary before an eclipse can take place ? (In your answer, do not write about " water " but " planes.")

Eclipses : How they are caused by the moon. (Page 38.)

Exercise 21. Why are some eclipses only visible as partial eclipses ?

Exercise 22. At what phase of the moon does an eclipse of the sun take place ? And at what phase an eclipse of the moon ?

CHAPTER IV.—THE PLANETS. (PAGE 40.)

IV. This chapter (pages 40 to 49) is not very important but is interesting. It will be sufficient if you remember a few useful things from this chapter ; you should therefore read it through and do these exercises.

Exercise 23. Write down two points of difference between planets and stars.

Exercise 24. Write a list of the planets in the order of their distance from the sun, beginning with Mercury. Underline the names of the exterior planets.

Exercise 25. Which is the largest and which the smallest of the planets ?

Exercise 26. Name two distinguishing features of comets.

Exercise 27. What are the markings which can be seen on the surface of the moon ?

Exercise 28. What is the sun made of ?

Exercise 29. What is " earth-light " ? When and where will you look for it ?

Exercise 30. Name the two facts in this chapter which interested you most and say why they interested you.

ASSIGNMENT No. 4.

CHAPTER V.—THE ATMOSPHERE. (Page 50.)

That important subject, Climate, can be interesting and properly understood only if you study this and the next chapter carefully. Because the life and work of people all over the world depend so much on climate it is absolutely necessary that you should thoroughly understand the subject.

I. The Atmosphere : Its Usefulness. (Page 50.) *Note :* “Atmosphere” is pronounced At'-mosphere, with the accent on the first syllable, and *not* Atmos'-phere as it is commonly pronounced in India.

Exercise 1. Give four reasons why it would not be possible for you to live on the moon. (Number your reasons 1, 2, 3, and 4.)

II. The Density of the Air varies with Altitude. (Page 51.) Note that “altitude” means the height above the level of the sea. There is one point which you should notice in the first paragraph of this section ; it says, “We live at the bottom of this ocean (of air) just as fish live in the ocean of water.” But we live only at the bottom of this ocean of air. while fishes live throughout the ocean of water—bottom, middle and top.

Exercise 2. If the atmosphere is denser on the plains than it is at the top of Mount Everest, do you think air has weight ? How could you prove your answer if you were given a paper bag and a balance ?

Exercise 3. How many miles high, approximately, is Mount Everest ? It is 29,000 feet high.

III. What Air is made up of. (Pages 52 to 54.)

Exercise 4. Find out from books, or by asking someone, what people made the last attempt to climb Mount Everest, and what happened.

Exercise 5. Make a list of things found in the atmosphere which are mentioned in this chapter. Which of these would be called impurities ?

Exercise 6. What are meteorites ? Why are they visible ?

Exercise 7. Whose life do you think is the easier, that of the Eskimo or the native of tropical Africa ? Why ?

IV. How the Atmosphere affects the Sun's Light. (Page 54.)

Exercise 8. What does the atmosphere do with light, heat, and moisture ? (Three points.)

Exercise 9. What effects does the dust in the atmosphere produce ?

Exercise 10. The sun-sets in deserts, *e.g.*, near the Suez Canal, are often regarded as the prettiest to be seen. Explain why.

V. How the Atmosphere affects the Heat from the Sun. (Page 55.) Read the first four paragraphs of this section—*i.e.*, to the middle of page 57—in order to do these exercises.

Exercise 11. Explain very briefly why it is cooler in the early morning and in the evening than it is at mid-day, though the sun may be shining all the time.

Exercise 12. Give one reason why it is cold weather in the North of India from September to March, and hot weather from March to September. (Consult Figs. 14 and 15, pages 24 and 25.)

Exercise 13. Why is there but little difference between summer and winter temperatures in Ceylon ?

Exercise 14. Sometimes the atmosphere is spoken of as a blanket round the earth. Is there any truth in this remark, and why ? (*Note* : “ Yes ” or “ No ” and just one sentence are enough for this answer.)

The remaining paragraphs in this section—5th to 8th, pages 57 to 59—tell of three ways in which things are heated ; these three are (1) *conduction* or heating by contact, (2) *convection* or heating by circulation of particles, and (3) *radiation* or heating by throwing off heat from a body. If you do not understand these three methods of heating, go to the science master, and ask him to be kind enough to explain them ; he may have time to shew you some experiments to make it all clear.

Exercise 15. Why does not the heat from the sun, when it is radiated from the earth, immediately pass off miles high into space ?

Exercise 16. By which method of heating is each of the following heated ? (1) soil, (2) water, (3) air.

VI. The Temperature of the Air varies with Altitude. (Page 59.) This section is very important and it should be studied slowly and carefully. After reading do these exercises.

Exercise 17. The section begins with two words “ This law.” What law is meant ?

Exercise 18. On the hot plains of India in summer, people sometimes look up at the birds wheeling round and round high up in the air, and say “ I wish I was a bird.” Why do they say this ?

Exercise 19. Why are hill-stations so much cooler than the plains ?

Exercise 20. In the middle of page 60 you read, “ The temperature of the air at any place is the balance between the heat it receives from the sun and the heat it loses by radiation.” Write out the meaning of this sentence in your own words, not using either the word “ balance ” or “ radiation.”

Exercise 21. What constituent of the air is mostly responsible for retaining the heat of the sun on the surface of the earth ?

Exercise 22. At the end of this section, you are told that the temperature of the air depends on two things. What are they ?

VII. Air over land heats and cools more quickly than air over the sea. (Pages 61 and 62.) Science students will know that bright and polished surfaces reflect heat and do not absorb heat easily ; and that dull surfaces do not reflect heat but absorb heat easily. You will see, therefore, that the shining polished surface of water will take up much less heat than the dull unpolished surface of the earth. *Remember : Water takes up heat from the sun very slowly and gives up its heat very slowly. Land takes up heat from the sun quickly and gives up its heat quickly.*

Exercise 23. The temperature of the air in summer at Lahore frequently rises above 110° F., but at Colombo the temperature rarely exceeds 90° F. Why ?

Exercise 24. Some places in Central Asia have a mean temperature in January of 35 degrees *below* freezing point (Fahrenheit), while the British Isles, in the same latitude, have a mean temperature in January of 40 degrees (Fahrenheit)—*i.e.*, over 40 degrees difference. Mention one cause for this.

VIII. Isotherms. (Pages 62 to 66.) You must thoroughly understand isotherms and even learn the approximate courses they take ; in this way, climate becomes much more interesting and more easily understood. It is a good thing to practise drawing January and July isotherms on blank maps of the world ; after a little practice you will find them quite easy to do. As you draw the isotherm whisper to yourself the names of the places through which it passes. If you really know the January and July isotherms of any country, you will have the most important clue to decide the kind of climate in that country.

Read through the whole of this section three times at least—and more times if necessary—to make quite sure that you

understand everything in it. Study the maps carefully follow each isothermal line with your finger, noting the countries through which it passes.

See if you can do these exercises after reading the section three times ; if you can, it shews that you have understood and remembered ; if you cannot, read the section again and try once more. Every time you cannot answer, read the book once more and try again.

Exercise 25. What is an isothermal line ?

Exercise 26. What does the word “ isotherm ” mean ?

Exercise 27. Do exactly as you are told in (1) at the bottom of page 62, then say what the different courses of the 80° isotherm in January and July prove.

Exercise 28. Name five countries which, in January, have a similar temperature to North India.

Exercise 29. Complete this sentence : As we approach the equator, the temperature . . .

Exercise 30. No. 3 on page 65 says : “ In summer the temperature is higher over the land than over the sea.” Say which isothermal line on page 63 you think proves this best.

Exercise 31. Explain these facts : (a) on page 64 very little of the map north of the equator is over 80° , but a lot is above 80° south of the equator ; (b) on page 64, no part of the southern hemisphere is shewn as being 10° , but much of Asia is below the 10° line.

Exercise 32. What is the Heat (or Thermal) Equator ?

Exercise 33. Is the heat equator fixed or movable ? Explain why.

Note the remarks in the last paragraph (pages 65 and 66) and remember that if the isotherms gave the actual temperatures in January and July for every part of a country, the isothermal lines would twist about in a most complicated manner, and so be extremely difficult to follow.

ASSIGNMENT No. 5.

CHAPTER VI.—THE ATMOSPHERE (*Continued*). (PAGE 67.)

This chapter deals with moisture in the air ; so it helps you to understand about clouds, rain, snow and frost, all of which play a great part in determining climate. It is always best to understand the *cause* of things, for you can then remember about things themselves without much difficulty. Be sure, therefore, to study the chapter very carefully, and if, after trying your best, you still cannot understand any one part, make a point of asking your teacher to explain.

I. How the Atmosphere affects Moisture. (Page 67.)

Exercise 1. What change takes place in water when it is heated ?

Exercise 2. What are clouds ?

Exercise 3. Why can we compare the atmosphere with a “ huge, invisible sponge ” ?

II. Saturation : Evaporation and Condensation. (Pages 67 to 69.) This section is really elementary science and is most important. The science master in your school will shew you interesting experiments on this subject—perhaps after school hours—if you ask him ; he may even allow you to do some experiments yourself in the laboratory.

Many newspapers have a Weather Report Column and the report contains such information as maximum and minimum temperatures, amount of rainfall, the barometric pressure, humidity and direction of wind. This section you are about to read deals with the question of humidity, *i.e.*, the amount, or percentage, of water vapour in the air. Humidity is measured

by the amount of twist of a hair, for the hair twists more, or less, according to the amount of moisture present in the air. Temperature is measured by a thermometer. Barometric pressure is measured by a barometer, and you will read about this soon. The direction and velocity of wind are measured by a wind-vane and an anemometer.

Exercise 4. Explain why the barometer falls in wet weather and rises in fine weather.

Exercise 5. When is air saturated with water-vapour ?

Exercise 6. What happens when air which is saturated with water-vapour is cooled ?

Exercise 7. Why does the atmosphere round the tops of the Himalayas contain very little moisture ?

Exercise 8. From where does the atmosphere get its moisture ?

III. Clouds, rain, mist and fog, dew, frost, hail and snow. (Pages 69 to 71.)

Exercise 9. Name five forms in which moisture is found in the atmosphere.

Exercise 10. London is famed for the frequency of its thick yellow fogs, so thick that sometimes people cannot see their way and traffic is stopped. Why should London have such thick fogs ?

Exercise 11. High mountain tops nearly always have clouds on them. Why ?

Exercise 12. What part of the world is famous for sea fogs which are so dangerous for sailors ?

Exercise 13. What causes these fogs ?

Exercise 14. Why are icebergs sometimes not seen by sailors ?

Exercise 15. Where does dew come from ?

Exercise 16. Why is a clear night necessary for the formation of dew ?

Exercise 17. On the plains of northern India, hoar frost is very common in winter. What is hoar frost ?

IV. The Atmosphere is the Home of Moisture. (Pages 71 to 73.)

Exercise 18. Give two examples to prove that there is moisture in the atmosphere.

Exercise 19. Say why the United Provinces are drier than the area round the Ganges delta.

V. The Atmosphere distributes Heat and Moisture by Winds. (Page 73.) This section reminds you that we depend on winds to bring us rain ; and that some places are made warmer than they otherwise would be by winds bringing heat. You know also how pleasant it is to feel a breeze on a hot summer day.

VI. Pressure of the Atmosphere. (Pages 73 and 74.) The main point in this section is that air has weight and therefore exerts pressure. We can say that, on an average, the atmospheric pressure gives, approximately, a difference of 1 inch barometric reading for every 1,000 ft. altitude. Remember also that at the sea level the pressure of the atmosphere is about 15 lbs. to every square inch. If the palm of your hand is about 3 inches square, *i.e.*, 9 square inches, the total pressure on that surface is 135 lbs. ! But the pressure is the same in all directions and we do not notice it.

It would be a good thing if you ask your science master to explain the working of a barometer.

CHAPTER VII. (PAGE 75.)

VII. Changes of Atmospheric Pressure. To understand the causes of the principal winds like the monsoon and trade winds, you should know how atmospheric pressure affects air movement. Remember that atmospheric pressure is not the same all over the world at the same time ; it varies, and so movement

of the air takes place in the attempt to “even up” the pressures—just as water flows from a high level to a low level.

Exercise 20. State the rule given in this section about the movement of air.

Exercise 21. After having read the first paragraph, and remembering what you have already read, explain what an isobar is. (The word “isobar” is not given in the paragraph, but think what the word means.)

Exercise 22. What is the use of a barometer ?

Exercise 23. How does a change in temperature cause wind ?

VIII. Land and Sea Breezes. (Page 76.)

Exercise 24. Say briefly how land breezes are caused.

IX. World Winds. (Page 77.)

The Trades (Pages 77 and 78) and *The Westerlies* (Pages 78 to 80). When reading these two sections, study the diagram (Fig. 26, page 77) till you are sure you can draw it without looking at the book.

Note : (1) the equatorial low pressure belt—easy to remember ;

(2) the two high pressure belts, one north and one south—still very easy to remember ;

(3) The winds (a) the Trades—two kinds ;
(b) the Westerlies—two kinds ;
and remember the *direction*.

Exercise 25. Now shut the book and on a piece of paper draw in pencil the diagram mentioned above. Then look at the book and see if you are right in every point. If you are right, draw it once again to make quite sure that you really do know it ; if you are wrong, draw it again and again until you make no mistake.

Then carefully study the first coloured map at the beginning of the book. See exactly where the S.E. Trade Winds are

shewn in the Pacific, Atlantic and Indian Oceans ; then the N.E. Trade Winds in the Pacific, Atlantic and round India (where we call them the N.E. monsoon). The Westerlies in the south are very marked, but in the north they are broken because of the land they meet.

If you remember these winds, it is extremely easy to remember where the calm regions are—viz. *between* the principal winds.

Now go ahead and study the two sections about these winds, and then do the exercises.

Exercise 26. What is the law (about pressure) which governs the direction of winds ?

Exercise 27. Where do we find low pressure belts ?

Exercise 28. Why do the Trade Winds not blow in a N.-S. direction ?

Exercise 29. Which alternative is correct in this sentence ?

We name a wind according to the direction it comes from.
goes to.

Exercise 30. What are the “ Roaring Forties ” ?

Exercise 31. Why are the “ Roaring Forties ” so named ?

Exercise 32. What are the Doldrums ?

Exercise 33. The equatorial low pressure belt moves a little during the year. Complete this sentence : “ The equatorial low pressure belt moves to the place where. . . ”

X. Seasonal Winds. The Monsoons. The Monsoons in Asia. The Monsoon in Northern Australia. (Pages 80 and 81.) Read these three sections about the monsoons ; everyone in India, particularly the agriculturalist, is very interested in the monsoon. The Government employ scientists to do little else but study questions connected with the monsoon, and this study is carried on at the new weather station in Bombay and at Agra.

Keep a book-marker at each of the first two coloured maps

while reading these sections, so that you can refer to them easily.

Exercise 34. What parts of the earth have seasonal winds ?
Give a list only.

Exercise 35. Write out the following, filling in the gaps :
During the months of . . . , the sun is very hot over the
continent of Asia. The land gets . . . and in turn heats
the . . . causing it to . . . Then there is a rush of . . .
from the . . . , where the . . . is not so hot as that over
. . . . This rush of . . . is called the

ASSIGNMENT No. 6.

CHAPTER VIII.—THE CLIMATE OF INDIA. (PAGE 82.)

I. Climate and Weather.

Exercise 1. Climate is not the same thing as weather. Why ?

II. The Factors of Climate. (Pages 83 to 95.) This is a very important subject and you must take particular care to study, understand and remember what you read in these thirteen pages. You will be sure to need this information.

Perhaps you may remember the “factors of climate” by remembering the word “Slams”; then, what slams a door ? Wind. So you have all the factors thus :

1. *Wind.*
2. *Sea.*
3. *Latitude.*
4. *Altitude.*
5. *Mountains.*
6. *Soil.*

These factors are not in the same order as given in your textbook, but that does not matter.

1. Latitude or Distance from the Equator. (Page 83.) Read about the effect of latitude first, and then do these exercises to prove you have understood.

Exercise 2. Draw a map of India, or use a printed outline map, and put in the Tropic of Cancer.

Exercise 3. On the same map add the places mentioned in the paragraph, together with their average temperatures.

Exercise 4. What does a study of these temperatures teach you ?

2. Nearness to the Sea. (Pages 83 and 84.) A large number of places is mentioned in this section—about 16; in your atlas, find each one as you read about it and notice its position as regards the sea.

Exercise 5. Why does the sea prevent places near it from getting too hot or too cold ?

Exercise 6. Give an example to shew that you understand what “ range ” in temperature means.

Exercise 7. Moscow has a yearly range of temperature of over 40° while Edinburgh’s range is only 20°. What does this prove ?

3. Altitude. (Page 84.)

Exercise 8. Remembering what you read in Assignment No. 4, give a reason why altitude affects temperature.

4. Prevailing Winds. (Page 85.)

Exercise 9. How do prevailing winds affect the life of the people in a country ?

Exercise 10. Why do the British Isles never suffer from drought ?

III. The Monsoons. The South-West or Summer Monsoon. (Page 86.) **The Branches of the South-West Monsoon.** (Page 87.)

Exercise 11. Give two facts to shew the great importance of the South-West Monsoon to India.

Exercise 12. What is the principal cause of the S.W. monsoon ?

Exercise 13. Why does the monsoon blow from the S.W. in summer ?

Exercise 14. Why is it that rain accompanies the wind ? Give two reasons.

Exercise 15. India receives two currents from the S.W. monsoon. What are they ?

Exercise 16. In a blank map of India indicate two areas which get most rainfall from the S.W. monsoon.

Exercise 17. Which parts of India get very little rain from the S.W. monsoon ?

Exercise 18. How does it come about that Central India gets as much as 30 to 50 inches from this monsoon ?

Exercise 19. How is it that all along the foot of the Himalayas rain is abundant ?

IV. The Direction of Mountain Ranges. (Pages 87 to 90.)
You will continually have to consider the influence of mountains on the climate of a country, so study the effects in India carefully. Be sure to find in your atlas all places mentioned ; keep your atlas by your side opened at India.

Exercise 20. What happens when a sea wind blows at right angles to a high mountain range ?

Exercise 21. What is likely to happen if a sea wind blows in the same direction as the mountains run ?

Exercise 22. Why has Mangalore such a heavy monsoon rainfall ?

Exercise 23. Why does Bellary get so much less rain than Bangalore from the same monsoon ?

Exercise 24. Explain why Jubbulpore gets so much rain in the monsoon, though so far inland.

Exercise 25. How much rainfall, in inches, does the Desert of Sind get during the S.W. monsoon ? (See Coloured Map No. 2.) Why this amount compared with other places in India ?

Exercise 26. Name three towns in the N.W. of India which have very little rain during the S.W. monsoon.

Exercise 27. Why does Mount Abu get such a heavy rainfall ?

Exercise 28. What effect do the Aravalli Hills have on Rajputana ?

Exercise 29. Which part of the Indian Empire is the wettest ?

Exercise 30. Why is not the whole of Burma equally wet ?

Exercise 31. Which town in India has the highest rainfall record in the world ?

Exercise 32. What is the rainfall during the S.W. monsoon period in Tibet ? (See Coloured Map No. 2.) Why ?

V. Importance of the Himalayas. (Bottom page 90.) The Himalayas play the greatest part in determining the climate of India, and they also greatly affect the life of the people ; *e.g.* no Himalayas, no Ganges.

Exercise 33. Give two reasons why the Gangetic Plain is so fertile.

Exercise 34. Explain why N. India enjoys such a pleasant winter compared with the plains of China.

Exercise 35. In about 50 words say how you think the climate of Asia would be altered by the absence of the Himalayas.

VI. The North-East Monsoon. (Page 92.) When reading this section study the map carefully and compare it with the map on page 86.

Exercise 36. On the map you made for Exercise 16, add in a different colour or different shading the places where most rain falls during the N.E. monsoon.

Exercise 37. Look very carefully at the colouring in the Coloured Map No. 1 at the beginning of the book ; then make a list of the differences you think you can see compared with the map on page 93.

Exercise 38. What is the principal cause of the change from a S.W. monsoon to a N.E. ?

Exercise 39. What part of India gets the full effect of both monsoons ?

VII. The Nature of the Soil. (Page 94.)

Exercise 40. Give a list of the different kinds of soil you have heard of. Which of them is found in very hot and dry places ?

Exercise 41. Say what we mean by “daily range” in temperature.

Exercise 42. Say, if you can, why forests and jungles are usually damp places.

Exercise 43. How can man convert a desert into a fertile land ? Where has this been done ?

ASSIGNMENT No. 7.

CHAPTER IX.—WORLD CLIMATE. (PAGE 96.)

You will see in this chapter how the factors which influence climate in India are the same the world over. First see if you can remember the six factors you learned in the last Assignment.

I. Latitude or Distance from the Equator. (Page 96.)

Exercise 1. Why does the heat belt of the world change its position ?

Exercise 2. If the heat belt did not change its position, what effect would this have on seasonal changes ?

Note : Study carefully the maps on pages 63 and 64 and note the places included in the heat belt (80° and over). It is perhaps easier to note the *heat equator* which passes through the hottest places.

Exercise 3. Compare the position of the July heat equator (page 63) with that of the equator.

- (a) At about what latitude is the most northern part ?
- (b) Give a list of the countries through which the heat equator passes in July.
- (c) At about what latitude is the most southerly part ?
- (d) What conclusion can you draw about the position of the heat equator in July from the answers to (a), (b) and (c) ?

Exercise 4. Answer the same questions with regard to the January heat equator on page 64.

II. Nearness to the Sea. (Page 97.) When reading the first paragraph take particular notice of the phrase "in the same latitude"—this is important.

Exercise 5 Make a list of the countries which, during India's hot season, are hotter than the coasts of India. (See map on page 63.)

III. Altitude. (Page 98.)

Exercise 6. Say why one can be among perpetual snows in Switzerland at 8,000 ft. yet some hill-stations in Kashmir are as high and are well clear of snow in summer.

IV. Prevailing Winds. (Page 98.) Try and recall the names of the principal world winds you have learned.

Exercise 7. What effect does the movement of the heat belt have on the prevailing winds of the world ?

V. The North-East Trades. (Page 98.) Find in your atlas all the places mentioned in this paragraph.

Exercise 8. Why, because the N.E. Trades blow from colder to warmer regions, do they not give up moisture all along their route ?

Exercise 9. Where do the N.E. Trades eventually give rain ?

Exercise 10. What is the prevailing wind of North Africa ?

Exercise 11. Why is North Africa a desert ?

Exercise 12. Mention any other place which has little rain for the same reason that North Africa is desert.

VI. The South-East Trades. (Page 99.)

Exercise 13. Name the places which benefit from the S.E. Trades.

Exercise 14. Name two places which do not benefit from the S.E. Trades.

VII. Seasonal Winds. (Pages 99 to 101.)

Exercise 15. What is a seasonal wind ? (Do not use the word " season " in your answer.)

Exercise 16. Why is there a centre of low pressure in Asia during the hot season ?

Exercise 17. What winds are caused by the low pressure area in Asia ? Name the countries which benefit.

Exercise 18. Name the countries in Asia which are included in the low pressure area in summer. (See atlas.)

Exercise 19. Examine the Coloured Maps Nos. 1 and 2, and then say where, in Africa, in relation to the equator the low pressure area is (a) in summer, (b) in winter.

Exercise 20. What is the cause of the different positions at different seasons of the low pressure area in Africa ?

Exercise 21. Again look at Coloured Maps Nos. 1 and 2 and say at which time of the year North America receives most rain. Where is the low pressure area at that time ?

Exercise 22. When does North Australia get rain ? What wind brings the rain ?

VIII. Westerly and South-Westerly Winds. (Pages 101 and 102.)

Exercise 23. In England it may rain any day during the year, and there is no " rainy " or " dry " season. Why ? (The coloured maps and paragraph 4, page 101, should help you.)

Exercise 24. Define the term " Mediterranean Climate."

Exercise 25. In what latitudes are the Westerlies active ?

Exercise 26. What climate is suitable for fruit growing ? Mention three areas which illustrate this.

CHAPTER X.—WORLD CLIMATE (*Continued*).
(PAGE 103.)

IX. Rainfall of the World. Map Study. (Page 103.) The maps on pages 104 and 105 must be studied carefully. Compare these maps with a rainfall map in your atlas. You can learn most of your geography from the careful study of maps. Read the section on Map Study and do these exercises.

Exercise 27. What is meant by “mean annual rainfall”?

Exercise 28. From a study of the map on page 105, fill in a table similar to this :

Mean Annual Rainfall over 40 inches.			
Countries within the Tropics.		Countries outside the Tropics.	
1		1	
2		2	
3		3	
4		4	
etc.		etc.	

Exercise 29. What conclusion can you draw from these lists ?

Exercise 30. Make another table similar to this :

Mean Annual Rainfall of 10 inches and less.			
Countries in the Northern Hemisphere.		Countries in the Southern Hemisphere.	
1		1	
2		2	
3		3	
4		4	
etc.		etc.	

Exercise 31. What does this table teach you ?

X. Asia. (Page 103.) Remember you must continually refer to the maps when reading.

Exercise 32. Why do India, Burmah, East Indies, China and Japan have such teeming populations ?

Exercise 33. Why have the following countries a dry climate ? (a) Arabia, (b) N.W. India, (c) Afghanistan, (d) Tibet.

Exercise 34. Name six large rivers in Asia which are fed by the monsoon rains.

XI. Europe. (Page 105.) Consult the coloured maps.

Exercise 35. Which part of Europe has a dry climate ?

Exercise 36. Which part of Great Britain has the heaviest rainfall ? Why ?

XII. Africa. (Page 106.) Do not forget the foot-note on this page. Africa is a very instructive country for the study of climate.

Exercise 37. Name four large rivers which rise in the rain belt of Africa.

Exercise 38. Why can the Nile be called the Indus of Africa ?

Exercise 39. The interior of southern Africa is very dry. What is the cause of this ?

Exercise 40. What is the name of the desert in southern Africa ?

Exercise 41. What winds bring southern Africa its rain ?

Exercise 42. Would you say that Madagascar has a plentiful rainfall ? Why ? What time of the year does it get most rain ?

XIII. Australia. (Page 106.)

Exercise 43. The first sentence in this section says "the rainfall is very easy to understand." Give a list of *your* reasons why Australia's rainfall is easily understood.

Exercise 44. From your study of the maps, which part of Australia do you think produces the fruit which the country exports in such quantity to England and elsewhere ?

XIV. South America. (Pages 106 and 107.) Have the coloured rainfall maps before you when you do these exercises.

Exercise 45. Patagonia and the greater part of the west coast of South America have a January average of less than one inch rainfall. Give the reasons for this.

Exercise 46. Why is the Amazon such a mighty river— so mighty that it makes the sea fresh water for 200 miles from its mouth ?

Exercise 47. In July the region of heavy rainfall is well to the north of South America. Why this change of area compared with January ?

XV. North America. (Page 107.) The rainfall here is not so easy to understand ; it is more complicated because the winds (as you see in the coloured maps) are not so well defined as for South America. The rainfall in countries in the tropics is much more regular and simple to understand than in the north temperate regions.

Exercise 48. Examine the map of the world and say what is the principal feature of the distribution of land *north* of 35° N. Latitude compared with *south* of 35° S. Latitude.

Exercise 49. What effect on prevailing winds does your answer to Exercise 48 have ?

Exercise 50. Give two reasons why people are always interested in the climate of a place

ASSIGNMENT No. 8.

CHAPTER XI.—WORLD CLIMATE (*Continued*). (PAGE 108.)

In learning about the factors which influence climate, you learned about the sea, but only so far as winds were concerned. Now you will add ocean currents—rivers in the sea. Your atlas will probably have a map of ocean currents ; use it.

I. Ocean Currents and Ocean Drifts. (Page 108.) In reading this section you will see, at the top of page 109, “ In the oceans round the poles the cold water sinks to the bottom ; in the warm oceans near the equator, it rises.” Do not think that cold water behaves differently at the poles and at the equator ; warmer water will always come up to the surface and cold water will sink anywhere in the world, because it is a physical law which never changes. The book means that water in the ocean will always circulate, the cold water from the poles will come along in under-currents towards the warm equator belt to take the place of the warm water upper-currents which travel to the poles. The experiment shewn in this diagram explains itself and illustrates ocean currents.

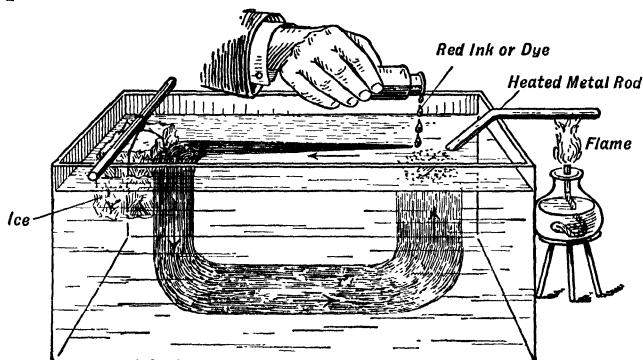


FIG. 3.—Circulation of water.
From Gregory & Hodges' "Experimental Science."

Exercise 1. What is the difference between an ocean current and an ocean drift ?

Exercise 2. What is the most important cause of ocean currents and drifts ?

Exercise 3. Give one cause for ocean currents changing direction.

Exercise 4. What effect does a coast-line often have on ocean currents ?

II. The Currents and Drifts of the North Atlantic. (Pages 109 to 112.) In order to learn the currents of the Atlantic Ocean, practise drawing a very rough diagram of the ocean and the currents similar to Fig. 4.

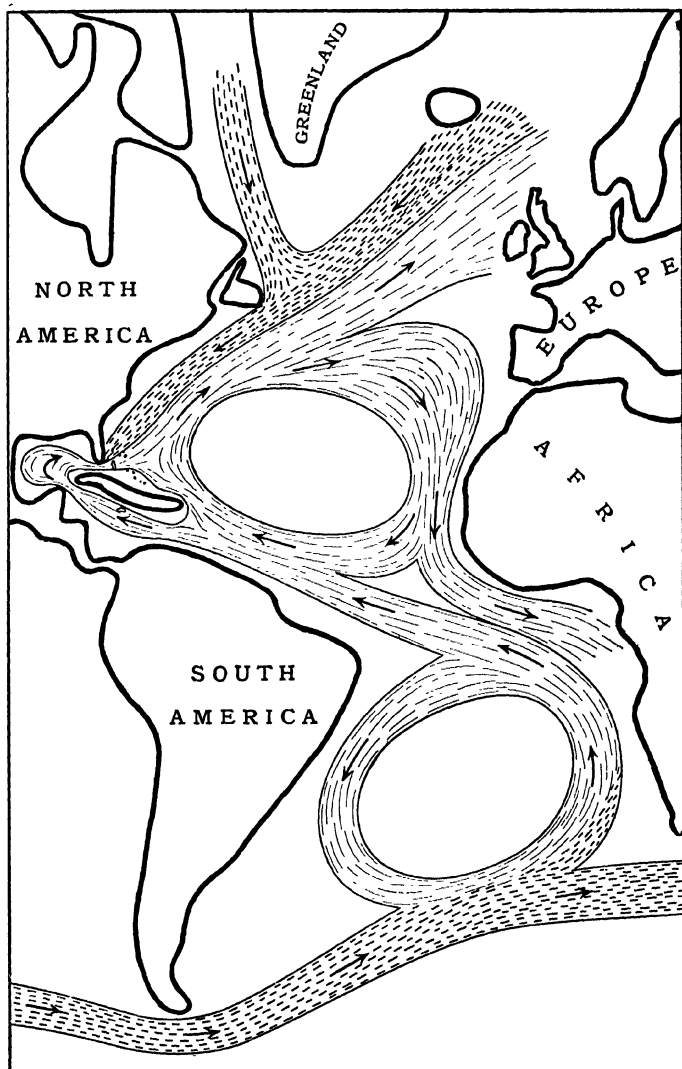
This is an easy diagram to remember because the currents are nearly symmetrical in each half of the Atlantic Ocean ; it is like a big letter S with a circle inside each curve, plus the cold currents from the north.

Read the section carefully and follow the course of the currents in the map as described. You can remember that these currents do not always remain in exactly the same positions ; they move a little according to the time of the year. In our summer they move a little north, and in our winter a little south, just like the main winds, which are the chief cause of the currents.

Exercise 5. What effect do the Gulf Stream and North Atlantic Drift have on the climate of Europe ? (Study the isotherms on page 64.)

Exercise 6. How can you account for the fact that ships from Europe to Canadian ports meet with icebergs on nearing their destination ?

Exercise 7. The Newfoundland coast is famous for dense fogs. Suggest a reason.



Emery Walker Ltd. sc.

Fig. 4.—Atlantic Ocean Currents.

III. Currents of the North Pacific. (Page 112.) Try and construct a diagram of the ocean currents in the Pacific Ocean on lines similar to those given you for the Atlantic.

Exercise 8. What makes the climate of the north-west coast of North America milder than one would expect ?

Exercise 9. Look at the isotherm map on page 63 and explain why the 60° isotherm runs so far north close to the western coast of North America.

Exercise 10. How can you account for the big difference in winter temperatures on the east and west coasts of North America ?

Exercise 11. Which is the coldest coast in North America, and why ?

IV. Currents of the South Atlantic. (Page 113.) You have already noticed these currents. Look at the map on page 64 and notice the large upward bend of the 80° isotherm off the coast of Africa caused by the cold current referred to at the end of the section.

V. Currents of the South Pacific. (Page 113.)

Exercise 12. Explain why the 60° isotherm on page 63 is forced up the west coast of South America.

Exercise 13. Explain why the 80° isotherm of the southern hemisphere in the map on page 64 does not enter the Pacific Ocean at all.

VI. Currents of the Indian Ocean. (Page 114.)

Exercise 14. Describe the course of the South Equatorial Current of the Indian Ocean.

Exercise 15. What changes in currents do the monsoons bring about in the northern Indian Ocean ?

VII. Ocean Currents and Climate. (Pages 114 and 115.)

This is an important section ; read it carefully and do these exercises :

Exercise 16. Give four examples of countries whose climate is less rainy than would be expected because of cold ocean currents.

Exercise 17. How can cold currents affect rainfall ?

Exercise 18. "Ocean currents equalize temperature all over the world." Give six illustrations which prove this.

CHAPTER XII.—WORLD CLIMATE (*Continued*).
(PAGE 116.)

VIII. This chapter considers the various zones—cold zones, hot zones and temperate zones. Then there is a section which will help you to gauge the climate of a place by a study of your maps, without having to visit the place or even without having to read many books. This latter part is most important and a careful study of it will help you a very great deal in your geography studies.

Climatic Zones. (Page 116.)

Exercise 19. Make a list of the circumstances which influence climate ; that is, a list of facts which make places have the climates they do have.

IX. The Frigid Zones. (Page 116.)

Exercise 20. What does " frigid " mean ?

Exercise 21. How far from the poles do the frigid zones extend ? Give your answer in degrees and miles.

Exercise 22. When is it winter (*a*) at the North Pole, (*b*) at the South Pole ?

Exercise 23. What is the peculiarity about a polar winter ?

X. The Torrid Zone. (Page 117.)

Exercise 24. How wide is the Torrid Zone ?

Exercise 25. What are the boundaries of the Torrid Zone ?

Exercise 26. How is it that the sun is fiercer in the Torrid Zone than anywhere else ?

Exercise 27. Draw a map of that part of India which lies in the Torrid Zone.

XI. The Temperate Zones. (Page 117.)

Exercise 28. Give the names of two towns and their countries in the Temperate Zone where the summer daylight is longer, and where the winter nights are shorter than in London.

Exercise 29. Draw a diagram to shew the height of the sun in the sky on the prairies of Canada in the middle of summer.

Exercise 30. Give one of the reasons why Canada is able to produce such glorious wheat crops.

Try and think out why it is that in England in winter it gets dark at about 4.30 p.m. and in summer it remains light until about 9.30 p.m. or later, while there is not much difference in the length of daylight in summer and winter in Ceylon.

Exercise 31. Give four examples to prove that climate does not depend on latitude only.

Exercise 32. Say whether you think "Zones" can give you *any* idea of the climate of a country.

XII. Questions about Climate. (Page 119.) This is the very important part of this chapter. Think of the various factors of climate (you can remember "Wind SLAMS") and make a note of the factor which each question is concerned with.

Exercise 33. Name three places in the world where you think the climate must be excellent, and say why you think so in each case.

ASSIGNMENT No. 9.

CHAPTER XIII.—HOW TO LEARN GEOGRAPHY.

(PAGE 121.)

How to learn Geography. This section tells you that the best way to learn geography is to travel, and if you cannot travel you can learn by reading books. This is quite true, and yet there is another way too. Ask questions. Whenever you meet anyone who has travelled, ask him questions about places—about the kind of country and scenery, the people, the climate, the crops, manufactures and other industries; ask about the minerals, the railways, canals and roads; ask anything you can think of and you will always find the traveller has a lot to talk about and he likes to talk about the places he knows. If you have a note-book in which to make notes of what you hear in talks to travellers, or of what you read, so much the better.

I. Maps.—Different kinds of maps. (Page 121.) You have already been told that you can very easily learn most of your geography from maps, but you must first learn to understand all that maps can show. Read to the top of page 123 and do these exercises :

Exercise 1. What marks are generally used in maps to shew the following ? (Give your answer in the form of a list as shewn.)

Map Marks :

1. Coastline by
2. Towns by
3. Railways by.....or.....
4. Heights of mountains byor.....
5. Depths of the sea by.....or.....
6. Boundaries of countries by
7. Lakes by.....

Exercise 2. What would you expect to find marked on maps called charts ?

Exercise 3. What is a relief map ?

Exercise 4. How does a climate map indicate (a) rainfall ; (b) hot or cold parts ; (c) winds ?

Exercise 5. In a population map shewing density of population, where would you expect to find (a) the densest population ; (b) less dense ; and (c) the thinnest population ?

II. Contour Maps. (Page 123.) Many pupils find contour maps difficult to understand ; that is because they do not think enough. Really, contour maps are as easy to understand as any other maps when once you have learned how they are constructed. Contours are rather like isotherms ; they are lines drawn through places all of which are a certain height above sea level. Study the map, Fig. 36 on page 123, and read to the bottom of page 125, for these exercises.

Exercise 6. How do you know there is a flat area round the edge of the island ?

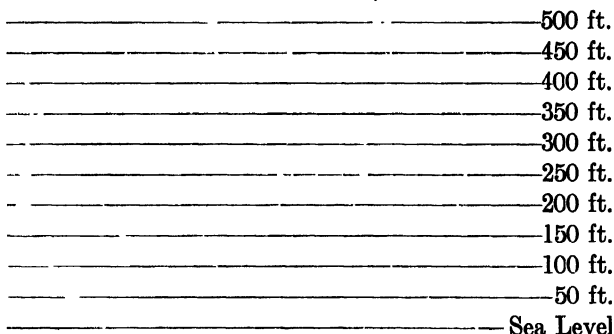
Exercise 7. Is the hill *P* regular or irregular in shape ? How can you tell ?

Exercise 8. From one part of the island the hill *P* rises gradually, at about the same slope all the way from the sea. On which side does this occur ? (Use the points of the compass in your answer.)

Exercise 9. How do you know from contours which side of a hill is steeper than the others ? Which is the steepest side of the hill *Q* ?

Exercise 10. Fig. 36 shews, at the bottom, an " elevation " of the island looking from the south. Copy the upper part—the contour map—and draw a north elevation of the island.

You should draw eleven numbered lines equally spaced (say one-twelfth of an inch apart) in the space where the elevation will be drawn, thus :



Exercise 11. Describe a walk along the shortest distance in Fig. 36 from the point *C* to the head of the bay, mid-way between *D* and *B*.

Exercise 12. Shew by a diagram how a valley is shewn by contours. Fig. 37, page 125, will help you.

Exercise 13. On a map what do we nearly always find in a valley ?

III. Scales. (Pages 125 to 127.) You must learn to use the scale on a map because you will often want to measure distances from one place to another.

Exercise 14. Why is the scale 1 : 63360 (or $\frac{1}{63360}$) the same as 1 inch to the mile ?

Exercise 15. Find the distance in a straight line (as an air-plane might fly) between Trichinopoly and Ootacamund as shewn in Fig. 37, page 125. (The figures on the scale at the bottom of the map are 24, 16, 8, 0, 24, 48 and 72 ; note that all measurements should be taken from 0 on the scale.)

Exercise 16. What is meant by " Scale 1 : 21,500,000 " ?

Exercise 17. What are the fixed lines from which latitude

IV. Degrees. (Page 127.)

Exercise 18. What distance in miles is equal to one degree of latitude? If you forget this number, how would you work it out afresh?

Exercise 19. One degree longitude at the equator is $69\frac{1}{2}$ miles; why does not one degree longitude represent this distance everywhere?

V. Latitude. (Page 128.)

Exercise 20. Where would you look for the Pole Star if you were (a) at the North Pole, and (b) at the Equator?

Exercise 21. From the map of Europe find three towns from which the Pole Star would be seen half-way up in the sky.

Exercise 22. What is the distance in miles from the equator of the places you mention? (Ex. 21.)

Exercise 23. What do you mean by one minute of latitude or longitude?

VI. To find latitude from the sun. (Page 129.)

Exercise 24. What do you mean by the sun's zenith distance?

Exercise 25. Draw a diagram to shew that at noon on 22nd September the sun shines at a slant of 0° at the poles. What would be his zenith distance at that time?

Exercise 26. Why is it easy to find the latitude of a place at noon on 22nd March or 22nd September?

Exercise 27. Explain what is meant by the sun's declination.

Exercise 28. Bikaner is 28° N. Latitude. What will be the sun's zenith distance there on 22nd June and 22nd December?

Exercise 29. What will be the zenith distance at Sydney (34° S. Latitude) on 22nd June and 22nd December?

Exercise 30. How can we get to know how far north or south of the equator the sun is at noon on any particular day ?

VII. Longitude. (Page 131.) The first paragraph tells you that if we know the time by the sun at two distant places, we can easily calculate the degrees longitude between them. The time at a place depends upon the longitude. Because the earth spins round from west to east, eastern countries have sunrise before western countries do ; when it is 6 a.m. in India, people in England are in bed asleep and will have to wait $5\frac{1}{2}$ hours before the clocks shew 6 a.m. The longitude in England is different from that in India ; what is the longitude in England, *i.e.* at Greenwich ?

Exercise 31. How does a ship's captain always know Greenwich time ? (Nowadays he may know in two ways ; mention both.)

Exercise 32. If you travel on a ship to another country, you will find that the ship's ordinary clocks are altered many times during the voyage. Suppose you are travelling to England ; will the clocks be put *on* or put *back* ? Lunch is at one o'clock on board ; if you have not altered your watch and you go for lunch when it says one o'clock, will you be late or too early for the meal ?

Exercise 33. Answer the question which begins at the very bottom of page 131. (" If the mail steamer . . . ")

Exercise 34. If a ship is in danger of sinking in a storm, the captain can call for assistance to other ships by wireless. But how can he tell them where he is ?

IV. Projections. (Page 132.) The rest of this chapter is rather difficult to understand ; it deals with the making of maps and tells you that a map of a large area on flat paper cannot be accurate and only a globe can truly represent the earth. It is not a very important matter, so you need only read it through to understand why the flat map cannot be accurate.

ASSIGNMENT No. 10.

CHAPTER XIV.—THE SURFACE OF THE EARTH. LAND AND WATER. (PAGE 137.)

This and the next few chapters give you an interesting description of the structure of the earth—what it is made of, its form and how changes occur. This might be called elementary geology, that is, the science which deals with the earth's structure.

I. Read the first section and notice how many interesting questions it raises ; on each of these questions there are books to read, and you should try and get information about them. Here are some of the questions about which you can read or ask people : (1) Why is the sea salt ? (2) What kinds of salt are dissolved in the sea ? (3) How are the depths of the sea measured ? (4) What creatures live in the sea besides fish ? (5) Are these creatures different from land dwellers ? (6) How can men go down and inspect the floor of the ocean ?

Here are some exercises you can answer after reading this section :

Exercise 1. What would the bottom of the ocean look like if you could see it ?

Exercise 2. We usually measure the depth of the sea in fathoms. A fathom is 6 feet. How many fathoms deep is the sea in its deepest part ?

Exercise 3. What do you mean by the "relief" of the earth's surface ?

Exercise 4. Name the five great oceans which your book says "everyone knows." Name also the five great continents of land.

Exercise 5. Give three instances which, according to scientists, prove that the land and sea masses are not as they have been in the past.

II. Read to the end of the chapter and do these exercises.

The Earth's Crust : Primary Rocks. (Pages 138 to 140.)

Exercise 6. Work out the possible temperature at 5 miles and at 10 miles below the surface of the earth.

Exercise 7. Give three facts which go to shew that the interior of the earth is intensely hot.

Exercise 8. What is the sun said to be composed of ?

Exercise 9. What do we mean by Archaean rocks ?

Exercise 10. In a few words give an account of how the Archaean rocks were formed.

Exercise 11. Which part of India may be said to be part of the original earth surface ?

Exercise 12. How did the rocks come to be twisted and contorted as shewn in Fig. 41, page 141 ?

Exercise 13. What are igneous rocks ?

Earth Movements. (Pages 140 to 143.)

Exercise 14. How was the Deccan formed ?

Exercise 15. What kind of rock will be found on the Deccan Tableland ?

Exercise 16. Where are the Sulaiman Mountains ?

Exercise 17. Give three instances to shew that even in present times earth movements occur.

CHAPTER XV.—OTHER FORCES WHICH SHAPED THE SURFACE OF THE EARTH. WEATHERING.

(PAGE 144.)

III. This short chapter deals with the wearing away of rock, the action of weather, or *weathering*. This weathering may seem slow, but when it goes on without ceasing for thousands and thousands of years, it makes great changes. Even in a few hundred years the sea has in many places washed away several miles of coast. You have heard a great deal about landslides in hilly districts, where whole hillsides suddenly give way and fall into a valley, destroying roads, houses and railways ; you know also what big monsoon floods sometimes do—in fact every year they cause destruction somewhere. What happens to walls and houses which are not kept in repair ? The rocks and hillsides are not repaired, and thus as the years go on, the weather affects them and they crumble and decay.

Now read about the forces which bring about this decay, or as we sometimes call it, erosion (pages 144 to 146).

Exercise 14. Write a list of the forces which change the surface of the earth.

Exercise 15. The old gravestones in Pulicat cemetery near Madras are relics of the Dutch occupation in India, yet the writing on them is as clear as ever ; in England, gravestones 100 years old are often so much worn that one cannot read the inscriptions. Why is there such a difference in the two cases ?

IV. Ice. (Page 145.) Remember what happens to a frozen water pipe ; the water freezes into ice, and ice requires more room than water, hence the pipe bursts.

Exercise 16. How does frost break up rocks ?

V. Plants. (Page 146.) Plants live on solutions of chemicals found in rock ; they hold moisture against the rock and so

obtain solutions. In all hilly districts you will find trees and other plants growing out of, and on, rocks.

There are other forces besides those mentioned in the book. For example, the sea dashing against cracks in rocks with great force ; the compressed air inside makes the cracks wider and wider. Some sea animals bore holes in rocks.

VI. Soil and Sub-soil. (Page 146.) The prosperity of a country has frequently depended upon the fertility of its soil. This section describes soils.

Exercise 17. What is the origin of soil ?

Exercise 18. Name three kinds of soil met with in India.

Exercise 19. What does “ organic matter ” found in soil consist of ?

Exercise 20. Is sub-soil more, or less, fertile than soil ?
Why ?

Exercise 21. What kind of soil would you prefer for farming crops ? Why ?

Exercise 22. Agriculture is a poor business in Rajputana, but profitable in the Ganges valley. Why ?

CHAPTER XVI.—RUNNING WATER. THE WORK OF RAIN AND RIVERS. DENUDATION AND DEPOSITION. (PAGE 149.)

VII. This chapter is concerned with the work of rain, rivers, ice, the sea and wind. Note the meaning of the words “ denudation ” and “ deposition.” (Look up in your dictionary ; the two words “ nude ” and “ deposit ” will help you to understand the meanings.)

Rain.

Exercise 23. Complete this passage : Rain water may have one of three destinations ; some....., some..... and the remainder.....

Exercise 24. Name three things which determine the amount of underground water found in a place.

Exercise 25. What conditions do you think are the cause of shallow wells ?

Speaking of wells, it is interesting to note that in some irrigation canal areas, wells are not really necessary because the soil has become water-logged—that is, almost saturated—and even a very few feet, six or less, below the surface water is found. Gujranwala (Punjab) is one of these unfortunate places, and agriculture is almost impossible ; the roots of crops are to all intents and purposes drowned in the excessive moisture.

The study of springs is a big subject and not easy to understand unless you know something about the kinds of rock layers and their shape ; but wherever springs are, we know there must be a layer of rock or clay, through which water cannot easily pass, underneath a softer layer which will allow water to filter through it. Fig. 46, page 151, shews this clearly.

Exercise 26. Why have some springs hot water ?

Exercise 27. Describe a geyser. (“Geyser” should be pronounced “Gay-zer” ; it comes from an Icelandic word, “geysa,” to gush, and first referred to a hot spring in Iceland.)

Exercise 28. How are underground caves in rock sometimes formed ?

VIII. The Work of Rivers. (Page 151.) On page 152, line 12 from the bottom, alter the sentence to read “Very soon the water will dissolve the sugar or salt and carry it away. . . .” (Look up in the dictionary the meanings of “melt” and “dissolve” ; why is “them” altered to “it” ?)

Exercise 29. Why do rivers not flow in a straight line ?

Exercise 30. How does a map indicate the slopes of the land ? (Contours would do it, but what else ?)

Exercise 31. If you were asked to tell some fact which proved that rivers denude the land, which fact would you choose ?

Exercise 32. The bed of a river may be sandy, stony or rocky, wide or narrow, shallow or deeply cut. Which of these (one or more) adjectives can usually describe the bed of a river on the plains of India ? Which might be applied to streams at the foot of the hills ? And which to mountain streams ? Give reasons for your choice.

Exercise 33. There must be a limit to the excavation work of a river ; it cannot for ever be digging out a deeper and deeper channel. Why ?

Exercise 34. In the text-book you read that railways are often made along valleys. Study the map opposite page 252 and give the four best examples of this as shewn in the map.

IX. Deposition. (Page 156.)

Exercise 35. At what times is a river most muddy ?

Exercise 36. Where does a river get its mud, silt, etc., from ?

Exercise 37. Give three necessary conditions which must be present in order that a delta may be formed. (One concerns the land, one the river, and one the sea.)

Exercise 38. Draw a map of the Ganges delta ; measure the distance between the two extreme mouths and calculate roughly the area of the delta.

X. Glaciers. The Work of Ice. (Page 158.)

Exercise 39. Give a list of the reasons why a glacier can be called a river of ice.

Exercise 40. Draw a diagram to represent the “cow’s mouth.”

Exercise 41. Draw a picture to explain what a glacier is like.

Exercise 12. Scientists say that at one time, thousands of years ago, a great part of Europe experienced what is called the "Ice Age" when ice, hundreds of feet thick and more, covered the land. How do scientists know this?

Exercise 13. Name three places where huge glaciers can be seen to-day.

XI. The Work of the Sea. (Page 160.) Remember that the work of the sea is carried on, not only during storms, but every day when the tide rises and falls twice; the whole time, day and night, waves break on the shore everywhere even in the calmest weather. Study the picture on page 160; notice the caves cut out by the sea; notice how the remaining pillars are gradually crumbling away near their bases; notice the boulders and stones—where have they come from? You can judge the height of the cliffs and the size of the boulders by the height of the men in the picture.

It is perhaps difficult for boys who have never seen the sea to understand about the tides. When the tide is "coming in" the sea gradually rises higher and creeps further in on the shore until a certain height is reached. This height varies all over the world; in the south of India it is only a few inches, but in many parts of Europe it is 30 feet and even double that in some parts of the world. Then having reached its height, the tide gradually goes down again and the water recedes from the land; the tide is then said to be "going out." The coming in is called the "flow" and the going out the "ebb" of the tide. So all the time the sea is ebbing or flowing.

Exercise 44. How does the sea help in building up land?

XII. The Work of the Wind. (Page 161.) The wind on sand dunes can cause a very great deal of damage and blot out railways and roads. Between Pamban and Rameshwaram on the South Indian Railway, the railway lines get buried in sand, and hundreds of coolies have to be engaged to remove the sand.

Exercise 45. After reading this section, say what you think to be the most interesting point in it.

ASSIGNMENT No. 11.

CHAPTER XVII.—HOW SECONDARY ROCKS WERE FORMED. (PAGE 164.)

I. Those rocks which are called Primary and Secondary in your text-book are sometimes called Volcanic and Sedimentary rocks respectively. Volcanic rocks are those formed from molten rock poured out from the hot interior of the earth. Sedimentary rocks are always formed in water in which particles have settled down to the bottom for thousands of years. Thus wherever you find sandstones or limestones you know that the place was once under the sea, even though at the present time the rocks are in mountains. It is now dry land because the sea bottom has been heaved up by forces underneath, and the heaving up has bent, twisted, broken or displaced the layers in the rock. (See the pictures on pages 141, 142, 167, 169.)

Read to the top of page 167.

Exercise 1. Try and explain why, in Fig. 53, page 166, *three* bands or layers of coal are found. (Remember coal is formed mainly from trees.)

II. Petroleum. (Page 167.) Petroleum is a very important product because it is the foundation of fuel oils like kerosene and petrol. (*N.B.*—Petrol is pronounced “pet’-rol” with the accent on the *first* syllable; it is wrong to pronounce it “pet-ról” as is usual among Indians.) Oil fields are being discovered every year in fresh places; in India (excluding Burma) oil is found at Attock in the Punjab.

Read to the middle of page 167, just below the picture.

III. The Shaping of the Earth’s Surface. (Page 167.) This subject begins from the bottom paragraph on page 167 with “We can now . . .” and ends on page 169.

Exercise 2. Write a very brief story of the earliest history of the earth, mentioning these stages: Hot molten mass—cooled crust—not level—molten rock burst through from beneath—thicker crust—occasional volcanoes.

The second paragraph describes the formation of the first sedimentary rocks. Your book tells you that they were laid down evenly like the pages of a book, but were afterwards folded and twisted and broken by forces underneath. You can produce the effect shown in Fig. 54a in this way: Let your book lie open at page 168; the leaves lie flat; now press with your fingers the left edges of the 168 pages, and they will arch up like the rocks shewn in Fig. 54a.

Exercise 3. Where did the material come from to make the sedimentary rocks?

The third paragraph (middle of page 168) tells you how the sedimentary rocks often became altered.

Exercise 4. Explain how marble was made from limestone and slate made from mud.

The last paragraph tells you how restless are the forces of denudation and deposition; they always have gone on, still go on and always will.

Exercise 5. Do you think all the denudation and deposition have been useful to man? Give reasons.

CHAPTER XVIII.—LAND AND WATER FORMS.

(PAGE 170.)

IV. River Plains. (Page 170.) If you understand how river plains are formed you will understand why they are so fertile and such prosperous areas. This section tells you how they are formed, and the diagram (Fig. 55) on page 171 shews the stages in the levelling of a plain from higher land. At first the valley is restricted (*A-A'* and *B-B'*); gradually the banks are washed away and the bed widened to form the valley *C-C'* and

D-D'. After that it is almost a plain, and finally a really flat plain *F-F'* where rivers might wander about almost anywhere.

Exercise 6. What are the conditions which allow a river to overflow its course and spread silt over a wide area ?

V. Glacial Plains. Lake-formed Plains. Lava Plains. (Pages 172 and 173.)

Exercise 7. How do glaciers form a plain from an uneven surface ? Give an example of such a plain.

Exercise 8. Of the various kinds of plains mentioned, which two are most similar as regards formation ?

VI. Mountains. (Page 173.) You have already learned how mountains were formed ; study Figs. 54a, 54b and 54c on page 169. The word "strata" is mentioned ; remember the word is a plural and means layers ; one layer is called a stratum. In the diagram (Fig. 54c) you see the word "fault" ; faults are caused by the slipping of strata along a crack, so that the strata on each side of the crack no longer correspond. This is best shewn in Fig. 54 on page 167, where the right-hand rocks have fallen.

Exercise 9. Define an avalanche.

VII. Tablelands. (Page 175.)

Exercise 10. How can hills carved out of a tableland be distinguished from hills and mountains raised by earth movements ?

VIII. Volcanoes. (Page 176.) Read from page 176 to the middle of page 181. It is important to know the distribution of volcanoes in the world. The cone of volcanoes consists mostly of ashes. Pumice stone is found on volcanoes—round the base of the cone at Vesuvius ; this stone is light and bubbly, caused by the escape of gases as it cools.

Exercise 11. Draw a diagram of a volcano and label the following parts : (1) Cone ; (2) Minor Cones ; (3) Vent ; (4) Subsidiary Vents ; (5) Lava ; (6) Ashes ; (7) Steam.

Exercise 12. Where is the greatest number of volcanoes situated ? To which part of the world would you give the second place of importance for volcanoes ?

Exercise 13. Which country has suffered most in recent years from volcanic eruptions ? What other earth movements are common there ?

Exercise 14. Give an example of a volcano which has arisen from the floor of the sea.

Exercise 15. Which of the stories of famous volcanoes do you think is the most vivid ? Give the story in your own words.

IX. Valleys. (Page 181.) Perhaps the best example of a rift valley is that of the River Jordan and the Dead Sea in Palestine ; here the land has sunk to a depth of over 1000 feet below the level of the sea.

Exercise 16. What is the most usual method of valley formation ?

Exercise 17. Mention two ways in which valleys have been formed by earth movement.

Exercise 18. If a river brings down a lot of sediment, (1) what sort of country has it passed through ? (2) was its current rapid or slow ? (3) is it very old for a river ?

Exercise 19. How do the rivers of the Deccan tell the story of its great age ?

X. Sea Coasts. (Page 183.)

Exercise 20. This section says that there are three different ways by which coasts have been formed. What are those three ways ?

Exercise 21. Which of the methods of coast formation is the most fortunate for a country ? Why ?

XI. Islands. (Page 185.)

Exercise 22. State four ways in which islands may be formed, with examples.

XII. Capes. (Page 185.)

Exercise 23. Why do sailors keep a good look-out for headlands ?

XIII. Straits. (Page 185.)

Exercise 24. Consult the coloured map of Trade Routes at the beginning of the book, and make a list of six straits important on routes, and which are not mentioned in the section on Straits.

XIV. Isthmuses. (Page 186.)

Exercise 25. After studying a map of the world, say which you regard as the best example of an isthmus.

XV. Rivers. (Page 186.)

Exercise 26. Mention eight characteristics of useful rivers.

XVI. Oceans. (Page 187.)

Exercise 27. What is the proportion of land to water in the world ?

Exercise 28. Which is the largest ocean ?

Exercise 29. Give three methods by which deposition takes place on the ocean bottom.

Exercise 30. Which do you consider gains on the other—deposition or denudation—on the bottom of oceans ?
W¹

188.) There is much coral formed
uthern India, and at towns like Tuticorin
stone, and the manufacture of lime by

burning the coral stone is a large industry. Here is a picture of the beautiful coral polyp :

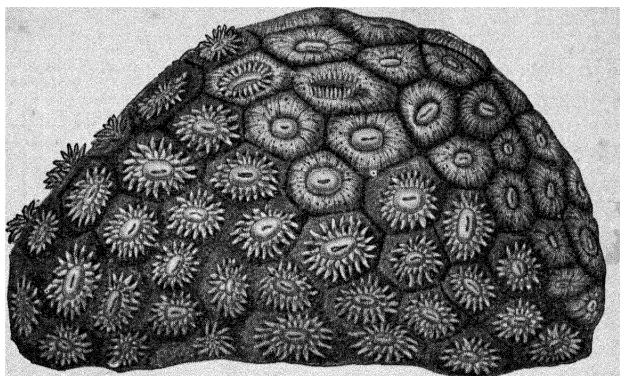


FIG. 5.—A piece of coral shewing polyps.
From Parker & Haswell's "Text-Book of Zoology."

CHAPTER XIX.—FOSSILS AND WHAT THEY TEACH US. (PAGE 190.)

XVIII. The picture in your text-book (page 190) is a poor one of a fossil. Fossils are often much clearer than the picture shews. Here are other pictures of fossils :



FIG. 6.—Fossil ferns.
From Geikie's "Class Book"

Exercise 31. Animal and plant fossils are best formed if the dead animal or plant is quickly covered with sand or mud. What, then, is the best situation for the formation of fossils ?

Exercise 32. What do you think is the most interesting thing that fossils tell us ?

ASSIGNMENT No. 12.

CHAPTER XX.—THE GEOGRAPHY OF VEGETATION. (PAGE 195.)

I. Read the first page in order to do these exercises.

Note : In the second paragraph is a passage “if plenty of rain falls . . . breathe it out quickly.” You should know that the leaves of plants have hundreds of tiny openings which can be closed if necessary. These openings are breathing pores and allow excessive moisture to pass out.

Exercise 1. Name four things necessary for good crops to flourish.

Exercise 2. Give six reasons why plant life differs in different localities.

Exercise 3. What vegetable products would you expect to get from hot and moist countries ?

Exercise 4. State one feature of plants which grow in very dry places.

II. Regions of Vegetation. (F. 195)
i.e. about the nine different regions
grasslands, deserts and mountains are
maps on pages 276, 501 and 633.

Exercise 5. Read Section 5
Section No. 5, page 195
the headings : I. 1
Forests of Temperate Climate
enter the names of the

Exercise 6. Make a list of the names of the
of, and after each name
zone in which it grows ; e.

Exercise 7. Which trees in equatorial regions are valuable in commerce ? Which in temperate regions ?

Exercise 8. Study the vegetation map on page 633 and say what relation exists between tropical forests and rivers and between grasslands and plateaus. (See also the map between pages 634 and 635.)

Exercise 9. After studying the maps on page 501 and between pages 506 and 507, do you think the same relationship holds good ?

CHAPTER XXII.—THE PRODUCTS OF THE EARTH AND THEIR USES. (PAGE 205.)

III.

Exercise: Read through the whole chapter—to page 212 and make a list of all the products mentioned in it. There are here about 30. Opposite each product write the names of the countries where they are produced.

1. *Wheat.* Which cereals which are important crops are produced in India ?

2. *Wheat.* In which wheat is produced in such quantities as to be exported ?

3. *Wheat.* Where wheat is produced in such quantities that the climate is found in it to be suitable for the growth of other crops ?

4. *Wheat.* Which cereals are grown in the largest quantities ?

5. *Wheat.* Which is a common crop in India ?

6. *Wheat.* Which tea is produced in India ?

- Exercise 17.* In what parts of the world is coffee grown ?
- Exercise 18.* What geographical conditions limit the area where cocoa can be grown ? Name the places suitable for cocoa.
- Exercise 19.* Give in two columns a list of the common spices and the places where they are grown.
- Exercise 20.* What are the two great sources of sugar ? Where is each grown ?
- Exercise 21.* Why is it that the coco-nut is such a valuable product ?
- Exercise 22.* What vegetable oils are produced in India ?
- Exercise 23.* Where does one expect to find rubber plantations ?

CHAPTER XXIII. (PART I)

IV. One country not mentioned in the list of cotton-producing countries is Egypt, where cotton is grown. It is mentioned, however, in the list of countries where it is not grown.

- Exercise 24.* Read through the list of cotton products, and opposite each product name the countries where it is grown.

Cotton
Linen
Linseed
Hemp
Jute

- Exercise 25.* Write down the names of the cotton-producing countries in the list of countries where it is not grown.

Exercise 26. Write down the names of the countries where cotton is not grown in the list of cotton-producing countries.

Exercise 27. Write down the names of the countries where cotton is not grown in the list of cotton-producing countries.

Belfast, Cape Town, Melbourne, Quebec, Aden, Perim, Gibraltar, Marseilles, Hamburg, Archangel, New York, Buenos Aires, Vladivostok.

Exercise 20. From the answer to the above, select the six ports which you think are most favourably situated. If you have not included Madras among the six, say why.

IV. Population of the World. (Page 236.) Read to the end of the chapter on page 240 and study the maps at page 240 and page 272.

Exercise 21. Give eight reasons why some parts of the world are thinly populated. All the reasons are to be found on pages 237 and 238.

Exercise 22. Why are monsoon lands so densely populated ?

V. Races of Mankind. (Page 238.)

Exercise 23. Name the three races into which mankind can be divided.

Exercise 24. Which of the three races is principally confined to the temperate regions ? (See coloured map.)

Exercise 25. What are the distinguishing features of the Mongolian race?

ASSIGNMENT No. 14.

CHAPTER XXVII.—EURASIA AND THE OTHER CONTINENTS. (PAGE 241.)

I. Map Study.

Exercise 1. From the map of the world, measure these distances in miles :

1. Shortest distance between the mainlands of Europe and America = miles.
2. Shortest distance between South America and Africa = miles.
3. Shortest distance between Australia and South America across the Pacific Ocean = miles.

Exercise 2. The north of North America is very close to Siberia ; why is there no important trade route from Eurasia to America by way of Bering Strait (between Siberia and Alaska) ?

Exercise 3. Name the principal islands in the “ broken bridge of islands ” between Australia and Asia.

II. Coasts of Eurasia. (Page 242.) Read to page 244 (half-way down) and consult the coloured map of Asia at the beginning of the book.

Exercise 4. Which is the easternmost point of Asia ? Consult a map of Asia ?

Exercise 5. From the map, the Greeks, Italians, Spanish, Portuguese, Danish, Norwegians and British have been great maritime nations ; in Asia, only the Japanese have become a great maritime power. Explain.

Exercise 6. Give three examples in Europe in which great arms of the sea penetrate the land.

Exercise 7. What is a land-locked sea ? Give an example.

Exercise 8. Name the three seas which wash the coasts of Arabia.

Exercise 9. Mention three points of similarity between the peninsulas of Italy and India.

Exercise 10. Name the islands which shut off the South China Sea from the Pacific Ocean.

Exercise 11. Name the countries which fringe the Yellow Sea.

Exercise 12. From a study of the map, give your opinion of the situation of Vladivostok.

III. The Great High Lands and the Great Low Lands. (Pages 244 to 246.) When reading this section, refer both to the coloured map of Asia and to the relief map which follows page 246.

Exercise 13. Name all the peninsulas on the south of Eurasia which receive high lands as offshoots from the great mountain land of the continent.

Exercise 14. From the triangle of high land mentioned in paragraph 2, page 244, name three rivers which leave the mountains to flow north, three to flow east, and three to flow from the southern side.

Exercise 15. Representing the Pamir Tableland as a circle draw lines from it to shew the direction of the Karakoram, Himalayas, Kuen Lun, Hindu Kush and Tiar Shan ranges.

Exercise 16. On the diagram you have just drawn, mark the position of the Tibet Tableland, the Tarim Basin and Mongolian Tableland.

Exercise 17. What are the boundaries of the great tableland of Iran on its northern and eastern sides ? Try and illustrate by a diagram.

Note : Fig. 119—the relief map of Europe—is at page 418 ; keep a marker at this place so that you can constantly refer to it when reading paragraph 4, page 246.

Exercise 18. Make a list of the various mountain ranges found in the high land of Europe ; and opposite the name of each range write the country or countries where they are found, and the direction in which they run.

Exercise 19. From your atlas make a list of the great rivers which rise in (a) the Alps, (b) the Pyrenees, and (c) the Carpathians ; and after each name write the names of the countries through which the river flows.

CHAPTER XXVIII.—REGIONS OF THE PLAINS.

(PAGE 247.)

IV. Read the whole of this short chapter and refer to the map preceding.

Exercise 20. How can you tell, from a map, the general slope of a stretch of country ? Use Southern Russia to illustrate your answer.

Exercise 21. Make four columns, one for each point of the compass (N., S., E. and W.). In these columns write the names of the rivers of Europe whose general direction follows the heading.

Exercise 22. What mountains make a break in the great plain of northern Asia ? Why can the mountains of Scandinavia and Kamchatka be said to be no interruption ?

Exercise 23. Study the map of Siberia carefully and then write a short account of the different life of the people would be if the country were nearer the equator.

Exercise 24. Under the bottom of page 248 to page 249) how many plains are mentioned in South Eurasia ? Name them.

- Exercise 25.* How would you distinguish a plain from a valley ?
- Exercise 26.* Into what sea does the river Amur empty ? Why does it turn north in the last 500 miles ? Suppose it had turned south to Vladivostok, what effect would this have had on its usefulness ?
- Exercise 27.* We frequently read in the newspapers of great floods in China when many thousands of people lose their lives. How do these floods occur ? What rivers usually cause them ?
- Exercise 28.* Make a list of the rivers of eastern Asia in order of their importance.
- Exercise 29.* What rivers in Eurasia never reach the ocean ?
- Exercise 30.* Some time ago, a company was formed to exploit the treasures of the Dead Sea. What "treasures" do you think were referred to ?

ASSIGNMENT No. 15.

CHAPTER XXIX.—THE INDIAN EMPIRE.

(PAGE 252.)

You will need a good atlas for constant reference, as the maps in the text-book will not be sufficient. The study of the Indian Empire is the most important of your geography lessons. Be sure you understand every part of the text-book, and if you have any difficulties, do not hesitate to ask your teacher to explain—he will be only too pleased to help you.

I. Read the first short paragraph, with the neighbouring map unfolded. The parts of India which belong to France are Pondicherry, Karikal, Chandernager, Mahé, and Yanaon; Portuguese India includes Goa, Diu Island and Daman. You should find all these in your atlas.

Exercise 1. Write a heading “Component Parts of the Indian Empire” and underneath (1, 2, 3, etc.) write the names of these components. In the case of islands, say where they are situated.

Note : Coral islands are islands which have been made by tiny animals which live in the sea—see the picture on page 60 of this book; the animals manufacture from the sea water masses of stony material (like limestone) to surround themselves. Almost any museum will have specimens of coral which shew the small holes in which the tiny animals once lived. Good specimens can be purchased very cheaply from the Madras Government Fisheries Department.

II. Boundaries. (Page 252.) Boundaries are very important and mean a very great deal to a people. The comforts, peace

and progress of a country may depend a great deal on its boundaries. What settles a country's boundaries? That is a matter chiefly of history. In the past as nations flourished (the Persians, Greeks, Romans, French, Portuguese, Dutch and British) they all wished to extend their boundaries or their spheres of influence. In most cases, nations have spread themselves as far as their power has enabled them. The boundaries of most countries have been the result of fighting, and so the commonest kind of boundary was the kind which could, at the time, be easily defended. These were "natural" boundaries.

Exercise 2. Read the paragraph (pages 252 and 253) on the natural boundaries of India and Burma. Then make a list under the heading "Kinds of Natural Boundaries." Can a plain be a natural boundary? Why?

Exercise 3. Name the countries from east to west which border the Indian Empire.

Exercise 4. What effect does the northern natural boundary of India have on trade? What effect on security? Which is the more important? (Do you find it difficult to say?)

Exercise 5. Do you consider India fortunate in her natural boundaries? Say why.

Exercise 6. Draw a diagram to shew (1) the ranges of the Himalayas, (2) the position of Nepal, Bhutan and Kashmir, and (3) the Indus and Brahmaputra.

III. The political boundary of India in the North. (Page 253.)

Exercise 7. As regards Kashmir, (1) Is the country as a whole thickly populated? Why? (2) What is the chief industry of the people likely to be? (3) What occupations would be provided on the lower slopes of the mountains? (4) Would the water supply ever be a serious problem? Why?

IV. The North-West Frontier. (Page 253.) Follow the points in this paragraph carefully on the map.

Exercise 8. You will notice that the political boundary and the natural boundary follow practically the same line in the eastern half of the north ; but in the western part, the political boundary pierces well into the mountains. That is *one* important fact. Another point is that it is from the north-west that all invasions into India have occurred. Considering these two facts, give a reason why the political boundary extends beyond the natural in the north-west.

Exercise 9. If the political boundary had followed the natural boundary in the north-west, what difference might have resulted from present-day conditions for the inhabitants of north-west India, and beyond to the plains ?

V. Passes. (Page 254.) This paragraph and the next give a further explanation for the position of the boundary in northern India.

Exercise 10. Why has India always been invaded from the north-west ?

Exercise 11. Name the trade routes across the Himalayas to northern countries.

Exercise 12. What sort of people would you be likely to meet on any of the Tibetan trade routes to India ? At what time of the year would you meet most people ?

Exercise 13. Suggest a reason why Kashmir is a much more developed country than Tibet.

Exercise 14. If a backward country is to be made prosperous, what is one of the first acts its government should do ? State one or two reasons why perhaps such governments have not yet undertaken the improvement you propose.

Exercise 15. In what country is the Khyber Pass, and what is the frontier station ?

Exercise 16. To what extent is there railway communication between India and Afghanistan ?

This is what a traveller recently said concerning his journey from India to Afghanistan : “ At Landi Khana we passed the border between India and Afghanistan, where we saw the following signboard—‘ Frontier of India. Travellers are not permitted to pass this notice board unless they have complied with passport regulations.’ The roads now became bad, then from bad to worse, and by the time we reached Jalalabad, they were unspeakable.”

VI. The North-East Frontier. (Page 255.) Look at the folding map, page 252, and notice the direction of the mountains in the north-east of the Indian Empire.

Exercise 17. Looking at the map, write down the names of four ranges whose names are printed in a more or less N.-S. direction ; the valleys are shewn as white and each has a river ; four are named. Write down the names, underlining the principal one. The fifth river rises in the Lushai Hills and is called the Kulandan River, with Akyab, a well-known town, at the sea end.

Exercise 18. The text-book says (page 255 (iii), line 6) : “ The northern half of this mass of mountains separates Burma from Assam.” In your atlas follow the whole boundary of Assam. Does Assam have a coast-line ? What provinces and countries surround Assam ? (Three of these begin with B.) Say in which direction they lie—N., E., W.

Exercise 19. Who are Burma’s neighbours, W. and E. ?

Exercise 20. To visit Burma from Bengal, how must you go ? Why not any other way ?

Exercise 21. Explain briefly why Peshawar, Rawalpindi and Lahore are such large military cantonments.

VII. Mountain Dwellers. (Page 256.)

Exercise 22. Why are these hill people “rude and uneducated, but hardy and brave”? *Note* : “rude” here means primitive and *not* ill-mannered.

VIII. The Coasts. (Pages 256 and 257.) A 20,000 ton modern steamer may bring to Bombay 500 or 600 passengers and thousands of tons of merchandise.

Exercise 23. What do we mean by a “gateway” to a country? When is a town called a gateway?

Exercise 24. Why is the coast-line map of India so easy to draw? Name three other maps of countries easy to draw and one which is difficult.

Exercise 25. What different forms do coastal inlets take? Draw diagrams to illustrate each form.

Exercise 26. What are the essential features of an inlet suitable for modern shipping? (Madras harbour has been made by building huge walls out into the sea.)

IX. Physical Regions of India. (Page 257, middle, to page 260.)

Exercise 27. Draw a map of India and Burma and indicate the following :

- | | |
|---------------------------|-----------------------------|
| 1. The Eastern Highlands. | 6. The Western Ghats. |
| 2. The Himalayas. | 7. The Eastern Ghats. |
| 3. The Western Highlands. | 8. The Indo-Gangetic Plain. |
| 4. The Aravalli Hills. | 9. The Malwa Plateau. |
| 5. The Vindhya Mountains. | 10. The Deccan Tableland. |

Exercise 28. Imagine you are taking these two railway journeys : (1) Calcutta to Peshawar ; (2) Calcutta to Madras via Bombay.

(a) Which of these journeys is likely to be the more interesting as regards scenery? Why?

(b) On which will there be the greater number of large towns?

(c) Measure the mileage on each of the journeys. (You can do this easily by using a piece of cotton thread and the scale on the map.)

Exercise 29. In the south of India we commonly find huge tanks for the storage of water for agriculture. There are nothing like so many or such large ones in the north. Why ?

Exercise 30. What makes canal construction comparatively easy in the Punjab and the United Provinces, and so difficult in the south of India ?

Exercise 31. Explain the reasons for these facts :

(1) Throughout the length of the east coast of India there is a railway, but not on the west coast except for a short distance.

(2) On the west coast one is struck by the greenness everywhere, while on the east coast it is just the opposite.

(3) On the west coast the traveller notices the spotlessly clean clothes of everybody, while on the east coast this cannot be said of the poorer classes.

X. The Soils of India. (Page 261.) This section only gives a very general idea of the soils of India ; though they are as varied as in other parts of the world, they can be placed in two or three classes given in this section. Do not make the mistake of thinking that cotton is grown only on the black cotton soil (see map, page 261), for large quantities of cotton are grown also on the plains, *e.g.* in the Punjab and United Provinces.

ASSIGNMENT No. 16.

CHAPTER XXX.—THE RIVERS OF INDIA AND THEIR USEFULNESS. (PAGE 263.)

I. You must make the fullest use of a good atlas and trace the courses of all the rivers mentioned in this chapter.

Exercise 1. What are the advantages to man of glacier and snow-fed rivers over others ?

Exercise 2. How are deltas formed ?

Exercise 3. State the characters of a good navigable river. Which is the best navigable river in India ?

Exercise 4. Many of the rivers on the plains of India have, during the past, frequently changed their courses. Explain how this may have come about.

CHAPTER XXXI.—IRRIGATION. (PAGE 267.)

II. This is one of the most interesting chapters in the text-book ; it tells how man has tried to make the most of the rivers, and how the Government in India has done incalculable service by constructing irrigation canals, storage dams, etc. Read the whole chapter to page 274.

Exercise 5. In what two ways may rivers be made to provide irrigation water for dry lands ? Which method will be adopted : (a) on the plains, and (b) in hilly districts, and why ?

Exercise 6. On what grounds can the Punjab claim a pride in its irrigation system ?

- Exercise 7.* What physical features have made great irrigation works possible in the Punjab ?
- Exercise 8.* Which other work mentioned in this chapter strikes you as a masterpiece in engineering ?
- Exercise 9.* In what ways have irrigation works altered the lot of the people of India ?
- Exercise 10.* What dangers are sometimes attendant on areas in the vicinity of huge dams during the monsoon season ? You frequently read of them in the papers.
- Exercise 11.* What is the most important factor which determines the density of the population in India ?
- Exercise 12.* What will be the effect in Sind and in Mysore when the irrigation schemes there are finished ?
- Exercise 13.* What two factors make Baluchistan a thinly populated area ?

CHAPTER XXXII.—PRODUCTS OF THE INDIAN EMPIRE. (PAGE 275.)

III. It is not difficult to remember the main products of India, especially if you consider elevation and rainfall. For example, everywhere, except in the highlands, you will find millets, pulses and oil-seeds. Wherever there are flat stretches and plenty of water, rice is grown. In the north country and on the tablelands, wheat and barley are winter crops. Sugar-cane is grown where water and warmth are available. Highlands give timber, tea and coffee, as we should expect. Read the whole of the chapter to page 280.

- Exercise 14.* Under these headings, write out lists of the chief crops : I. Highlands ; II. Plains : (a) Bengal and Lower Assam, (b) United Provinces, (c) Punjab, (d) Sind, (e) Gujarat ; III. Tablelands ; IV. Coast Strips : (a) West Coast, (b) East Coast.

- Exercise 15.* Describe the work of a forest dweller.

Exercise 16. Which are the best parts of India for cattle rearing ?

Exercise 17. For what animal product is India, more than other countries, famous ?

CHAPTER XXXIII.—MINERALS. (PAGE 281.)

IV. Read pages 281 to 284. Of the minerals mentioned on pages 282-284, copper, lead, silver, zinc and tin are not really very important, but you should remember that they are found in the Indian Empire. Note what was said about the manufacture of lime in Assignment 11, paragraph XVII., on p. 59.

Exercise 18. Classify the minerals (except those metals mentioned above) into two classes : I. Those of household interest, and II. those of industrial interest. Opposite each mineral in your lists write the name of the place where it is found.

Exercise 19. Give your reasons for believing that in the future the Indian iron and steel industry will be one of the most important in the world.

Exercise 20. Which minerals does India produce in greater quantity than any other country ?

Exercise 21. How is salt obtained, and where ?

V. Industries of the Indian Empire. (Page 284.) When you have learned the productions of India, it is easy to remember the industries. The preparation of the raw materials into useful articles supplies people with occupations. Read to page 286.

Exercise 22. Write down the industries of India under these heads :

- I. Industries from Forest Products : (5 items).
- II. Industries from Plains Plantations : (9 items).
- III. Industries from Pasture Lands : (4 items).
- IV. Industries from Minerals : (5 items).

Exercise 23: What important industries are carried on in these places ? (a) West Coast ; (b) Bengal ; (c) Bombay Province ; (d) United Provinces ; (e) Punjab ; (f) Assam ; (g) Nilgiris ; (h) Rangoon ; (i) Cawnpore ; (j) Jaipur and Benares.

VI. The Trade of India and Burma. (Page 287.) In these days no country can itself supply all the needs of its population ; this means that all countries must obtain (*i.e.* import) goods from other countries, which also means that all countries must send goods out (*i.e.* export). The prosperity of a country depends mainly on this interchange of goods ; the greater the exchange of goods, the greater is the prosperity and welfare of the people. What has India got to sell to other countries ? The answer is in this chapter to page 295. Read first about exports—to p. 290.

Exercise 24. If you were to visit Karachi Port, what would you see lying on the quays awaiting shipment abroad ?

Exercise 25. Name some of the countries to which ships take merchandise from Karachi.

Exercise 26. What are the principal exports from each of the following places ? (Arrange in the form of a list.) Calcutta, Bombay, Madras, Mangalore, Calicut, Tuticorn, Rangoon.

Exercise 27. Who are India's best customers for each of the following ? Wheat, pepper and cardamoms, tea, coffee, oil seeds, jute, cotton, hemp, coco-nut fibre, hides, wool, timber, rubber, lead, wolfram, manganese, yarn, gunny bags.

VII. Imports. (Page 290.) Why do we import goods, even things which are grown or made in India ? The chief reason is that sufficient of these things is not grown or made in India. If there is a great demand and insufficient to supply that demand, the prices of goods will go up and make it difficult or impossible for poor people to get them. Take salt as an

example : all households in India use a large quantity of salt ; India has good salt mines (in the Salt Range) and salt is obtained from the sea (great quantities round the Madras coasts) ; but all this salt is still insufficient for the needs of the people. If none were imported, we should have to pay very much more for a seer of salt than at present. So salt is imported from other countries. It is just the same with sugar.

Exercise 28. After reading to the top of page 292, make a list of all the foods mentioned. Then put a line under each of those which are used in your home. Next put a cross after those which would be impossible, difficult or too expensive to get if they were not imported.

VIII. Raw Materials. (Page 292.)

Exercise 29. In the first paragraph under 2 (about the middle of the page) is a remark about coal. Read again the section on coal on page 282. Then write your comments on these two remarks.

Exercise 30. Name the countries from which kerosene oil is brought to India.

Exercise 31. What merchandise can the following countries supply ? Australia, Sweden, China, Japan, Persia, Italy, United States and England.

ASSIGNMENT No. 17.

CHAPTER XXXV.—POLITICAL DIVISIONS OF THE INDIAN EMPIRE. (PAGE 296.)

I. The political divisions of a country are areas marked off for the purpose of government. Read page 296.

Exercise 1. For what purpose do the following bodies exist ? Executive Council, Legislative Assembly, Legislative Councils, and the Chamber of Princes.

Exercise 2. What is an Indian Feudatory State ?

II. The Presidency of Bombay. (Pages 296 to 300.) Study the maps.

Exercise 3. In list form, name the territories which touch the Bombay Presidency from north to south. (There are nine of them.) Underline those which are Feudatory States.

Exercise 4. Name the divisions of the Bombay Presidency.

Exercise 5. Which parts of the Bombay Presidency are most fertile, and why ?

Exercise 6. Looking at the map on page 299, suggest a reason why the northern parts of Bombay Presidency are dry, in spite of the monsoon ; yet farther north, in the Punjab, over 30 inches of rain falls each year.

Exercise 7. What are the characteristic crops of well-watered, and of drier, districts ?

III. Towns. (Pages 300 to 303.) The picture on page 301 gives a very poor idea of the landing stage mostly used at Bombay. A more useful picture would be one of the Ballard

Pier where most of the great liners embark and disembark passengers and mails. Ballard Pier is a long landing place at which several large ships can be alongside at the same time ; a railway runs right to the landing stage, on which are built the great customs sheds, offices and a restaurant. The place is always the scene of great activity.

Exercise 8. Briefly describe the situation of Bombay, giving a map to illustrate it.

Exercise 9. What are the two great railway termini in Bombay, and to which railway does each belong ?

Exercise 10. What is the chief industry in Bombay ?

Exercise 11. A great industry has been built up in Bombay though no coal is found near to produce power for engines. How, then, has this development been made possible ?

Exercise 12. Make a list of the names of the chief steamship lines that call at Bombay. Which line brings the mails from England ? (You can get this information by reading the advertisements in the newspapers—chiefly the English newspapers, like *The Statesman*, *The Times of India*, *The Englishman*, *The Pioneer*, and *The Civil and Military Gazette*.)

Exercise 13. Karachi has at least one great advantage over Bombay. What is it ?

Exercise 14. What new development, now in hand, will make Karachi still busier ? (See page 271.)

Exercise 15. What reasons made it necessary to establish a port at Karachi ?

Exercise 16. Bombay appears to have grown at the expense of other ports, once more famous. Why ?

Exercise 17. After Bombay and Karachi, which is the next most important town in the Bombay Presidency, and why ?

IV. The Provinces of the Great Plain. (Page 303.)

The Punjab.

Exercise 18. Draw a map of the Punjab and indicate by names and boundaries the position of all the adjacent territories, starting with Baluchistan and proceeding in a clock-wise direction.

Exercise 19. How many towns in the Punjab have over a lakh of inhabitants? Name them. How does this compare with the Bombay Presidency?

Exercise 20. In the map you have drawn for Exercise 18, insert the rivers and their names.

Exercise 21. What natural conditions (mention three) and human activities have turned Punjab wastes into flourishing settlements?

V. Towns. (Pages 305 and 306.) Lahore is the headquarters of the largest railway system in the world—the North-Western Railway. Amritsar is an even greater market town than Lahore, and has the chief temple of the Sikhs, the famous Golden Temple. Rawalpindi is the largest military cantonment in India. Multan is not now, as it used to be, on the main line from Lahore to Karachi; a new line from Khanewal (about 30 miles east of Multan) to Lodhran avoids Multan.

Exercise 22. What is it that gives the title “capital” to a town?

Exercise 23. What gives importance to Simla?

VI. Delhi. (Page 306.) It would be well to make one or two alterations in the last three lines of this paragraph. It is better to speak of the railway routes from Delhi to Bombay as being: (1) through Agra and Bhopal (Great Indian Peninsular Railway) and (2) through Kotah and Rutlam (Bombay, Baroda and Central India Railway). The route through Ajmer is not important and no one would ordinarily go from Delhi to Bombay via Ajmer—a narrow-gauge rail route. The route to

Calcutta is via Aligarh, Cawnpur, Allahabad, Mogalserai and Patna. Lucknow and Benares are not on the main line ; for Lucknow one usually changes at Cawnpur and for Benares at Mogalserai.

Exercise 24. What attracts so many tourists to Delhi ?

VII. The United Provinces. (Page 307.)

Exercise 25. Draw a map of the United Provinces shewing the courses of the Ganges, Jumna, Gumti, Gogra and Tapti rivers.

Exercise 26. Name the towns in the United Provinces which have over a lakh of inhabitants and insert them in the map you have drawn. Compare the numbers with those for the Punjab and Bombay Presidency.

Exercise 27. What is the length, in miles, of the United Provinces in a N.W.-S.E. direction ? And what is the average width ?

Exercise 28. Into what four regions can the United Provinces be divided ? Which is the least healthy, and why ?

Exercise 29. Compare the crops mentioned in this section (middle page 308) with those mentioned on page 278, and from both places make a complete list of the crops grown in the United Provinces.

VIII. Towns. (Page 308.)

Exercise 30. Give three reasons why Allahabad is important.

Exercise 31. Name the important sacred cities in the United Provinces. Which are on the Ganges ?

Exercise 32. In which towns in the United Provinces would you expect to find most factories ? What do they make ?

Exercise 33. American and European tourists pour into Agra every year ; why ?

Exercise 34. Find out, by asking people or by reading, why these places are important : Lucknow, Aligarh, Moradabad, Mussoori.

IX. Bihar and Orissa. (Page 310.)

Exercise 35. Name the neighbours of Bihar and Orissa, giving the direction in which they lie.

Exercise 36. What evidence is there for thinking that Bihar and Orissa form a province which is well endowed by Nature ?

Exercise 37. Give an example of advantage having been taken of one of Nature's gifts to the province.

X. Towns. (Page 312.)

Exercise 38. Write a very short note on each of the following towns, saying why each is important : Patna, Cuttack, Jamshedpur, Puri and Budh Gaya.

XI. Bengal. (Page 312.)

Exercise 39. Though Bengal is densely populated, the map shews that there are but two towns with a population of over a lakh. Try and explain this.

Exercise 40. How would you describe the sea-board of Bengal ?

Exercise 41. How is it that Bengal is "one vast paddy field"?

Exercise 42. Apart from the crops, how has Nature assisted in the process of establishing the many mills in Bengal ?

Exercise 43. Which are the three greatest industries in Bengal ?

XII. Towns. (Page 315.)

Exercise 44. Everybody in the world has heard of Calcutta. Why is it so famous ?

Exercise 45. What is the advantage of a bridge like Howrah Bridge ? (See page 318.) Remember what kind of estuary the Hughli is.

Exercise 46. What is a river port ? What should we expect to find in the boats at these river ports of Bengal ?

Exercise 47. If you go to Darjeeling, what will be likely to interest you there ?

XIII. Assam. (Page 317.)

Exercise 48. What is the best type of country for the growth of tea ?

Exercise 49. What is the chief climatic feature of Assam ? Give some proof of your answer.

Exercise 50. Rice wants conditions different from those suited for tea. What suits it best ?

ASSIGNMENT No. 18.

CHAPTER XXXVI.—POLITICAL DIVISIONS

(Continued). (PAGE 319.)

I. The Madras Presidency. In reading the first section (pages 319 and 320) there is one very slight correction which might be made regarding the railway from Calcutta to Ceylon. From Calcutta to Madras we travel on the Madras and South Maharashtra Railway, and south of Madras on the South Indian Railway, which is a narrow-gauge railway. The South Indian Railway does not terminate at Rameshwaram (famous for its temple) but a mile farther on at Dhanushkodi, where there is a pier to which the train runs alongside the steamer which goes to Talaimanaar in Ceylon. The journey from Raichur to Madras (on the Bombay-Madras run) is made on the M. & S. M. Railway.

The coco-nut and ground-nut plantations are very extensive, and British soap manufacturers have large plantations on the West Coast for the supply of vegetable oils used in soap manufacture. Soap is made on the West Coast at Calicut and its neighbourhood.

Exercise 1. Why is it that all Indian crops except wheat and barley flourish in the Madras Presidency ?

Exercise 2. With a piece of thread measure the length of the coast-line of Madras. With such a long coast what industry would you expect to find occupying the people along the shores ?

Exercise 3. In what district is tobacco an important product ? Which town is specially interested in the manufacture of cigars ? (Any shopkeeper who sells cigars—

or cheroots—will tell you, and Indian cigar boxes will have the name on them.)

Exercise 4. What Provinces are on the borders of the Madras Presidency ?

II. Towns. (Page 321.) Another slight correction is necessary in this section. Towards the bottom of page 322 onwards the description of the railway route is not quite accurate. The South Indian Railway southern main line is from Madras to Dhanushkodi. It used to be from Madras to Tuticorin and most of the shipping still goes from Tuticorin. Madura is the junction where the Tuticorin line leaves the main line ; and on the Madura-Tuticorin branch, another branch is given off at Maniyachi to Tinnevely, Quilon and Trivandrum. An *Indian Bradshaw* or *All-India Time Table* (both of which have good railway maps of India) will make all this clear.

Exercise 5. Write a short note stating the chief interest attached to these towns : Tanjore, Trichinopoly, Tuticorin, Trivandrum, Madura and Ootacamund.

III. The States and Provinces of the Tableland. Mysore State. (Page 323.)

Exercise 6. How would you describe the geographical position of Mysore State ?

Exercise 7. If you were touring in Mysore State, which town would you be likely to make your headquarters, and why ?

Exercise 8. Who is the ruler of Mysore ?

IV. Central Provinces and Berar. (Pages 324 and 325.)

Exercise 9. What is the principal occupation of the agricultural classes in the Central Provinces ?

Exercise 10. What is the importance of manganese ?
(See p. 283.)

Exercise 11. The Central Provinces are well known for big game. Which part do you think would be best for big game hunting ?

Exercise 12. Look at the railway map on page 338. How can you get from Nagpur to Madras? What of the future?

Exercise 13. Look again at the railway map. What connection is necessary for the improvement of railway communication between the north of India and Madras?

V. Hyderabad State. (Page 325 and map, page 320.) This is the largest state in India and covers 82,000 square miles.

Exercise 14. What kind of natural boundaries has this state? Name them.

Exercise 15. Considering altitude and rainfall (see map, page 272), give your reasons for regarding Hyderabad State as a good, or as a poor, illustration of what crops would be expected from such a geographical position.

VI. Central Indian States. (Page 326 and map, page 324.) Ujjain, in the dominions of Gwalior, is an interesting place, not only on account of its historic temples and other buildings in the ancient city, but to geography students it is interesting because the old Hindu geographers marked the first meridian here. The place has a history dating from 200 to 300 years B.C. and was once the capital of Malwa. Sanchi is interesting for Buddhist relics and on account of the association of the place with the Emperor Asoka. Gwalior is famous for its ancient and renowned fort.

Exercise 16. Which capitals of Central Indian States are on the main railway lines from the north to Bombay? What are these railways?

Exercise 17. Compare the climates of the Indore and Gwalior States. (See maps on pages 324 and 272.)

VII. Rajputana. (Page 327.) The Rajputana States are interesting mainly from an historical point of view. Ajmer dates back to the year 145 A.D. Nowadays it has extensive railway workshops. Amber is the old capital of Jaipur State and was founded in the 4th century. Bharatpur, with its

famous old mud fort, is well known to sportsmen for duck shooting. The Viceroy attends a duck shoot annually. Alwar is the capital of a small state and is known for the fine old manuscripts in the Palace Library. Dholpur has little beyond archæological interest.

Exercise 18. If you had to live in Rajputana, which part would you prefer for climate and scenery ? Say why.

Exercise 19. Look at the map on page 299 and note the position of Jaisalmer. Under what disadvantages do people live at this place do you think ?

CHAPTER XXXVII.—FRONTIER INDIA. (PAGE 329.)

VIII. Baluchistan.

Exercise 20. What two purposes do frontier towns serve ?

Exercise 21. What kind of trade would you expect to be carried on at Quetta ?

IX. The North-West Frontier Province. (Page 329.)

Exercise 22. In the North-West Frontier Province there are many military outposts and large cantonments. Nowhere else along the Himalayas are there any important military towns, except small training centres. Why is this ?

Exercise 23. Peshawar is the only town in the North-West Frontier Province with a large population. Why is the population so thin in other parts ?

Exercise 24. You would find life in a frontier town very different from that in a town elsewhere ; *e.g.* you would be warned not to be out after sunset. Why such precautions ?

X. Kashmir. (Page 330.) Kashmir (Jammu and Kashmir State) is one of the most beautiful countries in the world, and

much of the prosperity of the people is due to the large number of visitors from all over the world. No railways enter the state except to Jammu, which is the winter capital, only a few miles from Sialkot in the Punjab. Several roads lead from the Punjab and the North-West Frontier Province to Srinagar ; the principal one (197 miles) is from Rawalpindi up through Murree (7700 ft.) and down to Kohalla (2000 ft.) on the Kashmir boundary. Crossing the river Jhelum to the left bank over a bridge, the road follows the valley all the way among magnificent scenery. Another good road is from Hassan Abdul and Havelian (end of railway) via Abbottabad, a military station, joining the other main road at Domel.

Srinagar (page 331) is closer to the Dal Lake than the Wular Lake. On the Dal Lake are wonderful floating gardens, built on rafts of reeds. Industries in Kashmir include agriculture, fruit growing, wood carving (mainly walnut), embroidery, silk spinning and weaving, the making of shawls from wool and silk, carpet making and the making of papier-mâché articles.

Kashmiris are backward in education and the poorer classes are scarcely as clean as they should be. The great majority of the population are Muslims.

Mount Godwin Austin is 28,278 ft. high, Nanga Parbat is 26,620 ft., and Agram 25,426 ft.

Exercise 25. Imagine yourself in the middle of the Vale of Kashmir. Give a brief description of what you can see.

Exercise 26. What is there to interest you during a visit to Srinagar ?

XI. Nepal and Bhutan. (Page 331.)

Exercise 27. What do you think are the chief occupations of the Nepalese ?

CHAPTER XXXVIII.—INDIA BEYOND THE BAY.
BURMA. (PAGE 332.)

XII. A few interesting points may be added to your text-book description. Burma is about 1200 miles long from north to south, and at its widest part is 575 miles across. The country is divided into three main parts : (1) The Irrawaddy Valley, which is separated by the Arakan Yomas from (2) Arakan, the northern coastal strip, and (3) Tenasserim, the southern coastal strip.

The minerals of Burma are important. Revise the last two paragraphs on page 283. Gold is found to some extent in the upper Irrawaddy ; coal is mined in the Northern Shan States ; precious stones, especially rubies, are mined in the Mogok Valley in Katha district not far from Bhamo. Do not forget the oil wells of Burma.

Exercise 28. The chapter begins with the remark that "Burma is outside of India proper." Why does it say this ? (See pages 255 and 256.)

Exercise 29. Look at the map on page 333. What is the situation of nearly all the towns ? How can we reach them ?

Exercise 30. Give a list of the territories, with position, which are neighbours of Burma.

XIII. Build. (Page 332.)

Exercise 31. Why are nearly all the towns in a similar geographical position ?

XIV. Climate. (Page 334.) Consult the maps on (1) page 333, (2) page 272, and (3) page 268. From the middle of May to the middle of November, Rangoon receives about 90 inches of rain. Any reference to the climate of Burma means the climate of valleys and the lowland, since they are the only parts where people live in numbers.

Exercise 32. What does the map on page 268 tell you about the climate of Central Burma ?

Exercise 33. The last king of Burma, King Thibaw, was de-throned and banished in 1886. He was sent to Ratnagiri on the coast south of Bombay, where he died in 1916. Do you think the climate of Ratnagiri suited him ? And why ?

XV. Vegetation. (Page 334.)

Exercise 34. Classify the vegetation products of Burma according to three different situations, thus :

Situation.	Products.
1.	
2.	
3.	

XVI. Rivers. (Page 334.) The Irrawaddy Flotilla Company is a famous transport company and has a fleet of between 500 and 600 vessels plying on the rivers of Burma—principally the Irrawaddy.

Exercise 35. Collect all the facts which would serve to shew that the Irrawaddy is an ideal river for navigation.

Exercise 36. How can you tell from a study of the map on page 333 that the Salween River is inferior to the Irrawaddy for transport purposes ?

XVII. The People. (Page 335.) Visitors from India are always struck by the difference between the Indians and the Burmese. The Burmese have been described as a “ merry and indolent people.” They are short and have features rather like the Ghurkas and similar to the Chinese. Every village has its monastery and the monks are the schoolmasters.

XVIII. Towns. (Page 336.) Rangoon was only a fishing village 75 years ago and is now next to Bombay and Calcutta in importance as a port. It has 350,000 inhabitants, of whom 125,000 are Hindus (more than Burmese !), 62,000 Muslims,

25,000 Christians, 12,000 Chinese, and others. Pegu is an ancient town founded in the sixth century ; here is a stone figure of Buddha 180 ft. long. Moulmein is regarded as the most beautiful town in Burma. Tavoy exports large quantities of wolfram. Bhamo is the terminus of the trade route to China, only 30 miles away ; here therefore is a very mixed population.

Exercise 37. What are the chief industries of Rangoon ?

CHAPTER XXXIX.—CEYLON. (PAGE 339.)

XIX. Ceylon is one of the most beautiful countries in the world and is famous the world over for its chief production, tea. The industries of the island are confined to the preparation of tea, of rubber in the form for export, and cocoa-nut products. To the visitor, the natural beauties and ancient monuments are the chief attractions. Anurhadapura is over 2000 years old and is full of relics of that time. Kandy has the famous Temple of the Tooth on the shore of a magnificent lake. Peradeniya, $3\frac{1}{2}$ miles from Kandy, has the most magnificent botanical gardens in the world.

Exercise 38. By what two routes is Ceylon reached from India ?

Exercise 39. What gives Ceylon its equable climate ?

Exercise 40. Tea requires abundance of rain and good drainage. Rice needs plenty of water. Where, in Ceylon, will tea and rice plantations be found ?

Exercise 41. What kind of climate suits rubber trees ?

Exercise 42. Every vessel from the west to Calcutta, Burma. Malay, China, Japan, and Australia calls at Colombo. Why ?

Exercise 43. Trincomalee has an excellent harbour (large vessels of the navy can be seen there) but has no trade. Why ?

ASSIGNMENT No. 19.

CHAPTER XL.—THE MONSOON LANDS OF ASIA.

(PAGE 343.)

I. The monsoon lands of Asia are very clearly shewn in the coloured map of July rainfall and winds at the beginning of the text-book. You will see that it is the south-east corner of Asia that is affected, including India, Indo-China, China, Japan, and the East Indies. You read in the newspapers every year of great floods in China where it often happens that thousands of people are made homeless or are drowned. Typhoons and cyclones are dangerous to shipping and the smaller vessels suffer a great deal.

Compare the map of the winter monsoons (1st coloured map) with the July map and notice that the East Indies receive heavy rainfall from both monsoons.

Exercise 1. How is it that half the population of the world lives in the monsoon lands of Asia ?

II. Indo-China. Map Study. (Pages 343 to 348.) There are three political divisions : Federated Malay States (British), Siam (Independent), and French Indo-China. Note that of the rivers mentioned—top page 344—only one, the Red River, flows into the Gulf of Tonking ; look where the other two reach the sea.

The Federated Malay States are coming to the front as a centre for tourists and the Government advertises the beauties of the country in illustrated booklets which can be obtained

free from tourist agencies. Here is a list of productions of the Federated Malay States :

	<i>Annual Value.</i>
Para Rubber - - -	£22,059,230
Tin Ore - - -	7,524,404
Tin - - -	1,212,071
Copra - - -	600,434
Tungsten - - -	48,726
Rice and Tapioca - -	36,450
Wolfram - - -	30,292
Dried Fish - - -	19,879
Areca Nuts - - -	14,166

Exercise 2. The population of Indo-China includes many Indians. In what ways do they find the country similar to their own ?

Exercise 3. Make a list of the products of Indo-China and put a cross against those which are found in India also.

Exercise 4. Singapore (380,000 inhabitants), Penang (153,000), Malacca (152,000). These are the principal towns of the Federated Malay States. Give the position of each and write a note on its importance.

Exercise 5. Bangkok is the only large town in Siam ; it has a population of $6\frac{1}{2}$ lakhs. What do you consider the most interesting feature of this town ?

Exercise 6. Name six of the important crops of Siam.

CHAPTER XLI.—MONSOON LANDS, (*Continued*).

(PAGE 349.)

III. China. Map Study. (Pages 349 to 350.) Note Pechili Gulf is often called Gulf of Chihli. Cochin China is really only the southernmost portion of French Indo-China. The northern province is Tonking. Instead of " French Cochin China " (middle of page 349) read " French Indo-China."

Exercise 7. Distinguish between the Chinese Empire and China proper.

Exercise 8. China is an extremely fertile country. What is the fertility mainly due to ?

Exercise 9. China has one of the oldest civilizations in the world and 2000 years ago or more, it was ahead of most other places. But it stood still while other places advanced. What evidence is there to-day that China has not kept pace with the times ?

IV. The Si-kiang. (Page 351.) Trace the whole course of the river in your atlas.

Exercise 10. Write a short paragraph in praise of the wonderful Si-kiang.

Exercise 11. How far, in a straight line, is Yunnan from Bhamo ? What is the importance of the trade route between these places ?

Exercise 12. Compare Canton and Hong-kong as ports. (By the way, Hong-kong is the headquarters of the China Seas Naval Squadron.)

V. The Yangtse-kiang. (Page 353.)

Exercise 13. What is the density of the population in the Yangtse-kiang valley ? (See map next to page 240.) What other part of Asia has as dense a population ?

Exercise 14. "The Yangtse-kiang with its feeders is the world's most important river highway." Give a list of reasons for this statement.

Exercise 15. What advantage is it to a river to pass through a lake ?

Exercise 16. Draw a map of the Yangtse-kiang, putting in the important towns on its banks.

Exercise 17. What is the chief business carried on at the triple town of Hankow-Wuchang-Hanyang ? (You may add to your answer that large iron works are now

working at Hanyang and other places near and that iron ore is despatched from here all over the world.)

Exercise 18. What makes Shanghai so important ?

VI. The Hwang-ho or Yellow River. (Page 356.) The spelling of Chinese place-names varies a little ; the Hwang-ho is often spelt Hoang-ho. Nanking is also spelt Nankin and Nangkin.

Exercise 19. Describe the soil of the greater part of North China.

Exercise 20. The Hwang-ho has been described as “ China’s Sorrow.” Why is this ?

Exercise 21. The products of North China differ from those of Middle and South China. Why ? What are the chief products ?

Exercise 22. What makes Peking of such importance ?

Exercise 23. You will notice there is no great port at the mouth of the Hwang-ho as there is on the Yangtse-kiang and Si-kiang (or Canton River). Explain why.

Exercise 24. What is the great port of North China and how is it connected with the rest of the world ?

Exercise 25. China is poorly equipped with railways. Mention those you have read about.

VII. India and China compared. (Pages 360 to 362.)

Exercise 26. Where do most of the trade routes from Tibet lead to ? What is the reason for this ?

Exercise 27. Give reasons why China can be regarded as having model rivers.

Exercise 28. What effect have the excellent waterways had on railway development in China ?

Exercise 29. Give reasons why India has a warmer climate than China.

Exercise 30. Compare the lot of the working people in China with that in India.

VIII. Manchuria and Korea. (Page 362.)

Exercise 31. The latitude of Manchuria is approximately the same as that of southern Europe, which is famous for its mild winters. In Manchuria "the winters are long and bitterly cold." See also the isotherms, page 64. Explain the reasons for this difference.

Exercise 32. What are the physical features which cause Manchurian summers to be hot ?

Exercise 33. Railways appear to be much more developed in Manchuria than in China proper. Why ?

Exercise 34. From a study of the map and the factors which influence climate, state what kind of climate you would expect in Korea.

CHAPTER XLII.—THE MONSOON LANDS OF ASIA.
(Continued). (PAGE 365.)

IX. This short chapter deals principally with Japan, one of the most interesting countries in the world ; you should try and read as much as you can about the Japanese, who by their industry have made their country one of the foremost powers.

The Monsoon Lands. (Page 365.) There are just three points in this section : (1) the position of the islands, (2) their mountains and their volcanic nature, and (3) a general statement about crops. Revise the account of Krakatoa on page 179.

Exercise 35. Examine any map shewing the physical features of a country—*e.g.* North Europe—and see what a different outline it would have if the land sank even 500 ft. What would the highlands become ?

Exercise 36. Islands, especially volcanic islands, may rise in another way than by being cut off from a continent by sinking of land beneath the sea. How may they be formed ?

Exercise 37. Houses in Japan are built of the lightest materials, mainly wood ; and interior walls are often only paper. Can you suggest a reason for this ?

X. Japan : Map Study. (Pages 365 to 367.) This section has very little map study mentioned, so we will do a separate study of the map on page 366. Turn to the map and do these exercises :

Exercise 38. What part of the mainland is opposite Japan ? To whom does this part of the mainland belong ?

Exercise 39. Ignoring tiny ones, how many islands form the country of Japan ? What are their names ? Which is the largest ?

Exercise 40. Does the coast-line appear suitable for harbours ? How would you describe the coast-line ? Yokohama is the biggest seaport ; describe its position.

Exercise 41. Can you find any rivers on the map ? Are any named ? What do your answers tell you about Japanese rivers ?

Exercise 42. Now study the railways. Do you think the Japanese can be proud of their railways ? Have they been easy to make do you think ? Compare Chinese and Japanese railways and rivers ; what can you say of each ?

Now read the section in the book. At the top of page 366 you read : " in India thousands have never seen the sea nor sailed on it." Would it be wrong to alter " thousands " to " millions " ?

Fuji-yama (or Fusi-yama or Fujisan) is sacred to Japanese art ; if you examine any Japanese tapestries, paintings, ornaments in chinaware, lacquer work, etc., you will almost certainly see a mountain shewn, with a white top ; this is Fuji-yama, which is 12,500 ft. high, beloved by all Japanese.

XI. Climate. (Page 367.) Sakhalia Island (or Yezo) is a little to the north of the most northerly point of Hokkaido and

is not shewn on the map on page 366 ; only the southern half of the island belongs to Japan, the other half belongs to Russia.

Exercise 43. Give the direction and distance of Formosa (which belongs to Japan) from the south of Kiushiu. (See map on page 367.)

Exercise 44. Look at your atlas, or the coloured map of Asia at the beginning of your text-book, and correct the first sentence in this section.

Exercise 45. Name the factors which influence the climate of Japan, both in summer and winter.

XII. Vegetation and Crops. (Page 368.)

Exercise 46. How is it that cultivation is restricted to only a quarter of the land in Japan ? (See also page 367.)

Exercise 47. What are the chief crops of Japan ?

XIII. Towns. (Page 369.) The population of Tokio is over 20 lakhs. Osaka has become less important as a port since the harbour is silting up, hence Kobe has grown and competes with Yokohama as a port. Hakodati in Yezo Island is an important coal centre.

Exercise 48. On line 9, page 369, you read : “ Further west, on the beautiful inland Sea of Japan, we come to Osaka . . . ” Test this statement on the map on page 366.

Exercise 49. Write a note on the importance of each of these towns : Tokyo, Osaka, Kobe, Yokohama, Kyoto and Nagasaki.

XIV. The Japanese. (Page 369.)

Exercise 50. What, do you think, is the reason for the amazing advance made by the Japanese in recent times ?

Exercise 51. What has caused the Japanese to be described as an artistic race ?

XV. The Eastern or Malay Archipelago. (Page 371.) This is what the Java Government says about the climate of Java : "Java is a land of monsoons. From May to October the S.E. monsoon blows over the island and brings dry weather ; the other monsoon, the West monsoon, prevails from December to February, bringing rain. As a rule there are occasional showers during the dry monsoon, whilst during the wet one it usually rains in the afternoon or at night, with clear bright mornings as a result. Unbearable heat is never experienced here." Java is very well supplied with railways and Sumatra with a few. Buitenzorg, a little inland from Batavia, has wonderful botanical gardens.

Exercise 52. Although these islands are equatorial, the climate is pleasant. How do you account for this ?

Exercise 53. What are the chief exports of Batavia ?

XVI. The Philippine Islands. (Page 373.)

Exercise 54. In the area shewn in the map, page 372, many nations share government. Make a list of the countries to whom the various places shewn belong.

ASSIGNMENT No. 20.

CHAPTER XLIII.—THE CENTRAL HIGHLANDS OF ASIA. (PAGE 374.)

I. Map Study. (Page 374.) Look at your atlas and see what countries we are now dealing with. They are all part of the Chinese Republic, though in reality they are little concerned with any Chinese government. First, Tibet is the southernmost part of this enormous highland ; in the north is Mongolia ; and in the east is Chinese Turkestan. The rest of the world hears very little about these countries. No railways, no waterways, but only caravan tracks--no wonder little is known of these countries. Tibet is best known through the writings of travellers, but foreigners are not welcome in Tibet and Lhasa is a difficult place both to reach and enter. Look at the picture on page 375. Does it look like a place worth visiting ?

The reasons for the absence of all modern developments are the physical characters of the land.

From the Pamir Tableland (known as the Roof of the World) at the N.-W. boundary of Kashmir, N.E. to S.E. these great mountain ranges radiate. The Himalayas are in the south of Tibet, the Karakoram and Tangla Mountains run eastward across the centre, and the northern boundary between Tibet and Chinese Turkestan is the Kuen-Lun Range. North-east from the Pamirs another mountain mass forms the northern boundary of Chinese Turkestan and Mongolia ; these ranges are the Tien Shan, Altai Mountains and Yablanoi Mountains.

Hundreds of rivers from the mountains never reach the sea but end in desert swamps or lakes—the only places where people can live. Read the whole of this chapter to page 377.

II. Towns. (Page 377.)

Exercise 1. What is the most interesting place in Tibet ?
What sort of population would you find there ?

**CHAPTER XLIV.—THE COUNTRIES OF THE WESTERN
TABLELANDS OF ASIA—PERSIA, AFGHANISTAN
AND BALUCHISTAN, ASIA MINOR AND ARABIA.
(PAGE 378.)**

III. India has always had associations with these countries and you will already be familiar with their names and the peoples of some of them. Keep the map of Asia before you while studying this chapter. You will see that the whole of these tablelands is a mass of mountains and deserts ; people can only settle in the few places where water is found, as at oases and mountain streams.

The region north of the Persian Gulf has in recent years become of commercial importance owing to the discovery of petroleum. You may have heard of the Anglo-Persian Oil Company which works the product. There are other minerals in the country, but it is difficult or impossible to work them where communications are not in existence.

Map Study : Relief and Climate. (Page 378.)

Exercise 2. How can you tell from the map that the rainfall on these tablelands is scanty ?

Exercise 3. What kind of life would you expect the people to lead in such a country as Arabia ?

IV. Cultivation. (Page 379.)

Exercise 4. Where will pasture be possible in such a country ?

Exercise 5. With scanty pasture and people going about in tribes with their flocks, what sort of feeling would you expect existed between the tribes ?

V. Trade Routes. (Page 379.) The Trans-Caspian Railway joins the Trans-Siberian Railway at Samara in European Russia ; it runs south-east through Orenburg, past the Aral Sea to Tashkent ; it then turns west through Samarkand, Bokhara and Merv to the Afghan frontier at Herat.

Exercise 6. Imagine you are accompanying a caravan across the desert. Briefly describe (1) what composes the caravan ; (2) what is carried ; (3) the journey between halts ; and (4) halts.

Exercise 7. Between which countries have caravan routes been affected by the construction of the Suez Canal ?

Exercise 8. Which places have increased in importance since the cutting of the Suez Canal ?

Exercise 9. What has been the effect of the Trans-Caspian Railway on the country through which it passes ?

VI. Persia : Position and Relief. (Page 380.)

Exercise 10. How is it that Persia is difficult to reach and to travel in ?

Exercise 11. What part of Persia appeals to you most as a place in which to live ? Why ?

VII. Climate. (Page 380.)

Exercise 12. Why is the greater part of Persia so dry ?

Exercise 13. Where would you find pastures in Persia on which goats and camels can be fed ?

Exercise 14. None of the rivers flowing inland from the mountains ever reach the sea. Why ? How has the cultivator overcome a similar difficulty ?

VIII. Towns and Trade. (Page 382.) In your atlas note the following towns: Teheran (the capital of Persia), Ispahan, Shiraz (famous for carpets), Bushire (chief port), Tabriz, Meshed (famous for carpets and shawls) and Herat.

Exercise 15. Draw a map of Persia, putting in the towns mentioned.

Exercise 16. Using Teheran as a centre, draw lines representing caravan routes south, west and east, passing through the towns mentioned. (A fourth route might be indicated from Teheran to Baghdad in Iraq.)

Exercise 17. List the products and manufactures of Persia.

IX. Afghanistan and Baluchistan : Map Studies. (Page 382.)

Exercise 18. From your reading of this section, would you care to change your residence from India to Afghanistan ? Give your reasons.

Exercise 19. The only three towns of importance in Afghanistan are Kabul, Kandahar, and Herat. They are all on trade routes. Which routes are these and what would you find the caravans carrying ?

Exercise 20. Quetta is a pleasant town and is a military centre. Why are soldiers kept there ?

X. Asia Minor and Syria. (Page 384.) Read to the middle of page 386. The government has changed hands since the Great War and Turkish rule has been greatly curtailed. Syria, Palestine, Iraq (Mesopotamia), Armenia are now independent. Iraq and Palestine are guided by the British and Syria by the French. Smyrna was handed over to Greece. Find all these places in your atlas.

XI. Syria and Palestine. (Page 384.) These countries are full of interest, especially to Jews and Christians, as Bible history is connected with them. They are ancient countries, and some regard Damascus as the oldest city in the world ; it is thousands of years old and was a very important place in the days of Abraham. Centuries ago, Syria and Palestine were most flourishing countries when magnificent irrigation schemes existed ; on Turkish occupation, however, these fell into disuse and were destroyed ; the neglect ruined the country. Damascus is a real garden city with beautiful surroundings made possible by irrigation from the river which flows through it. Aleppo is another ancient place with fine irrigated gardens ; it

manufactures woollen, silk and cotton cloths, and the commonest cultivated crop is the pistachio nut. So-called Turkey carpets are produced in these parts. The Jews now hope to make Palestine their national home and a university has been established at Jerusalem ; no great success, however, has attended the experiment. Jaffa is a poor port with no harbour. The chief river is the Jordan, which eventually flows into the Dead Sea, an exceedingly salty inland sea, in which very little life exists. The Jordan valley is mostly below the sea level, and the Dead Sea is actually about 1300 ft. lower than sea level.

Exercise 21. Why is Damascus important ? What railway connection has it ?

Exercise 22. Which is the chief railway centre in Syria ? To what places do railways run from it ?

XII. Arabia. (Pages 386 to 388.) Read to the end of the chapter. Remember, one part, viz. Yeman in the S.W. has a pleasant climate and considerable cultivation, as rivers from the hills reach the sea. The oases and places where a little rain falls are famous for breeds of horses, camels and sheep. The Bahrein Islands (British) off the coast in the Persian Gulf are the centre of an important pearl fishery.

Exercise 23. Arabia is the driest country in the world. Explain why this is so and how you could find this out from the map.

Exercise 24. " The Bedouins wander about with flocks and herds. They despise the traders, craftsmen and cultivators "—page 387. How would you describe the character of the Bedouins compared with that of traders, craftsmen and cultivators ? What sometimes happens when Bedouins meet caravans ?

Exercise 25. Only eight towns are mentioned in your textbook for Arabia. Three are connected with Moham-medan pilgrimages, four are trading ports and one a British possession of great importance. Which are these places ?

Exercise 26. Both Perim and Aden are calling places for liners sailing between Europe and the East. What do they call there for ? (It cannot be for exports, can it ?)

CHAPTER XLV.—MESOPOTAMIA (IRAQ) AND CAUCASIA. (PAGE 389.)

XIII. Mesopotamia. The official name is Iraq and the country has a great future before it now it is under the protection of Great Britain.

Exercise 27. Give the reasons for believing that Iraq will regain its former prosperity.

Exercise 28. For what means of communication is Baghdad the centre ?

Exercise 29. Describe the situation and trade of Basra.

XIV. Caucasasia. (Page 390.) The river referred to in this section is the Kur. Note there is no outlet from the Caspian Sea, hence the necessity for a railway to carry oil from Baku to Batum ; there is also a pipe line to convey oil along this route. Strictly speaking three independent states have been formed from Caucasasia : (1) Republic of Georgia with Batum and Tiflis as the chief towns ; (2) the Republic of Azerbaijan, with Baku ; and (3) Armenia with the inland town of Erzerum and the port of Trebizond.

Exercise 30. On what does the prosperity of the Caucasian States depend ?

ASSIGNMENT No. 21.

CHAPTER XLVI.—THE NORTHERN PLAINS.

(PAGE 391.)

I. Your text-book divides the northern plains of Eurasia into two parts, viz. I. The land draining into (1) the Caspian Sea, (2) the Aral Sea, and (3) Lake Balkash ; II. The rest of the lowlands.

The Caspian and Aral Basin. (Pages 391 to 393.) There are five rivers you should note in this basin—two flowing into the Caspian, two into the Aral Sea, and one into Lake Balkash. Note also where each rises.

Exercise 1. Name the rivers in the Caspian and Aral basin, stating where they begin and end.

Exercise 2. Explain how each of the factors of climate affects the climate of this region—winds, sea, latitude, altitude, mountains and soil.

Exercise 3. If the rainfall (or snowfall) on the mountains neighbouring a desert is reduced, what effects will this have on the life of the people of the desert ? If the reverse happened, what then ?

II. The Central Asian Railway. (Page 394.) This railway is interesting to Indians as being the nearest to India from the interior of Asia and, consequently, from Europe. If you wished to travel from Europe by railway as nearly as possible to India you would get as far as Herat in Afghanistan from Moscow. This is the way Bokhara carpets, so well known in India, are brought in. Find the towns mentioned on page 394 in your atlas.

Exercise 4. Describe briefly an oasis settlement—the appearance, surroundings, visitors, occupations of the settlers.

III. The Steppes. (Pages 394 to 398.) The population on the Steppes is very scanty—about three or four people to every square mile. You will understand the reason after reading the section.

Exercise 5. Explain where the area called the Steppes is situated.

Exercise 6. Give a short description of the succession of the seasons on the Steppes.

Exercise 7. What is the chief characteristic of the flora of the Steppes? How is this accounted for?

Exercise 8. Who are the inhabitants of the Steppes and what do they do for a livelihood?

IV. The Forest Belt of the Northern Plains. (Page 398.)

Exercise 9. In spite of the existence of great forests (particularly of pines, which are valuable trees) we read nothing of a great timber trade in this part. Can you explain why? (You will understand still more clearly after reading the next section on the Tundras.)

V. The Tundras. (Page 400.)

Exercise 10. From this section choose the sentence which describes the utter solitude and dreariness of these regions.

Exercise 11. Study the two pictures on pages 398 and 399 and make a list of the contrasts you notice, i.e. between the forest region and the Tundra.

CHAPTER XLVII.—THE TRANS-SIBERIAN RAILWAY. (PAGE 401.)

VI. It is important that you should know the towns on this railway, and they are few. Omsk is sometimes called the Winnipeg of Siberia because it is the centre of a great wheat-growing area. An important caravan route starts at Tobolsk

and passes through Omsk on the way to Mongolia. Tomsk is a gold-mining centre. Irkutsk is the largest of the Siberian towns. Lake Baikal is one of the deepest lakes in the world, between eight and nine hundred fathoms deep. Read to the top of page 404.

Exercise 12. Give seven reasons why the Russians constructed the Trans-Siberian Railway.

Exercise 13. The railway could not pass through some of the large towns. Why? Give one example of such towns.

Exercise 14. Measure the length of the Trans-Siberian Railway from Moscow to Vladivostok, using some thread and the map scale.

VII. The climate of different parts of Asia. (Page 404.)
This section is a revision of what you have already studied.

Exercise 15. Name the countries or parts of countries in Asia which lie in the tropics.

Exercise 16. Which country of Asia would you choose as an example of one having a continental climate? Why?

Exercise 17. We read of the great mineral wealth of Siberia—coal, iron, copper, silver, gold. How is it that great manufacturing centres have not sprung up there?

Exercise 18. What animals are found north of the highland which are not found on the plains of India? Which are valuable?

CHAPTER XLVIII.—THE CHIEF POLITICAL DIVISIONS OF ASIA. (PAGE 406.)

VIII. The first paragraph is interesting reading. Asia, the home of civilization and religion—why has it stood still or declined for so long, while new nations advanced? Different people will give different reasons, *e.g.* new countries are easier to develop than old, because old traditions often stand in the way of advance. But geography students may find an answer

in climate. The decline of Asia was followed by the rise of Europe—Greece, then Italy, Denmark and Anglo-Saxon countries; may it not be due to the vigorous, temperate, equable climate?

The Empire in Asia. (Page 406.)

Exercise 19. Make a list of the parts of the British Empire in Asia.

Russian Asia. (Page 407.) Not only owing to the Great War, but also through bad government and internal strife, the Russian Empire fell to pieces and is still in a very unsettled state. It is among the provinces round the Caspian and Aral Seas that separate states are likely to be formed. That is a good thing for India, because it was from this side that in former years there seemed to be a Russian peril to India. All Asia north of the Chinese Republic, Afghanistan and Persia was part of the Russian Empire.

French Asia. (Page 407.) All the French possessions are grouped together in one place east of Siam.

Dutch Asia. (Page 407.) You will notice the Dutch possessions are all islands and prosperous too.

Turkish Asia. (Pages 407 and 408.)

Exercise 20. Make two lists: I. of Turkish possessions in Asia at the present day, and II. of those countries no longer under Turkish rule.

Exercise 21. What help does Britain give to pilgrims to Holy Places in Arabia?

Japan. (Page 409.)

Exercise 22. What islands constitute the Japanese Empire?

ASSIGNMENT No. 22.

CHAPTER XLIX.—EUROPE. (PAGE 410.)

I. Read to page 412.

Exercise 1. In the first paragraph on page 410, there are about twelve points of contrast between Europe and Asia. Note all the points and then write out those differences which help to give Europe a more equable climate than that of Asia.

Exercise 2. Choose six points which go to prove that Europe is more advanced in modern improvements than Asia.

Exercise 3. What effect has nearness to the sea had upon the activities of European nations ?

Exercise 4. Give some of the advantages India has gained through her association with Europeans.

Exercise 5. In what ways is the study of geography the best way of studying civilization ? (It is mainly a question of how nations help one another.)

II. From Asia to Europe by Sea. (Page 412.) The most usual European ports of call for ships from India to Europe are Trieste, Venice, Genoa (Lloyd Triestino Line), Naples (Orient Line), and Marseilles (Peninsular and Oriental Line, Bibby Line and other lines). The English mail steamer, leaving Bombay every Saturday, calls at Aden, Port Said, Marseilles, Gibraltar, Plymouth and London. The mails are dropped at Marseilles to be carried to London in 24 hours by train and boat, via Calais and Dover, the whole journey for these mails occupying two weeks. In this section Constantinople is mentioned as the capital of Turkey; the capital is now Angora in Asia Minor. (See page 445.).

Exercise 6. In an all-sea voyage from Bombay to London by P. & O. mail, what countries would you see? Name them in the order you would see them. (Remember you would pass through the Strait of Messina and the Strait of Bonafacio.)

Exercise 7. Where is the Archipelago? What is it? (Atlas and dictionary will help.)

III. Surface Features. Map Study. (Page 414.)

Exercise 8. In what respects does the physical map of Europe resemble that of Asia?

Exercise 9. Study a map of Europe carefully and note the boundary between it and Asia. How far does the political boundary correspond to the natural? Is there any likelihood of the political boundary changing between the Caspian and the Arctic Ocean? Why?

Exercise 10. Give a list of the "inland seas" of Europe.

Exercise 11. What evidence does a physical map of Europe give that the British Isles were once a part of the mainland of Europe?

Exercise 12. Describe as clearly as you can the direction of the principal watershed of Europe.

Exercise 13. What are the principal rivers draining the southern side of this watershed?

IV. The Alpine Highlands : Switzerland. (Pages 415 to 418.) A curious thing about the people of Switzerland is that they have no common language; in the north they speak a dialect of German, in the west French, and in the south Italian. A visitor to Switzerland will often hear a language which seems to be a mixture of all three. In some out-of-the-way places, a strange Latin dialect is spoken.

Exercise 14. Why is Switzerland a favourite country in which to spend a holiday?

Exercise 15. What are the four great rivers which are referred to at the end of the first paragraph (p. 416) ?

Exercise 16. The important towns of Geneva, Lausanne, Berne and Zurich all lie on an almost straight line ; Lucerne is only a short distance from that line. (See map.) All, except Berne, are situated on lakes. Railways are numerous between the towns. What does this information suggest to you about the surface of the country here ?

Exercise 17. Give exactly the position of Basle (sometimes spelt Basel or Bâle).

Exercise 18. What are the chief occupations of the Swiss ?

Exercise 19. What is the source of power for driving the spinning and weaving mills of Switzerland ?

Exercise 20. What is the chief disadvantage to Switzerland in dealing with exports ?

ASSIGNMENT No. 23.

CHAPTER I.

I. THE RHINE.—GERMANY, HOLLAND AND BELGIUM. (PAGE 419.)

I. Germany. (Pages 419 to 421.) A considerable part of the valley of the Rhine from Basle, northwards, has changed hands since the Great War. Alsace-Lorraine was German territory since the French lost it in 1870, but it has now been restored to France.

Exercise 1. The German language abounds in stories and songs about the Rhine—far more than other rivers. Can you suggest why this is so ?

Exercise 2. Explain why it is that such a large number of important towns and industries have prospered in the Rhine valley and neighbouring valleys ?

Exercise 3. From your atlas, write the names of the most important towns in the Rhine valley, with notes on why they are important. (You should have at least ten names.)

Exercise 4. Why is the Ruhr valley important ?

II. Holland. (Page 421.) The people of Holland, the Dutch, once had big interests in India. They are great and progressive agriculturists and have advanced agriculture in their colonies. Do you remember which are Dutch colonies near India ?

Look at the map of Holland ; note the great delta of the Rhine ; the Zuider Zee, with its string of islands at its entrance and lagoons and lakes around its shores. In a few years' time

this map may be very different, for the Dutch are engaged on a great reclamation or drainage scheme by which the area covered by the Zuider Zee will become dry land. The lagoons and lakes shew how flat the land is. Flushing is important as the principal port for passengers from England to the continent of Europe.

Exercise 5. Holland is a flat country with plenty of good rivers, very fertile soil, but no minerals. What is sure to be the chief occupation of the people in such a country ?

Exercise 6. To what does the country owe its fertility ?

Exercise 7. What other rivers join the Rhine at its delta ?

Exercise 8. Why have Amsterdam and Rotterdam become important ports ?

III. Belgium. (Pages 423 to 425.) Belgium has often been called the "Battlefield of Europe," and again it justified this name from 1914 to 1918. Waterloo is not far from Brussels, and every schoolboy knows that it was here that Wellington broke the power of Napoleon. Such places as Ypres, Mons and Louvain will always remain memorable for the terrible times of the Great War.

Ostend is a very fashionable seaside resort. Northern Belgium is agricultural, like Holland ; while southern Belgium is a manufacturing land. The people are also different in the two parts ; in the north they speak Dutch, in the south French.

Exercise 9. How is it that the occupation of the people in the north of Belgium is agriculture and in the south manufactures ?

Exercise 10. For what are the following towns important ? Antwerp, Ghent, Liège and Brussels.

II. GERMANY, POLAND AND DENMARK. (PAGE 425.)

IV. Germany. (Pages 425 to 428.) The importance of Germany and the extent of its trade is known to all in India as well as the rest of the world by the numerous articles labelled "Made in Germany" found in all bazaars—tools, enamel ware, hardware, earthenware, and toys are perhaps the commonest. Germany is very advanced in education and modern equipment, and her cities are among the finest in the world. Some of the largest ships in the world, up to 50,000 tons, are built at Bremen. Stettin is also a great shipbuilding port.

Since the War, Germany has been reduced in size; you have heard of the loss of Alsace-Lorraine, but German Poland, part of Schleswig and the ports of Danzig and Memel are no longer part of Germany. Besides good navigable rivers, there is an excellent system of inland commercial canals.

Exercise 11. Choose what you regard to be the six most important towns in Germany and say why each has been chosen.

Exercise 12. Look at the map on page 427. Seven railways run out from Berlin like a spider's web. Which of them reach places outside Germany?

Exercise 13. What was the advantage of the construction of the Kiel Canal?

Exercise 14. Can you suggest a reason why Germany was a great military, but not a great naval power? Look at her borders.

Exercise 15. What are the chief rivers of Germany? Which is the largest and which the second largest?

V. Poland and the Vistula : Poland. (Page 428.) Perhaps Poland is best known to the public of other countries for the astonishing number of famous musicians it has produced.

Exercise 16. Why do we speak of Poland as a "new" country?

Exercise 17. What is the chief town of Poland and where is it situated ?

VI. Denmark. (Pages 428 and 429.) If you have read early English history, you will remember how the Danes invaded England in the days of King Alfred. At that time the Danes were a great maritime nation.

Exercise 18. In what ways does Denmark resemble Holland ?

Exercise 19. What is the principal occupation of the people of Denmark ?

ASSIGNMENT No. 24.

CHAPTER LI.—THE RHONE AND THE PO. (PAGE 430.)

I. The Rhone and France. (Pages 430 to 432.)

Exercise 1. Write a short account of the Rhone, mentioning (a) its source—a good atlas will tell you the actual mountain which is one of those having a railway tunnel through it; (b) where it goes and direction; (c) the kind of valley—width, slope; (d) scenery through which it passes; (e) tributaries; (f) towns on its banks; and (g) navigation.

(*Note* : The last two points you can easily settle yourself if you think and use the map properly. Compare it with the Rhine. Which has the wider valley? Are the towns numerous on its banks like the Rhine? Has the number of towns any connection with a river's navigability?)

Exercise 2. What would interest you most at Lyons and Marseilles?

Exercise 3. The Gulf of Lions is often swept by a wind called the mistral, blowing from the N.W. What kind of wind do you think it is?

II. Other French Rivers. (Page 432.)

Exercise 4. What does the direction of most of the rivers tell you about the general slope of the land of France?

Exercise 5. France can be divided roughly into two regions—agricultural and industrial. Indicate the agricultural part, using the rivers as the dividing line.

Exercise 6. What is the result of the excellent river systems of southern France on the country's prosperity ?

Exercise 7. There are more great ports on the north coast of France than on the Bay of Biscay. Why ? Note the situation of the Bay ports.

Exercise 8. What is the principal business of Bordeaux ?

Exercise 9. Explain why the Seine and its tributaries are more important than other rivers in France.

Exercise 10. " All roads in France lead to Paris." Shew that this is true.

Exercise 11. Why is Paris so popular with visitors from all parts of the world ?

Exercise 12. Name the principal ports of France on the English Channel. (These are most important ; steamers with passengers and goods cross between these ports and Southampton, Folkestone and Dover in England several times a day.)

III. The Po and Italy. (Page 435.) Italy is visited a great deal by tourists and students on account of its fame in the world of art. For centuries it has been famous for centres of learning and has produced many great men—poets and painters like Dante and Da Vinci and scientists like Galileo, Volta and, to-day, Marconi the wireless pioneer. An important industry in the north of Italy is the manufacture of motor-cars.

Exercise 13. What are the chief occupations of the people of Lombardy ?

Exercise 14. There is no great port at the mouth of the Po, but Venice, a few miles north, is a great port. What is the reason ?

Exercise 15. Write a note of interest on each of these towns : Genoa, Venice, Trieste, Florence, Naples and Rome.

CHAPTER LII.—THE COUNTRIES OF THE DANUBE. (PAGE 441.)

IV. Political boundaries of states in the south-east of Europe have altered much since the Great War ; it will be sufficient if you have a general idea of the various countries. The valley of the Danube has a very varied population, due to the fact that in the early history of Europe, all invaders came to Europe by way of this valley.

Exercise 16. Trace the river Danube from its source in the Black Forest, and write down the names of all the countries through which it passes in its 1750 miles course.

Exercise 17. What European capitals are situated on the banks of the Danube ?

Exercise 18. What climatic features make the Plain of the Danube an excellent wheat-growing area ?

Exercise 19. Between what countries does the Danube form a natural boundary ?

V. The Balkan Peninsula. (Pages 443 to 445.) In countries where high mountains with deep valleys separate people there is always a likelihood of strong feeling between the separate peoples and little real unity. Hence for generations there has been strife in this part of Europe. The Turks came to Europe in the fifteenth century and conquered the country nearly as far as Vienna ; after 200 years their power gradually declined, and right up to the Great War the Turkish Empire in Europe has shrunk, and now a very small portion remains to them in Europe—practically only Constantinople. There is little love lost between the Bulgarians, Serbs, Rumanians and Greeks.

Exercise 20. Why was the Sultan of Turkey called “ The Sick Man of the East ” ? .

Exercise 21. From a study of the map give your reasons for the difference in climate in Greece and Rumania.

- Exercise 22.* What kind of climate does the growing of vines, olives, cotton and rice indicate ?
- Exercise 23.* What has been the influence of the valleys of the rivers Morava and Vardar on communications with Greece ?
- Exercise 24.* What is the importance of the situation of Constantinople ?
- Exercise 25.* The Greeks have always been great overseas traders. What physical features of their country have contributed to this development ?
- Exercise 26.* What is the chief interest in Athens for non-Greeks ?
- Exercise 27.* The Balkan Peninsula is called the bridge between Europe and Asia. Do you consider it a good description or not ? Why ?

ASSIGNMENT No. 25.

CHAPTER LIII.—RUSSIA AND ITS RIVERS. (PAGE 447.)

I. Russia.

Exercise 1. What hinders the development of overseas trade for Russia ?

Exercise 2. In what way does the climate of Russia introduce the climatic conditions of the northern plains of Asia ?

Exercise 3. How does the climate of Russia affect the work of the farmer—compared, *e.g.*, with his work in India ?

Exercise 4. How do the inhabitants of the forest region of Russia spend their time ?

Exercise 5. Discuss the position of Archangel for a port.

Exercise 6. In the picture on page 451, what is the water you see ? What is on the water, and what does this tell you ?

Exercise 7. What indication can you give that the great fair at Nizhi Novgorod (sometimes spelt Nijni Novgorod) is perhaps the most wonderful in the world ?

Exercise 8. What is the importance of Odessa ? In what way is it handicapped as a foreign trading port or a naval centre ?

Exercise 9. From a study of the map, can you suggest a reason why the Russians abandoned Petrograd (or Leningrad) as a capital in favour of Moscow ?

CHAPTER LIV.—SCANDINAVIA AND IBERIA.
(PAGE 454.)

II. Scandinavia.

Exercise 10. How is it that “ the Norwegians look not to the land but to the sea for their living ” ?

Exercise 11. Describe the appearance of a fiord.

Exercise 12. In summer, thousands of English and other people take sea trips to the coast of Norway ; and in winter thousands go for winter sports. Explain the attractions to tourists.

Exercise 13. The rivers of Norway are rushing torrents with great waterfalls. Useless for navigation, to what use do you think they are put, especially where timber is plentiful ?

Exercise 14. Why is Oslo icebound in winter while Bergen and Stavanger are not ?

Exercise 15. Explain the difference in climate between Norway and Sweden.

Exercise 16. What industries in Sweden depend on the forests ?

Exercise 17. At one low-lying part of Sweden, between two very important towns, there was once a strait. Can you say where it was ?

Exercise 18. The “ Land of the Midnight Sun ” is the name given to a part of Scandinavia to which many visitors go. Where is this ? What mark of latitude guides you ?

III. Iberia : Spain and Portugal. (Pages 457 to 461.)

Many wrong ideas exist about Spain chiefly through the writings of novelists. It is often thought to be an arid country whose people are indolent, live chiefly on melons, watch bull fights and play the guitar ! But Barcelona is a very busy city with miles of docks where ships of all nations will be found ;

the industrial part of the town is full of activity and new factories are continually being built. Bilbao is in the midst of mountainous country made wonderfully green by the plentiful rainfall ; it has great iron and steel industries. All round the coasts docks and harbours are being extended and prosperity is everywhere to be seen.

Exercise 19. Though Scandinavia and Spain are both full of mountains, the differences in the kind of country are great. What are these differences ?

Exercise 20. How is it that the rivers of Spain are of little use ?

Exercise 21. How does Portugal differ from Spain, and why ?

Exercise 22. Which of the ordinary factors which determine climate contribute most to the climate of Madrid ?

Exercise 23. What minerals are exported from Spain ? Why are they not the source of manufactures in Spain itself ?

Exercise 24. What is the importance of the " Rock of Gibraltar " ?

Exercise 25. From what you have read of the climate of the countries of the Mediterranean Sea, say in a few words what is meant by " Mediterranean Climate."

ASSIGNMENT No. 26.

CHAPTER LV.—THE BRITISH ISLES. (PAGE 463.)

I. A study of the British Isles is next in importance to that of India. Thousands of Indians visit England every year, many of them students to complete training as doctors, lawyers and teachers; many are business men and others tourists. You may yourself visit England some day, who knows? In any case it is important that you should know something of the Mother Country of our great Empire.

Map Study : Size. (Page 463.) Here are some figures of sizes of Indian provinces and states for comparison with the size of the British Isles :

Burma	-	-	-	-	233,707 sq. mls.
Madras Presidency	-	-	-	-	142,260 „
Rajputana	-	-	-	-	129,000 „
Bombay Presidency	-	-	-	-	123,600 „
United Provinces	-	-	-	-	106,000 „
C.P. and Berar	-	-	-	-	99,876 „
Punjab	-	-	-	-	99,846 „
Kashmir	-	-	-	-	84,250 „
Bengal	-	-	-	-	76,843 „

The British Isles altogether cover nearly 120,000 sq. mls., England and Wales, 58,000, while England, Wales and Scotland (Great Britain) cover 87,800 sq. mls.

Exercise 1. Compare the size of (a) England and Wales and (b) Great Britain with that of the Punjab or Central Provinces, the United Provinces, Kashmir and one other province or state.

II. Outline. (Page 463.)

Exercise 2. The British are the greatest maritime race in the world. Give a reason for this.

Exercise 3. From your atlas give a list of estuaries up which steamers may enter.

III. The Surrounding Seas. (Pages 463 to 465.) The boats on the Dover-Calais route do the crossing in about an hour. The sea at this place is only 210 ft. at its deepest part.

Exercise 4. What do you think is meant by the term "British Continental Shelf"? What advantage does this shelf bring?

Exercise 5. A channel tunnel will probably be constructed in the early future between England and France. What makes this possible?

Exercise 6. The term "shallow" is only relative, *i.e.* compared with some standard. What do we generally mean by (1) a shallow harbour, (2) a shallow sea, and (3) a shallow river? Give approximate depths.

Exercise 7. What is the depth, roughly, of the North Sea? What advantage is a shallow sea round a country?

Exercise 8. Speaking of Britain at the middle of page 464, the text-book says "an army can only reach these islands in ships." Is this still true in these days of aviation? (Think before you answer, remembering what is needed for an army.)

Exercise 9. Name the principal estuaries round Great Britain, giving the situation and the important port for each.

Exercise 10. How is it that no great ports are found on the west coast of Ireland? Why have Belfast and Cork busy ports?

Exercise 11. The height of the tide varies in different parts of the world. How does this affect the usefulness of a port?

IV. Position. Build. (Pages 465 to 469.)

Exercise 12. How could you demonstrate that England is well situated for foreign trade ?

Exercise 13. Why is the industrial part of Scotland in the southern half of the country ?

Exercise 14. Explain why the west coasts of Scotland and Ireland are so much more indented than the other coasts.

Exercise 15. What are the principal mountain ranges in the British Isles ? On which side, N., E., S. or W., are they most pronounced ?

Exercise 16. In which parts of the British Isles are the principal coal-fields situated ?

Note : It used to be that the great centres of industry were always found near the coal-fields, but this is not so pronounced in these days. Great Britain is a small country ; it is well supplied with railways ; it has the finest roads in the world ; road transport has been revolutionized since the invention of the motor-car and motor lorry. Hence the distribution of goods is easy. People who live in Yorkshire can order furniture, for example, in London and the dealer will deliver it free by motor van. Thus great factories may now spring up anywhere. Round London, in recent years, huge factories each employing thousands of workers have arisen and are still being built ; but there is no coal near to London.

V. Rivers. (Page 469.)

Exercise 17. Name the three largest rivers in each of England, Scotland and Ireland, and give the names of the principal towns on them.

VI. Climate. (Pages 469 to 471.)

Exercise 18. What is the most striking thing a visitor from India would notice about the climate of Great Britain ?

Exercise 19. How does the work of the English farmer differ from that of the Indian farmer ?

Exercise 20. Compare the climate of the north of England with that of Moscow, which is in the same latitude, and explain the difference.

Exercise 21. What do you mean by a " cyclonic climate " ?

Exercise 22. Give one of the reasons why the Britisher can easily adapt himself to any climate and become a good colonizer.

VII. Vegetation. (Pages 471 and 472.) At the end of this section we read that the British cows give 4 or 5 times more milk than the Indian cows do. Statistics, however, shew that the average annual yield of milk for the average Indian cow is $1\frac{1}{2}$ to 2 seers of milk a day ; the average for the British cow is 27 seers a day ! This is all due to the attention paid to breeding and excellent pastures.

Exercise 23. Why is it that Great Britain has to import so many food-stuffs, although actually agriculture is still the greatest industry ?

Exercise 24. Every visitor to Great Britain remarks on the wonderful greenness everywhere. How do you account for this ?

CHAPTER LVI.—BRITISH ISLES (*Continued*). (PAGE 474.)

VIII. Manufactures.

Exercise 25. Why is it that England has pushed ahead in the world of manufacture ?

Exercise 26. Almost every Indian is familiar with the name of Manchester. Why ? And why is Manchester fortunate both for production and for export ? (See the map.)

(You should endeavour to read about Hargreaves who invented the spinning jenny, and Arkwright who invented the spinning frame about the year 1767. Arkwright was a barber

of Preston where cotton spinning and weaving was, and is, an important industry.)

Exercise 27. What is the chief industry of Leeds and Bradford? Where are these towns?

Exercise 28. What are the great industries of the Tyneside, and what towns are there?

Exercise 29. What articles are exported from Cardiff?

Exercise 30. Where is the "Black Country"? In your atlas find the names of three of the largest towns there and say what is manufactured.

Exercise 31. Where are good pen-knives made? What other things are made at the same place?

Exercise 32. Name the centres where shipbuilding is carried on in the British Isles.

(It is quite impossible for an ordinary geography text-book to deal with all the manufactures and manufacturing centres in the British Isles. Your text-book has not been able to tell you of the great motor industry at London, Birmingham, Coventry and Oxford; or of the large leather works at Walsall in the Black Country. Then, Belfast has the largest factories in the world for shipbuilding, linen, rope-making, tobacco and whisky. And so we might go on mentioning manufactures and centres. Practically every kind of manufactured article is made in the British Isles.)

IX. Seaports. (Pages 478 to 487.) In this section 22 ports are mentioned, and these are only the most important; there are many others. Look them all up on the map and you will find it is not difficult to remember the chief exports if you note what manufacturing districts they are near.

Study the pictures well. On page 479 is one of Southampton where you see huge liners of 50,000 tons, capable of carrying as many as 4000 people—floating cities with shops, gymnasium, swimming bath, etc., on board. Nothing larger than 20,000 ton ships as yet come to India. Liverpool landing stage (page

481) is not the busiest part of the port ; only passengers and light goods land here ; the docks are near by and always are full of large ships, many, like the City Line and Anchor Line vessels, leaving for, and coming from, India. Fig. 141, page 482, gives you no idea of how busy the streets of London are at the present day ; though not a very old picture, it does not shew the amount of traffic which has increased enormously in the last five years ; it is very difficult to cross the street now and special underground passages are constructed to enable foot passengers to cross the road in safety. Londoners are very proud of the magnificent Houses of Parliament shewn on page 483. This is the centre of Empire government. The clock in the tower is known as " Big Ben " and many people in India and all over the Empire hear him strike the hours when they switch on their wireless sets. The two towers to the left of the main tower are those of Westminster Abbey where King-Emperors are crowned.

CHAPTER LVII.—THE TRADE OF GREAT BRITAIN. (PAGE 488.)

X. Imports. (Pages 488 to 492.)

Exercise 33. Make a list of all the articles mentioned under " Imports." Then after those which are obtained in the British Empire, write " Empire Grown " or " Empire Produced." From what you have written, answer this question : Is the British Empire self-supporting ?

XI. Exports. (Page 492.)

Exercise 34. Which of Britain's imports does she use in the manufactured articles she exports ?

Exercise 35. In which imports is Great Britain mainly dependent on countries outside the Empire for her manufactures ?

Exercise 36. Your text-book says that printed books are sent to all parts of the world where the English language is spoken. Which parts are these ?

Exercise 37. There is a phrase in English, "Carrying coals to Newcastle." Can you explain what this means ?

ASSIGNMENT No. 27.

CHAPTER LVIII.—AFRICA. (PAGE 494.)

I. Africa has ties with India because thousands of Indians have migrated there, particularly to British East Africa (Kenya Colony, etc.) and Natal.

Map Study. Position and Outline. (Page 494.)

Exercise 1. Draw a map of Africa. Why will it help you if you first put in the equator, the two tropics and 20° E. longitude ?

Relief. The Tableland of Africa. (Page 494.) The relief is easy to remember—tableland with a coastal rim and few mountain ranges. (Note the slight misprint on line 24, page 495.)

Exercise 2. In your map put in (1) the Niger River ; (2) the two lines suggested in this section ; (3) the Abyssinian mountains ; (4) the Drakensberg mountains, Tibesti mountains, Atlas mountains ; (5) Victoria Nyanza, L. Tanganyika, L. Nyasa, L. Chad.

II. Climate. Heat and Rainfall. Sea Currents. (Pages 496 to 498.)

Exercise 3. Why is it possible to speak of the climate of Africa as a whole, whereas it is quite impossible as regards Asia ?

Exercise 4. From a study of a physical map of Africa say (1) where the climate is hot, damp and feverish ; (2) where it is excellent.

Exercise 5. Explain the reason for that exceedingly dry area the Sahara Desert. Why is there no hope of cultivation there, as in dry parts of India ?

Exercise 6. Study the coloured rainfall maps at the beginning of the text-book and explain the reason for the shifting of the rain-belt in January and July.

Exercise 7. What is the effect of sea-currents in southern Africa ?

III. Rivers. (Pages 498 to 500.)

Exercise 8. In your map insert the six rivers mentioned in this section.

Exercise 9. There is one characteristic of all African rivers which prevents navigation from opening up the interior of the continent. What is it ?

Exercise 10. The Nile is 3470 miles long. What is the nature of the country in its last 1600 miles ? How do you know ?

Exercise 11. The Egyptian Nile has wonderfully fertile strips along its course. Why is this ?

Exercise 12. The Congo is 2600 miles long. How much of it is useful for navigation, and why ?

Exercise 13. The Niger rises about 200 miles from the sea, and yet is 2500 miles long. Explain this.

Exercise 14. Describe the Victoria Falls, comparing the height with that of your school building.

CHAPTER LIX.—AFRICA (*Continued*). (PAGE 501.)

IV. Vegetation. (Pages 501 to 506.) You should compare the map with that on page 496.

Exercise 15. In which part of the world do we find exactly the same products (except for esparto grass) as in the Mediterranean area of Africa ?

Exercise 16. Airplanes have frequently crossed the Sahara Desert. What would a passenger on such a journey see ?

Exercise 17. Explain how the vegetation of Central Africa corresponds with the rainfall.

Exercise 18. Where do you expect to find steppe and scrub lands in Africa ?

Exercise 19. How can you explain the Mediterranean type of climate of South Africa ?

V. Animals. (Pages 506 and 507.)

Exercise 20. Which are the six most interesting animals in Africa ? Give reasons for your choice.

CHAPTER LX.—AFRICA—THE DARK CONTINENT.
(PAGE 508.)

VI. Read through this short and interesting chapter and try to keep in mind (1) the difficulties of travel in desert and forest ; (2) the dangers ; (3) what has been done to civilize the inhabitants.

Exercise 21. What natural features of Africa have been the reason for the continent being called the Dark Continent ?

Exercise 22. South Africa is a very prosperous country with beautiful cities and busy seaports. What physical conditions have assisted colonizers in this part ?

ASSIGNMENT No. 28.

CHAPTER LXI.—THE EMPIRE IN AFRICA.

(PAGE 512.)

I. Egypt.

Exercise 1. Read the sections on Egypt—pages 512 to 515—and make a note of each point connected with the River Nile—its sources of water, floods, irrigation, crops and towns.

Exercise 2. Which towns are not directly dependent on the Nile for their prosperity ?

Exercise 3. Answer the question under the picture on page 514. To assist you, remember that a ship displaces thousands of tons of water and movement causes a “back-wash,” *i.e.* a great rush of water behind the vessel. Ships have to travel at about trotting pace and take at least 12 hours to pass through the canal ; they can, however, travel fast when passing through the Bitter Lakes which are part of the canal route. For years the Canal Company have been building stone embankments along the canal.

Exercise 4. What proofs are there of the ancient Egyptian civilization ?

II. The Anglo-Egyptian Sudan. (Page 515.) It is hoped that in the future the railways of the Sudan will be connected with those of Egypt and South Africa. Thus there will be a Cape to Cairo Railway.

Exercise 5. Write a short note on Khartoum as a trading centre, mentioning its position, rail and water communications, and trade.

III. British East Africa (Kenya Colony). Tanganyika Territory. (Pages 517 to 520.)

Exercise 6. Note the route suggested from the Sudan to Kenya. Why should a sea route be taken ?

Exercise 7. The development of the Kenya Colony is a story of pioneer work in a new and wild country. Give the points of the story which prove this.

Exercise 8. Describe the climate of Nairobi. What is the chief climatic factor ?

Exercise 9. Considering the track of the railway, what do you suppose are the exports of Dar-es-Salaam ?

IV. South Africa. Pasture Lands. (Pages 520 to 522.)

Exercise 10. Apart altogether from rivers, in what other ways does South Africa differ from Egypt physically ?

Exercise 11. What provinces (map, page 523) are referred to in the section "The Pasture Lands of South Africa" ?

Exercise 12. What is meant by the Dutch word "veldt" ?

Exercise 13. How does the Natal coastal strip differ agriculturally from the veldt ? Why ?

V. The Union of South Africa. (Pages 522 to 525.)

Exercise 14. How many provinces form the Union of South Africa ? Correct the text-book accordingly. Name the provinces.

Exercise 15. Through which provinces does one pass keeping in British territory from South Africa to Egypt ?

Exercise 16. Which of the Union provinces is most favoured for agricultural development ? What contributes to this fortune ?

Exercise 17. Why would small farms, as in India, be useless in South Africa ?

VI. Towns and Seaports of the Union. (Pages 524 and 525.)

Exercise 18. Which towns in the Union of South Africa are concerned with (a) shipping, (b) agricultural produce, (c) mining? With which ports are the inland towns connected by rail?

VII. Rhodesia. (Page 526.) Among the reasons for the slow development of Rhodesia is the prevalence of the insect known as the tsetse fly whose bite is fatal to cattle and frequently to man. The country is known to be rich in minerals but the mining is handicapped by disease. Many enthusiastic medical men are still investigating the disease and in time they will doubtless succeed in stamping it out. Meanwhile danger to health hinders the development of the country. Livingstone (named after the great explorer) is the capital of Northern Rhodesia and is situated on the Zambesi where the railway crosses it near the Victoria Falls.

Exercise 19. What climatic and other conditions favour the tsetse fly?

Exercise 20. Rhodesia is British territory. In whose territory are the nearest ports? Is this an advantage or disadvantage?

VIII. British West Africa. (Page 526.) This part of Africa, especially Sierra Leone, used to be known as the "White Man's Grave" owing to the prevalence of fevers fatal to Europeans; people who lived there used to leave the shore at evening to spend the dark hours aboard vessels, so as to avoid the attacks of insects; any one left ashore for the night was certain to be dead next day. But nowadays, owing to the wonderful work of scientists, the country is comparatively healthy. The island of St. Helena is interesting as being the place where Napoleon was banished after his defeat by Wellington at Waterloo.

Note: Liberia is a republic originally started as a province for freed American slaves, but now these people are only a small part of the population. The inhabitants have never been able to develop the country. Togoland used to belong to

Germany, but half has now been given to British Gold Coast Colony and half to French Dahomey under the League of Nations. The Spanish have a small possession called either Spanish Guinea or Rio Muni to the south of the French Cameroons.

Exercise 21. Which two products of British West Africa are the most important? What are they used for?

Exercise 22. Northern Nigeria appears a much more prosperous place than South Nigeria. Why is this?

Exercise 23. Give a list of the territories which comprise British West Africa from west to east and add the most important town in each. List also the other territories, stating to whom they belong.

Exercise 24. Why are Indians interested in Mauritius?

IX. India and the East Coast of Africa. (Page 529.)

Exercise 25. What is the suggestion given in your text-book regarding railway construction best suited to East Africa? Do you agree? Why?

X. CHAPTER LXII.—OTHER POLITICAL DIVISIONS OF AFRICA. (PAGES 531 TO 534.)

Exercise 26. After having read to whom various parts of Africa belong, answer these questions:

- (a) Which nation has the greatest possessions in Africa?
- (b) Which nation has the most valuable possessions?
- (c) Which parts are most developed and civilized?
- (d) Which nation can claim the longest coast-line?
- (e) Which are the three largest ports in Africa? To which nation do they belong?

Exercise 27. Find the following islands in your atlas. Say where they are and to whom they belong: Ascension Island, St. Helena, Cape Verde Islands, Madagascar, Réunion, Mauritius, Seychelles, Azores, Madeira, Canaries.

ASSIGNMENT No. 29.

CHAPTER LXIII.—AUSTRALIA. (PAGE 535.)

I. Map Study. (Pages 535 and 536.) The most interesting thing about the seas of Australia is the Great Barrier Reef, which is always attracting the attention of scientists. Your text-book (near the bottom, page 535) speaks of coral “worms,” but it is correct to say coral “polyp,” for the animal is not a worm, but a much more lowly animal. (In other parts of the text-book it is correctly called “polyp.”) See the picture on page 60 of this book.

Exercise 1. Draw a map of Australia, not omitting the lines of longitude and latitude and the tropic of Capricorn. Compare its latitude with that of India.

Exercise 2. Where, in Australia, is the highland and where the lowest land? Indicate the mountains in your map.

Exercise 3. No rivers flow out of Lake Eyre. Why?

Exercise 4. To what latitude does the Great Barrier Reef reach? Give the reason why it ceases there and goes no farther south. Is the reef a good thing?

Exercise 5. Look at the map of the world and note the position of Australia. Why was it the last of the continents to be discovered? Why was it left to European navigators to find it, when Africa, Arabia, India and China are so much nearer?

II. Climate, Rainfall and Rivers. (Pages 536 to 539.) The Australians do not yet trouble about developing their deserts by artesian wells, etc., to any extent because there are plenty of well-watered districts empty and awaiting immigrants.

Exercise 6. What factors of climate determine the average temperature of a country? What sort of temperature has Central Australia?

Exercise 7. Which is the pleasantest part of Australia as regards climate? Why?

Exercise 8. Study the coloured maps of rainfall at the beginning of your text-book. Is the position of the Australian mountains an advantage or a disadvantage to the country as a whole?

Exercise 9. Which part of Australia gets most rain and when?

Exercise 10. What sort of weather do they get at Christmas at Perth and at Adelaide?

Exercise 11. Study the physical map of Australia at the beginning of the chapter and the map on page 538. What resemblance do you find between elevation and the area marked "underground water"?

Exercise 12. How can use be made of the underground water in Australia? (There is similar underground water 200 or 300 ft. below the surface on the plains of India. In Australia it is often a mile deep. Ask your teacher or science master to describe to you an artesian well.)

Exercise 13. What prevents the Murray-Darling river system from being the valuable watercourse it might be?

III. Vegetation and Animals. (Pages 539 to 542.) The animals of Australia are among the most interesting in the world; they represent types that have died out elsewhere. This is due to the fact that Australia has been cut off from Asia for millions of years and the animals remained of the primitive type. The duck-bill (*Platypus*) and one called *Echidna* are in the lowest order of mammals and actually lay eggs. The emu is rather like the ostrich. The fishes, too, are interesting, for

some have the air-bladder altered into a lung, so that they can breathe air direct and can live in dry hard-baked mud for long periods ; you can understand the use of this in such a country as Australia. A similar kind of fish is found in Africa, where similar conditions are found.

Exercise 14. Explain why Indian crops can easily be reared in Australia.

Cattle droving in Australia is a difficult business. From the interior, droves of cattle varying from 500 to 2000 head are moved at the rate of 8 miles a day or less for 1200 miles or so to a rail-head. The stock routes are about a mile wide and in places the cattle cannot be watered for 50 miles.

CHAPTER LXIV.—AUSTRALIA (*Continued*). (PAGE 543.)

IV. Read the whole of this chapter to page 551 before attempting these exercises.

Exercise 15. Give what facts you can to shew the great progress of Australia in 150 years from an unknown land to what it is to-day.

Exercise 16. What sort of character in men was necessary for this development ? Was it success all along ?

Exercise 17. Which agricultural pursuits have become thoroughly established in Australia ?

Exercise 18. Describe the mineral wealth of Australia.

Exercise 19. What is the result of your comparison of the maps on page 538 and page 549 ?

Exercise 20. Why is no mention made of roads for long distance communications in Australia ?

Exercise 21. Which part of Australia, fit for habitation, is still undeveloped ? Why is this ?

CHAPTER LXV.—POLITICAL DIVISIONS. (PAGE 552.)

V. The actual boundary between Queensland and its neighbours New South Wales and South Australia is a wire netting fence, the lower part of which is sunk 18 inches below the surface. It is 1600 miles long. On the South Australia and New South Wales side are thousands of rabbits, but on the Queensland side none. You can guess the use of the fence.

The natives of Australia are interesting people and represent a dying race ; there are only about $\frac{3}{4}$ lakh left. They are very backward in civilization and when first discovered were using stone implements. They are clever hunters and invented the boomerang, a peculiarly cut wooden weapon, which when thrown in the air—e.g. to hit a bird—returns to the thrower.

The capital of the Commonwealth is Canberra, 150 miles from Sydney.

Exercise 22. Find names in Australia which are associated with the following facts :

- (a) Dutch sailors first explored the west and north coasts.
- (b) Torres, a Spaniard, explored in Australian seas in 1606.
- (c) Captain Cook, in the *Endeavour*, discovered New South Wales, after having sailed round New Zealand.
- (d) In 1642, Tasman joined the explorers.
- (e) Dr. Bass, a naval doctor, discovered that Tasmania was an island.

Exercise 23. Western Australia takes its time from longitude 120° and Queensland and New South Wales from longitude 150° . Victoria time is half an hour earlier than in New South Wales. What time is it at these places when it is 5.30 p.m. standard time in India ?

Exercise 24. In your map of Australia mark the boundaries of the various states. Which is the largest and which the smallest ? Which is the densest and which the most thinly populated ?

Exercise 25. What features in the situation of Sydney have made it such an important port ?

Exercise 26. You have now read of three Newcastles. Why were the others named after the English Newcastle ?

Exercise 27. Give some evidences from your study of the geography of Australia that it is rightly called a new country.

Exercise 28. How does Australia communicate telegraphically with the rest of the world ?

Exercise 29. How is it that only the south-west corner of Western Australia is well developed ?

Exercise 30. Put in your map the positions of all the towns mentioned in this chapter.

VI. CHAPTER LXVI.—THE DOMINION OF NEW ZEALAND. (PAGES 557 TO 563.)

Exercise 31. Give a list of points which shew that New Zealand is a delightful country to live in.

Exercise 32. Why is New Zealand called the Antipodes in England ? (Consult a good dictionary.)

Exercise 33. What circumstances favour Auckland as a port ?

Exercise 34. In your atlas measure these distances :

(a) South Island : widest part.

(b) South Island : narrowest part.

(c) North Island : the greatest distance from the sea.

Now, considering these distances, is the character of the rivers of great importance for communications ?

Exercise 35. Explain why New Zealand is a country of green fields.

Exercise 36. What do such figures as these tell you ?

(a) At Dunedin, the *mean* annual temperature varies between 42° and 58° Fahrenheit.

(b) At Auckland the *mean* annual temperature varies between 52° and 67° Fahrenheit.

What is the cause of this range of temperature ?

Exercise 37. “ Canterbury Mutton ” is a common notice in butchers’ shops in England. What does the English schoolboy learn from this ? What does it tell him about the nature of the country round Canterbury ?

Exercise 38. Your text-book says (page 562) : “ When the first colonists came they found no food-giving plants nor any animals they could tame.” Yet now, New Zealand is one of the greatest food-producing countries in the Empire. What story does this tell ?

Exercise 39. You notice that all important towns in New Zealand are on the coast. What does this tell you about the main occupations of the people ?

Exercise 40. Compare the natives of New Zealand with those of Australia.

VII. Islands of the Pacific Ocean. (Page 564.) Note the position of these islands in your atlas and to whom they belong.

ASSIGNMENT No. 30.

CHAPTER LXVII.—THE CONTINENTS OF THE NEW WORLD. (PAGE 566.)

I. The continents of America are places where we seem to meet all the big things in the world. There we find the longest rivers, the largest waterfalls, some of the highest mountains, the biggest trees and even the biggest fossil remains of bygone animals. The manufacturing enterprises are often the greatest in the world and the United States is the home of the wealthiest men. Americans have built the largest and highest buildings in the world, rising as high as 900 ft., probably 30 times as high as your school building ! The study of America is therefore most interesting, and in India you have many opportunities of talking to Americans who come to India as missionaries and business men as well as tourists.

In everyday talk, when we speak of America we generally mean the United States of America ; other parts of America we speak of as Canada and South America. The people of the United States of America usually call their country “ the States.” But geographically, America includes all.

You should read in your history books about the first British colonists of the United States, the Pilgrim Fathers, who left Plymouth in the *Mayflower* in 1620.

Map Study. Shape and Build. (Page 566.)

Exercise 1. Draw a map of North America and insert the mountains and rivers mentioned in this paragraph.

II. North America. (Pages 568 to 573.)

Exercise 2. Compare the latitude of India with that of North America. In which part of North America would you expect a similar climate to that of the plains of India ?

Exercise 3. Study the map on page 111 and explain where the Greenland icebergs travel to and how far they are likely to get. (Remember that what is seen of an iceberg is only one-tenth of the whole mass of ice; the rest is below the surface.)

Exercise 4. Shew how the forces of nature have helped North America in facilities for overseas communication.

Exercise 5. The continent of North America consists of : (1) Western Highlands, (2) Eastern Highlands, and (3) Lowlands, or trough, between the two highlands. In list form state what composes each of these three divisions. What basin proves the existence of the central trough ?

Exercise 6. What is the chief character of the courses of the rivers of North America flowing into the Pacific ? Name the three most important rivers. (These rivers are valuable for their fish, and a great canning industry has grown up especially in the salmon fishery.)

Exercise 7. What facts would you use to prove that North America is the best-watered continent in the world ?

Exercise 8. What makes the St. Lawrence one of the most important of the world's waterways ? How can a steamer proceed from the sea to Lake Superior ?

Exercise 9. How do you account for the great volume of water in the Mississippi-Missouri basin ?

CHAPTER LXVIII.—CLIMATE, VEGETATION, ANIMALS AND PEOPLE. (PAGE 574.)

III. Study very carefully the isotherms on pages 63 and 64. On page 63, take first the 60° F. line and trace it from the western edge of the map to the British Isles. Note the latitude of this temperature in the Pacific Ocean ; what happens to the

isotherm on reaching the western coast of America ? How far north does the 60° F. line run ? How much of North America is included in the 60° F. area ? What happens as the coast affected by the cold Labrador current is approached ? Note the difference again of the latitude of the 60° F. line in the Atlantic and over America. Now take the 80° F. isotherm. What about this temperature in the Pacific ? Notice the western Atlantic is included near the Gulf Stream area. Compare the temperature of the greater part of the United States with that of India, considering also the latitude of the two countries.

On page 64 you find a great change. In North America and the adjacent seas, which is the colder, land or sea ? Compare the temperatures of North America and India. Remember 32° F. is freezing point ; notice how much of North America is near or below freezing point in January.

Exercise 10. Give a short statement comparing the temperatures in the United States and India during January and July.

Exercise 11. What waterways in North America will be affected by ice in January ? In how much of the country will outdoor work be affected in winter ?

Exercise 12. Which is the hottest part of North America in July ? How does this compare with the annual rainfall shewn on page 575 ?

Exercise 13. Which is the warmer coast of North America, east or west ? What is the reason ?

Exercise 14. How does the direction of mountain ranges affect the climate of central North America ?

Exercise 15. Thousands of millions of bushels of wheat are grown in Canada. What part of the country produces it ?

Exercise 16. Where are the forest belts of North America ? What is the principal kind of timber found ?

Exercise 17. Name the chief crops of North America and say in which parts they are grown.

Exercise 18. What are the trade occupations of the Eskimos ?

Exercise 19. What is a ranch ? How is it made and what will you find there ?

Exercise 20. What different kinds of people are found in North America ? How do their lives differ ?

CHAPTER LXIX.—CANADA—BOUNDARIES, LAKES AND RIVERS.

IV. Read through this chapter to page 586. A remarkable feature of the boundary between Canada and the United States is that along the whole 3000 miles there is not a single fortress or fortification. It shews how two countries can live at peace with one another if they wish and that there is no need for forts if each nation is peace-loving.

Exercise 21. The coasts of Canada prove that excellent harbours require something more than good inlets and protective islands. How do they prove it ?

Exercise 22. What facts can you give to shew that Canada is a country of great lakes ? Why are most of the lakes in the northern part of North America ?

Exercise 23. How many of Canada's rivers can be said to be valuable waterways for commerce ? Give reasons for your answer.

Exercise 24. Give a short account of the route of a vessel sailing from the sea to Lake Superior. Illustrate your account by a map.

CHAPTER LXX.—THE GULF PROVINCES. (PAGE 587.)

V. Read the whole of this short chapter, to page 591.

Exercise 25. What are the difficulties which face the navigator reaching Canadian waters and proceeding to Quebec ?

Exercise 26. What are the chief occupations of the people in the Gulf Provinces of Canada ?

Exercise 27. Newfoundland depends on the harvests of the sea. What does this mean, and how is it that the harvests are so rich ?

Exercise 28. St. Johns hopes to become a terminus for ocean liners. Why is it not so now ? What must be done to realise the ambition ? (Do not confuse St. Johns with St. John on the Bay of Fundy.)

Exercise 29. Canada has both summer and winter ports. Which are the winter ports and what are the railway connections to the interior ?

VI. CHAPTER LXXI.—QUEBEC AND ONTARIO.
(PAGE 592.)

Exercise 30. What agricultural activities would you find in the provinces of Quebec and Ontario ?

Exercise 31. How have the smaller rivers of Canada helped man in the development of the country ?

Exercise 32. What export trade is carried on at Quebec ?

Exercise 33. Montreal is one of the finest cities in the world, and very prosperous. To what is this prosperity due ?

Exercise 34. What is the task of the lumberman ? When his work is finished, who follows him ?

Exercise 35. Write a short note on each of these towns :
Quebec, Toronto, Ottawa, Kingston, Fort William,
Sudbury.

VII. CHAPTER LXXII.—THE PRAIRIE PROVINCES OF CANADA. (PAGE 597.)

Exercise 36. The two pictures on pages 598 and 599 shew a very different state of affairs from that which you find in India ! Write down all the points of contrast you can discover.

Exercise 37. The Canadian farmer has taken advantage of Nature's offers. What have the prairies offered ? What is the result of the farmer's industry ? (Read to top of page 600 for details.)

Exercise 38. Explain the amazing growth of the city of Winnipeg.

Exercise 39. Consult the map on page 64 and describe and explain the difference between the winters of Manitoba and Alberta. What effect does this have on farming in Alberta ?

VIII. CHAPTER LXXIII.—THE PACIFIC PROVINCE. NORTHERN CANADA. (PAGE 602.)

Exercise 40. After reading the section on Map Study to the top of page 604, quote the sentence which summarizes the physical features of British Columbia.

Exercise 41. Compare the climates of British Columbia and Alberta.

Exercise 42. For what classes of workers is there still plenty of room in British Columbia ?

Exercise 43. What circumstances have made Vancouver important ?

Exercise 44. Suppose you were about to take the train journey on the Canadian Pacific Railway from Halifax to Vancouver. Write down the names of the towns you would pass through and what you would expect to see from the train between the towns.

ASSIGNMENT No. 31.

CHAPTER LXXIV.—THE UNITED STATES. (PAGE 607.)

I. Its Size and Importance. In this paragraph the size of the United States is not mentioned. Similarly there is little indication in this paragraph about the importance of the country. The United States covers about 3,557,000 square miles and is thus roughly twice the size of India, whose area is 1,805,332 square miles. The importance of the United States is indicated, among other things, by its vast industrial concerns and immense commercial activities ; it is the wealthiest country in the world, and its political influence is probably, at present, greater than that of any other country.

The Atlantic Coast Plain. (Pages 607 to 610.) Remember this was the part of America to which the Pilgrim Fathers went and which was called New England, referring to the northern part of the coast. Their first occupations were clearing the forest, fishing and boat-building, and the most important industries to-day are lumbering, fishing and shipbuilding. There is no coal or iron actually on the spot, so we do not find the greater iron industries in the northern parts. We do, however, find the smaller ones, and among them is watch-making at Waltham and Waterbury ; the cheap Ingersoll watches are made here. Fire-arms are also made.

Exercise 1. Which are the New England States ?

Exercise 2. What favours the maritime activities of this part of the United States ?

Exercise 3. As we go from north to south on the Atlantic Coast Plain, the productions of the country change. Explain what the changes are and why they occur.

Exercise 4. From the map, say how communications are made with the interior beyond the mountains. Name the routes.

Exercise 5. How can goods be taken by water from New York to ports on the Great Lakes? Is there any alternative method of transport?

Exercise 6. Give three points of interest about each of these towns: New York, Boston, Portland, Philadelphia and Washington.

II. Resources and Towns of the Central Plain. (Pages 610 to 614.) Read to the end of the first paragraph on page 614.

Exercise 7. Describe the mineral wealth of the Central Plains of the United States.

Exercise 8. What positions are considered best for trading centres? Illustrate your answer by reference to towns on the Central Plains.

Exercise 9. Write a note on Chicago mentioning (a) its position, (b) its growth, (c) communications, (d) its trade and (e) its buildings.

Exercise 10. Explain the prosperity of Pittsburg and St. Louis.

Exercise 11. In what way does New Orleans resemble Calcutta?

III. Towns of the Western Highlands and the Pacific. (Pages 614 and 615.)

Exercise 12. How does the eastern part of the Western Highland resemble many parts of India?

Exercise 13. What compensations has this part of the country for its dryness?

Exercise 14. What are the products of the Pacific Coastal Region?

Exercise 15. What are the chief Pacific ports of the United States? Mention the principal trade of each?

Exercise 16. Why do any people at all go to live in Alaska ?

Exercise 17. How is it that in America, the oldest towns are on the coast and the newer ones inland ?

Exercise 18. If you had a map of a country with only the railways marked and no towns, how could you tell which were the centres of trade ?

CHAPTER LXXV. (PAGE 618.)

IV. Mexico. (Pages 618 to 620.)

Exercise 19. Where else have you come across the name Sierra for mountain ranges ? What does this tell you ?

Exercise 20. Collect together the points of resemblance between Mexico and India.

Exercise 21. Wherein lies the wealth of Mexico ?

V. The States of the Isthmus. (Pages 621 to 623.) Previous attempts had been made to construct the Panama Canal, but they failed on account of the prevalence of fever which killed off workers. The United States accomplished the work by first acting upon the advice of Sir Ronald Ross, the famous I.M.S. officer, who discovered the malaria parasite's life history. Having drained a wide area along the route and cut down the jungle, the district is now perfectly healthy and even regarded by some as a health resort.

Exercise 22. Name the seven political divisions of Central America.

Exercise 23. What is the importance of the Panama Canal ? The picture on page 622 shews the locks ; what are locks and why are they necessary ?

Exercise 24. What are the chief products of Central America ?

VI. The Islands of the West Indies. (Pages 623 to 626.)

Exercise 25. Make a list of all the products of the West Indies mentioned in your text-book. Underline those which are not also products of India or Ceylon. What can you conclude from the comparison ?

Exercise 26. Write a note on each of these places : Havana, Kingston, Trinidad.

ASSIGNMENT No. 32.

CHAPTER LXXVI.—SOUTH AMERICA. (PAGE 627.)

I. Map Study. Build. (Pages 627 to 630.)

Exercise 1. Draw a map of South America putting in (a) the Andes, (b) the Western Plateau, and (c) the three great river basins. Make use of the lines suggested in paragraph (c), page 629. Note the positions of 60° W. longitude and 20° S. latitude.

Exercise 2. Collect together the facts which shew that South America is a land of great rivers.

II. Climate, Vegetation and Animals. (Pages 631 to 635.)

Study carefully the coloured maps Nos. 1 and 2 at the beginning of your text-book ; you will then see the causes of the seasonal rainfall and you should notice the similarity with Africa in the same latitude.

Exercise 3. It is unusual to find little rainfall on the seaward side of coastal mountains. Explain the scarcity of rain on the western seaboard of South America.

Exercise 4. Compare the direction of winds in January and July round South America with those in the Indian Ocean.

Exercise 5. Which part of South America would you expect to be most feverish and the home of innumerable species of insects ?

Exercise 6. What are the Pampas ; where are they found and where else in the world are there similar areas ? Of what use are they to man ? How do the Selvas differ from the Pampas ?

Exercise 7. Write out a list of the animals of South America which you have not heard of before. Then read about them in an encyclopaedia, a natural history book or a good dictionary.

III. Political Divisions. (Pages 635 to 645.) Venezuela means Little Venice. (The Italian name for Venice is Venezia.) It was discovered by Amerigo Vespucci, an Italian.

Exercise 8. All business people who go to South America have to learn Spanish or Portuguese for their trade. Explain why this is so.

Exercise 9. Give reasons why the Guiana Coast is so unhealthy. Why have Indians migrated there ?

Exercise 10. In reading "A voyage along the coasts of South America" (page 635), make a note of each of the productions mentioned, and opposite each write the names of the countries where it is found.

Exercise 11. What is the interesting thing about the climate of Quito ? Why is it so agreeable ?

Exercise 12. Suppose you wished to tour Bolivia, Peru, Ecuador, Colombia and Venezuela, what would be your chief difficulty ?

Exercise 13. Argentina is a very prosperous country. In what ways does the map between pages 634 and 635 indicate this prosperity ?

Exercise 14. Why is Buenos Aires such an important and prosperous city ?

Exercise 15. What is the chief trade of each of these places ?
Manaos, Para, Rio de Janeiro.

Exercise 16. Find the length of the Amazon from its source to the sea and note the distance of Manaos from the sea.

Exercise 17. What countries or parts of countries do you consider suitable for Indians to migrate to ? Give your reasons.

Exercise 18. What parts of the world offer greatest opportunities for agricultural development ? Say why you think so.

Exercise 19. Name the countries of the world where the English language is commonly understood.

Exercise 20. If you had the offer of a round-the-world voyage what route would you prefer to take. Why ?

Exercise 21. Of all the great engineering schemes you have read about, which seems to you the greatest ? Why ?

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OUR WORLD A HUMAN GEOGRAPHY

FOR USE IN SCHOOLS AND COLLEGES
IN INDIA, BURMA AND CEYLON

*With numerous illustrations, coloured and black
and white maps, diagrams, &c.*

BY

CAMERON MORRISON, I.L.B.

AUTHOR OF "A NEW GEOGRAPHY OF THE INDIAN EMPIRE AND CEYLON," ETC., ETC.
FOR TWENTY YEARS EXAMINER IN GEOGRAPHY IN THE UNIVERSITY OF MADRAS

WITH A FOREWORD BY

SIR P. RAJAGOPALA CHARI

DIWAN BAHADAR, M.A., B.L., K.C.S.I., C.I.E.

MEMBER OF THE COUNCIL OF INDIA

PREFACE

THIS book embodies an attempt to place the main features of World Geography before pupils and students in India, Burma and Ceylon. As it is, so far as I am aware, the first of its kind, it may perhaps be permissible to set down the main objects kept in view in its preparation.

In the first place, I have sought throughout to emphasise the human side of Geography ; to regard the Earth as the Dwelling-place of Man, his Field and his Workshop ; and to tell the story of how in varied climes and far-sundered lands he uses and modifies to his needs the physical features and resources of the world in which he is placed.

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Secondly, the subject is treated expressly from the standpoint of the learners to whom it speaks. It is not just one more English class-book 'adapted' for their use. My Indian experience as a teacher, examiner, and writer in geography and as one who has visited almost every quarter of India, Burma and Ceylon has, I trust, enabled me to invest it with an appropriate atmosphere. It is not a treatise at large—much less a gazetteer—but a school-book written for youths such as those with whose daily lives and mental outlook I was for many years familiar. I have accordingly endeavoured to give it an Eastern setting and a perspective of its own ; to adjust the focus for the learner and to look at things through his eyes ; to work outwards from the near and familiar to the distant and strange and, at every step in the study of a foreign clime or people, to compare and contrast it with his own. No one knows better than the teacher that the main difficulty in geography classes is how best to present the subject and no one more fully appreciates how exacting is this task than the writer of a text-book. Nothing is easier than to transcribe and record mere facts ; nothing harder than to stimulate thought and impart ordered knowledge. I have made no attempt to go over the globe with a microscope or call out names from a map of the world. More has been cut out than left in.

At the same time I am a firm believer in repetition and I have, therefore, had no compunction in reiterating, from as many angles as possible, the essentials of the subject. As some help towards this, the narrative form has been largely adopted, and it has been my aim to convey a sense of movement in the story—we do not, for example, get to Africa or Europe by turning over a page, but on board a steamer from Bombay, Colombo or Rangoon.

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