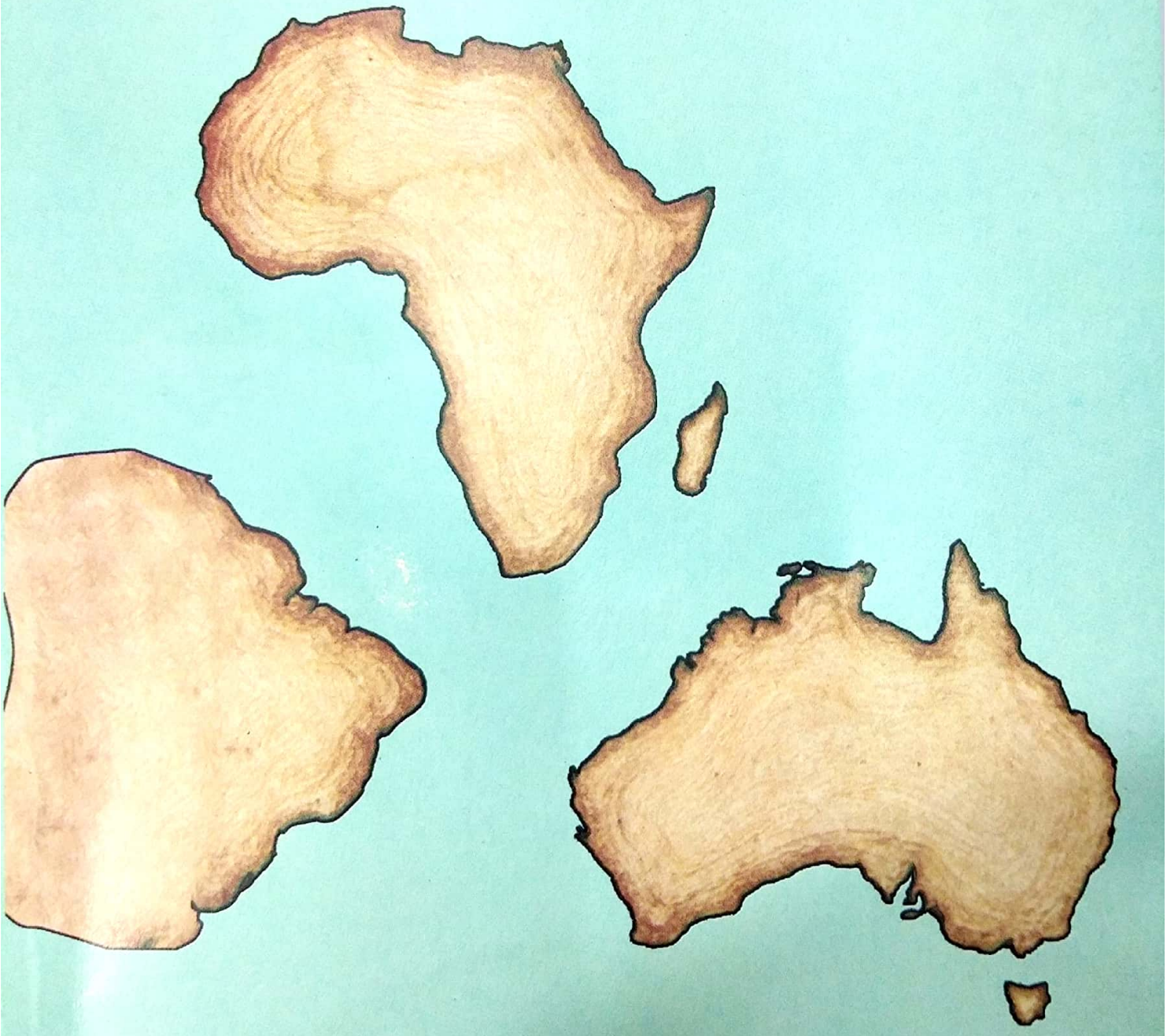
LANDS AND PEOPLES

PART ONE

Geography Textbook for Class VI



LANDS AND PEOPLES

Part I

Geography Textbook for Class VI

Editor
SAVITA SINHA

First Edition
May 1994 Chaitra 1916

Eighth Reprint Edition
December 2001 Pausa 1923

PD 120T MB

Foreword

Lands and Peoples, Part I, a geography textbook for Class VI, is based on the new syllabus developed as a follow-up of the National Policy on Education, 1986. Some of the core curricular areas mentioned in the National Policy on Education and the Programme of Action such as protection of the environment and inculcation of the scientific temper have been included in the relevant contexts in the book.

The geography component of social sciences at this stage provides a spatial dimension to the child's mental horizon through the study of world geography. This book is the first in a series of three textbooks for this stage. It contains an introduction to the planet Earth, and the geography of the southern continents, i.e., Africa, South America, Australia and Antarctica. The course in world geography should help our students develop a global perspective and appreciate the world in which we live and the way we organize ourselves to tackle our social, economic and political problems.

The first draft of the book was prepared in the Department of Education in Social Sciences and Humanities (DESSH) by Dr. (Smt.) Savita Sinha in consultation with Dr. K.L. Joshi and Shri D.P. Gupta. In this task, our earlier textbooks for Classes VI and VII were used as a base and the feedback received from the teachers, students and other users were of great help. Subsequently, this draft was thoroughly discussed and finalized in a workshop in which school teachers and subject experts from different parts of the country participated. In order to enhance the inter-subject linkages, the manuscript was further discussed and modified in consultation with the social sciences faculty members of the DESSH.

I am grateful to all of them for their contributions.

I am also grateful to Shri Yashpal Singh for rendering the manuscript in lucid Hindi. The maps and diagrams used in the book have been drawn by Shri S. Vig for which I am grateful to him.

The National Council of Educational Research and Training (NCERT) will welcome comments and suggestions from the users of this book on any of its aspects.

P.L. MALHOTRA
Director
National Council of Educational
Research and Training

New Delhi
August 1987

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1][**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC**] and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity;
and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

---

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

Part IV A
Fundamental Duties

ARTICLE 51A

Fundamental Duties – It shall be the duty of every citizen of India–

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

Acknowledgements

The National Council of Educational Research and Training expresses its sincere gratitude to the following agencies for having made available the photographs reproduced in this book.

Argentina Embassy, New Delhi
Australia High Commission, New Delhi
Ghana High Commission, New Delhi
Arab Republic of Egypt Embassy, New Delhi
British High Commission, New Delhi
United States Information Service, New Delhi
Deptt. of Ocean Development, Govt. of India, New Delhi

Contents

GANDHIJI'S TALISMAN

"I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test :

Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it ? Will it restore him to a control over his own life and destiny ? In other words, will it lead to Swaraj for the hungry and spiritually starving millions ?

Then you will find your doubts and your self melting away."

M.K. Gandhi

1
UNIT

THE EARTH OUR PLANET

You must have seen millions of shining objects in the night sky. Do you know that the earth on which we live is just a tiny speck like one of them? Like our sun, which is so huge and hot, there are hundreds of suns in the sky. But they don't appear so big and bright because they are very, very far from us.

There are several interesting things about our earth. Do you know that you move round the sun? Yes, and the earth itself is your vehicle. It moves at a tremendous speed, completing one round in about a year. Your birth anniversary should remind you how many rounds you have completed so far. Besides moving round the sun, the earth also rotates about itself just like a top. It completes one rotation in about 24 hours. Moon is the only satellite of our earth. As the earth moves round the sun, the moon moves round the earth.

The North and the South Poles are two important points on the earth. With their help several imaginary lines are drawn on the model of the earth, i.e., the globe. These lines are drawn in north-south and east-west directions. We can locate any place on the earth's surface with the help of these lines, e.g., a country, a city,or a mountain peak.

Land, water and air form three important realms of the earth. Do you know that all living things such as plants, animals and human beings can exist only in an area where land, water and air come in contact with one another? This is the fourth realm of the earth Though this is the smallest in extent, it is of great significance for all of us.

CHAPTER ONE

The Earth in Our Solar System

TERMS THAT YOU KNOW

Star : A celestial body having its own heat and light.

Planet : A celestial body which revolves round the sun and receives heat and light from it.

Satellite : A celestial body which revolves round a planet just as a planet revolves round the sun.

How beautiful it is to observe the sky! During the day, the sun shines brightly. As the evening descends, numerous dots of light illuminate the night sky. The moon with its changing shape is visible for a part of the month. It disappears during the remaining part. All these objects—the sun, the moon and millions of bright objects seen during the night, that belong to the sky are called CELESTIAL BODIES. These are also called HEAVENLY BODIES. The earth on which we live is also a celestial body.

Some celestial bodies have their own heat and light and are called STARS. They are actually very big and hot bodies made of gases. They give out huge flames and radiate tremendous amount of heat and light. However, they look so tiny because they are very, very far from us. The sun is also a star. It looks big and bright because it is comparatively nearer to us. There are millions and millions of stars like our sun.

Some celestial bodies do not have their own heat and light. They only reflect the light which they receive from a star like the sun. These are called PLANETS. The word 'planet' means 'wanderer'. Our earth is also a planet which receives its light and heat from the sun. There are nine planets including our earth, which 'wander' or revolve around the sun.

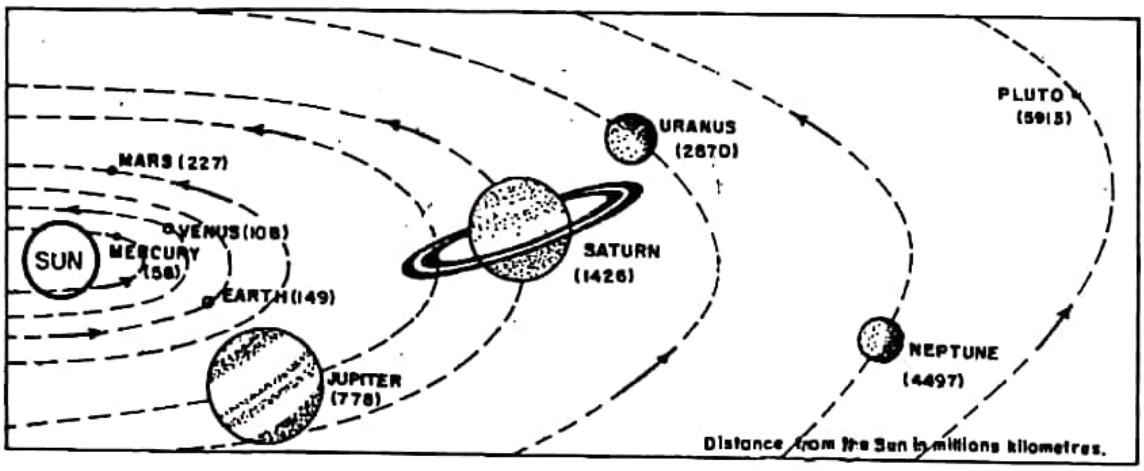


Fig. 1 The solar system

THE SOLAR SYSTEM

The sun and the nine planets make up the 'Family of the Sun' or the SOLAR SYSTEM. There are some other members in the family too. They are small celestial bodies revolving round the planets. They are called SATELLITES. So far forty nine satellites have been discovered in our solar system (Fig. 1)

THE SUN

The sun is in the centre of the solar system. It is the biggest member of the family. It is million times larger than our earth.

It is made of extremely hot gases. It is the source of all energy, i.e., heat and light for the entire solar system. Without this energy, the earth would be cold and lifeless.

The sun is about 150 million kilometres away from the earth. Light travels with a tremendous speed of about 300,000 kilometre per second. Yet, even with this speed, the light of the sun takes about eight minutes to reach the earth.

PLANETS

There are nine planets in our solar system. In order of their distances from the sun, they are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. While Mercury is closest to the sun, Pluto is the farthest. Neptune and Pluto, because of their great distances from us, cannot be seen without telescopes.

In Fig. 1 note the four planets, which are bigger than the earth. Jupiter is the largest of all planets. Find out the smallest planet. Which planets are smaller than the earth?

ASTEROIDS

Between the orbits of Mars and Jupiter, there is a swarm of small

bodies which also revolve round the sun. They are called ASTEROIDS. They are believed to be the pieces of a planet which probably exploded after its birth.

All the nine planets of the solar system revolve around the sun counter clockwise in elliptical paths known as ORBITS. All of them move in the same direction in their revolutions. The planets also rotate on their own axes. Except Venus and Uranus, all other planets rotate in the same direction in which they revolve. As the distance of the planet from the sun increases, the time taken by it to complete one revolution also increases. Since Mercury is nearest to the sun, it takes only about 88 days to complete one revolution. Pluto is the farthest so it takes about 248 years to complete one revolution. Our earth revolves once in about 365 days and 6 hours.

A part of the earth from space

This photograph shows only a part of the earth as it has been taken only from an altitude of about 850 kilometres. Looking towards the north, it shows southern Asia with the Arabian Sea on the left and the Bay of Bengal on the right, with India and Sri Lanka between them. The curvature of the earth is quite clear in the northern part.

The amount of heat received by a planet is controlled by the distance of that planet from the sun. As Mercury is nearest to the sun, it receives a great amount of heat from it. Since Pluto is farthest from the sun, it is the coldest planet in the solar system. In other words, the closer the planet to the sun, the higher its temperature. Imagine what would happen if the earth were to be moved closer to the sun or farther away from it? It is said that if the heat of the sun were to be increased or decreased by as much as 10 per cent, a large part of the earth would turn into a hot desert or an ice-bound desert.

THE EARTH—OUR PLANET

The earth is our planet. It is the third nearest planet to the sun. In size, it ranks fifth. Like other planets, the earth is also a sphere. It is slightly flattened at the poles. In size and shape the earth is almost identical to Venus. But it is unique in some ways. It is the only known planet of the solar system where life is possible. It is

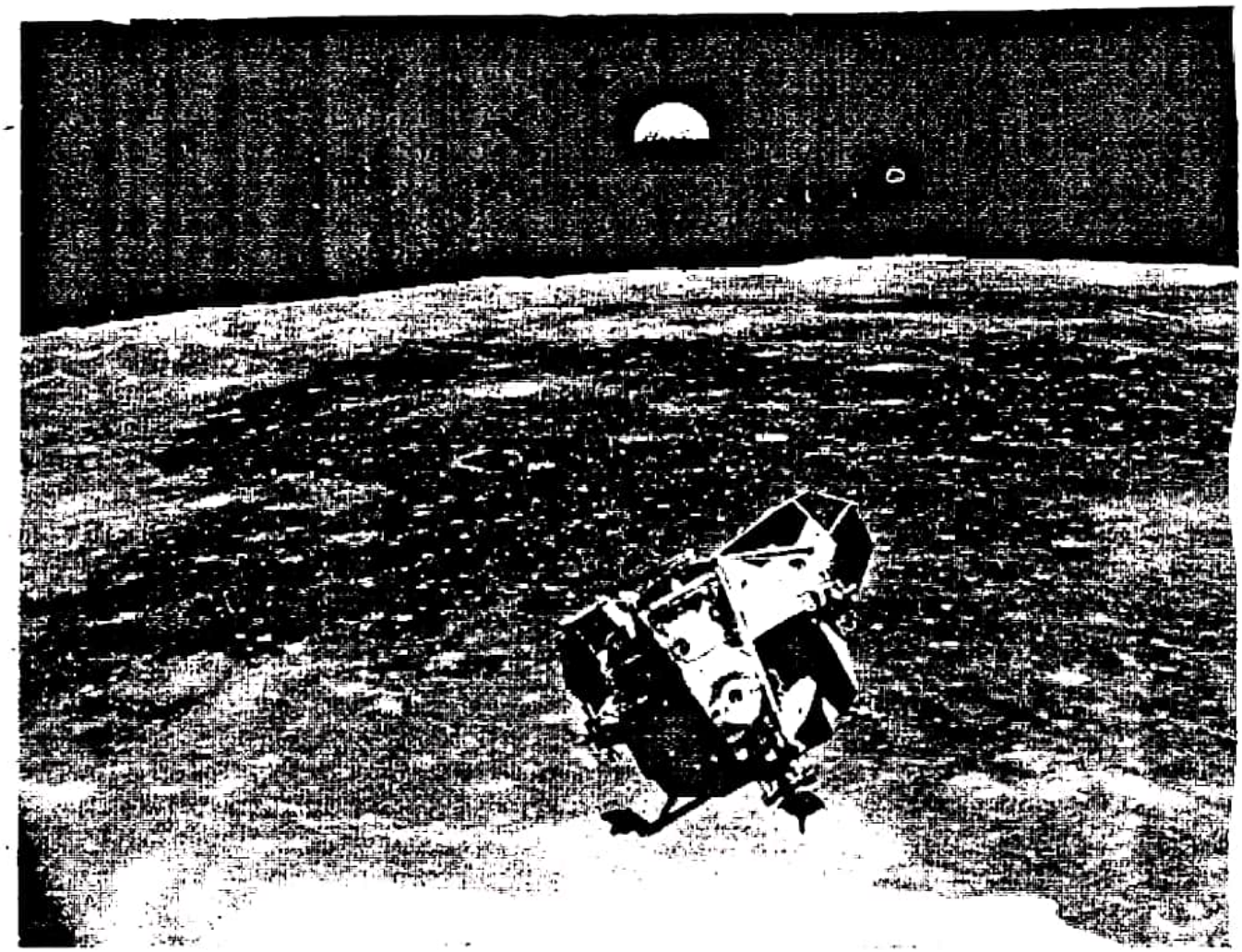
because of presence of water, moderate temperature and moderately dense atmosphere containing gases useful in supporting life on the earth. Astronauts, who have seen the earth from space, say that the earth appears blue in colour. It is because of the presence of water. It is, therefore, also called a blue planet.

SATELLITES

The word 'satellite' means a smaller companion to anything. True to their meaning, these satellites revolve around their planets and also follow them in their revolution around the sun. The moon, for example, is a satellite of the earth which moves

The earth and the moon

A half-lighted earth in the background and a lunar vehicle ascending from the moon's surface to join the command ship in the foreground. The rugged and barren surface of the moon can be seen clearly. Why does the earth appear so small in comparison to the moon?



around the earth and also around the sun ,along with the earth.

There are 49 satellites in our solar system. Except Mercury and Venus, all the other planets have one or more satellites. Like planets, the satellites too have no light of their own. They just reflect the light received from the sun.

THE MOON—THE EARTH'S COMPANION

Our earth has only one satellite, i.e., the moon. The diameter of the moon is only one-fourth of that of the earth. It appears so big because it is very close to us. It is about 385,000 kilometres away from us. The light reflected by the moon reaches us in just one and a quarter seconds.

The moon revolves round the earth in about 27 days and 8 hours. It takes exactly the same time for it to complete one rotation about its axis. As such we always see only one side of the moon while the other side always remains away from us.

In past decades, a lot of information has been gathered about the moon. Some people have already been to the moon in spaceships. They have brought first hand information about the moon's surface. It is now known that there is no air or water on the moon. It is very hot during the day and very cold during the night. Its surface is very uneven and there is no soil.

THE EARTH IN THE UNIVERSE

Our planet earth, which appears so big, is just a tiny speck in the vast space. It is just one of the members of the solar system. Like our solar system, millions of star systems make one galaxy. The name of our galaxy is the MILKY WAY.

There are perhaps millions of galaxies in the whole universe. It is very difficult to imagine the vastness of our universe. The distances in the universe are measured in light years—the distance light travels in one year. The light of the nearest star (Proxima Centauri) to the sun reaches us in about four years. The light of some stars may take millions of years to reach us. There are countless stars whose lights are still travelling but have not reached us yet.

NEW TERMS YOU HAVE LEARNT

Asteroids : A swarm of small bodies in between the orbits of Mars and Jupiter, which revolve round the sun

Galaxy : A family or system of millions and millions of stars

Universe : The vast and infinite space having millions of galaxies

Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) What are celestial bodies?
   (ii) What is meant by 'solar system'?
   (iii) Why is the earth called a blue planet?
   (iv) Why do we see only one side of the moon?
   (v) Which planets rotate from east to west?
   (vi) Why does Mercury take less time in completing one revolution than the earth?
2. Distinguish between:
   (i) A star and a planet
   (ii) A planet and a satellite.
3. Referring to Fig. 1, make out correct pairs from the following two columns:

A	*B*
(a) The planet closest to the sun	(i) Moon
(b) The biggest planet of the solar system	(ii) Mercury
(c) The planet farthest from the sun	(iii) Venus
(d) The planet identical to the earth in size and make-up	(iv) Jupiter
(e) The star nearest to the earth	(v) Uranus
(f) The celestial body closest to the earth	(vi) Pluto
	(vii) Sun

4. Describe the composition of the solar system.
5. Why is the earth a unique planet in the solar system?

SKILLS IN GEOGRAPHY

6. Look at the pictures of the earth and the moon. Why does the earth appear so small compared to the moon?
7. Draw a diagram of the solar system and label each planet.
8. Draw the planets in the ascending order of their sizes.
9. Collect information regarding the planets and their satellites.
10. Collect information regarding the launching of artificial satellites by India. How do they help us?

CHAPTER TWO

How Globes and Maps Help Us

TERMS THAT YOU KNOW

Globe : A model of the earth

Map : A representation of the earth's surface or a part of it on a flat surface according to a scale

You have seen a photograph of the earth in the previous lesson. It is round in shape, like a sphere. To show the earth, we often use a globe which is a model of the earth. It is very accurate because the shapes and sizes of continents and oceans can be shown correctly. Distances and directions on globes are also correct. Globes, for long, have not been easy to carry around. But now folding globes are available which can be kept even in our pockets. However, landforms, roads, railways, towns, and villages, etc. cannot be shown on a globe properly. Therefore, we use maps, which are drawn on flat surfaces. They show the earth's surface or a part of it, drawn according to a scale. It is impossible to flatten a round shape completely. As a result, the northern and the southern portions of our earth are stretched out of proportion. Still, we find that maps are useful to us for various purposes. We can prepare a map of the world or a part of it to show anything we would like to. Maps are of different types. Maps showing different countries and states of the world with their boundaries are called POLITICAL MAPS. Maps showing physical features of the earth such as landforms of different elevations, i.e., mountains, plateaus, plains, rivers, oceans, etc. are called PHYSICAL MAPS. There are also maps showing different kinds of weather or distribution of forests, industries, people, etc. Hence, depending upon the information given in maps, they are provided with suitable titles.

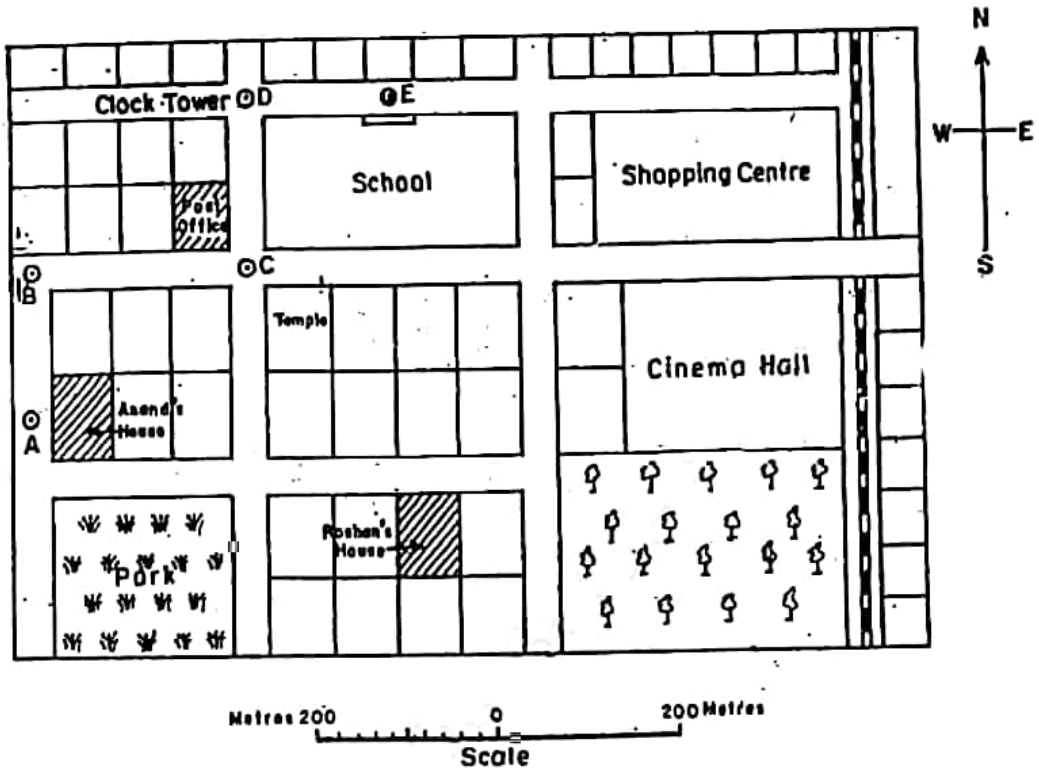


Fig. 2 A map

Every map, thus, tells us a story. We can, however, read the story only when we know the language of the map. It is very easy. Let us learn it.

The above map shows the important features of a part of a town where Anand lives. It also shows his school.

In the upper right hand margin of this map you see an arrow. The tip of the arrow is marked with the letter 'N' which means that the arrow is pointing northwards. The arrow is, therefore, called the NORTH LINE. If the north direction is known you can find out the other three directions—namely, south, east and west. These four directions—are known as THE FOUR CARDINAL POINTS OF THE COMPASS.

With the help of these four cardinal directions you can find out other intermediate directions. For example, you can mark the direction between north and east, which is known as north-east or NE. Similarly, you can mark three other intermediate directions, which are south-east (SE), south-west (SW), and north-west (NW). See Fig. 3.

Now find out the following directions from the map:

(a) The direction of the school, the

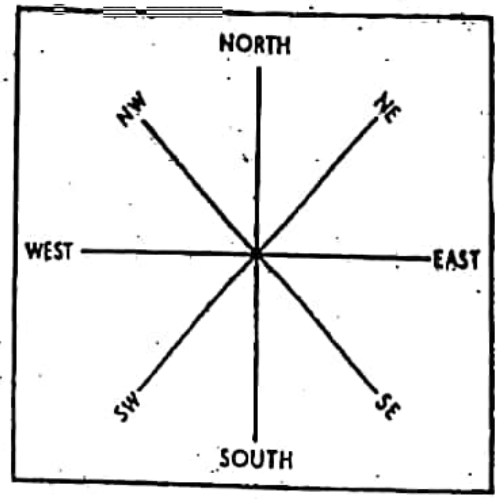


Fig. 3 The four cardinal points of the compass and the four intermediate directions

park and the cinema hall from Anand's house.

(b) The direction of the shopping centre, the temple and the post office from the school.

In some maps, the north line may not be given. It is a common practice that the top of the map shows the north and its bottom shows the south. It means that when you are looking at the map, its right-hand side will be east and the left-hand side will be west. However, when you are referring to the directions on a map, do not refer to them as top or bottom or right or left of the map. Refer to them as north, south, east and west.

Just below the map in Fig. 2, there is a measuring line or 'scale'. It may be used for measuring distance. For example, if you want to find out the distance between the post office and the clock tower, you can measure it on the map (from C to D) and then see how much this distance is on the scale. This is easy because the post office and the clock tower are in a straight line. But if you want to measure the walking distance between the house and the school it would not be so simple because they are not in a straight line. You will have to measure several distances and then add them up.

This is how you do it. Name the various points which have to be measured from each other on the map. Thus Arland's house is point 'A'. The first road crossing is 'B', the crossing which has the post office is 'C', the clock tower is 'D', and the school gate is 'E'. Now take a long piece of paper with a straight edge. Mark the distance AB on the edge. Remove the paper and mark the distance BC, beginning from B which you have marked. Similarly, mark the distance CD, beginning from C. Finally, mark the distance DE. Now you have five points on the edge of the paper: A, B, C, D and E. The total distance from A to E is the distance between the house and the school. Measure this distance on the scale given on the map.

On some maps the scale is not given as a line but is mentioned in words, e.g., one centimetre to one kilometre. It means that one centimetre on the map represents one kilometre on the ground.

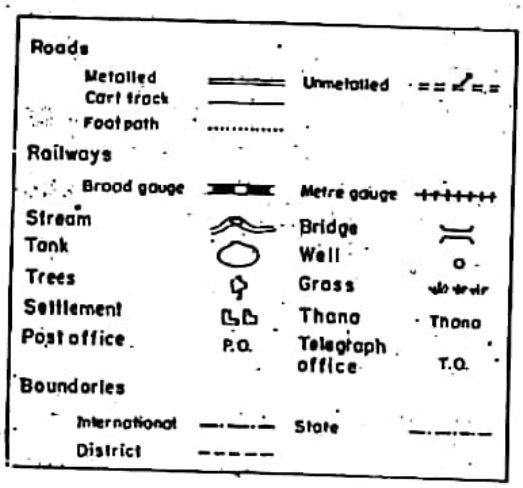


Fig. 4 Conventional symbols

It is not possible to draw on a map the actual shape and size of different features such as a building, a well or a tree. Therefore, these features are represented by various symbols. With the help of such symbols, it is easier and quicker to draw a map. The symbols also make the map clearer and easier to read. As there has been a common agreement the world over regarding the use of these symbols, they are called CONVENTIONAL SYMBOLS. Some of the important conventional symbols are shown in Fig. 4.

If you know these symbols you can very easily read the maps given in Figs. 2 and 5.

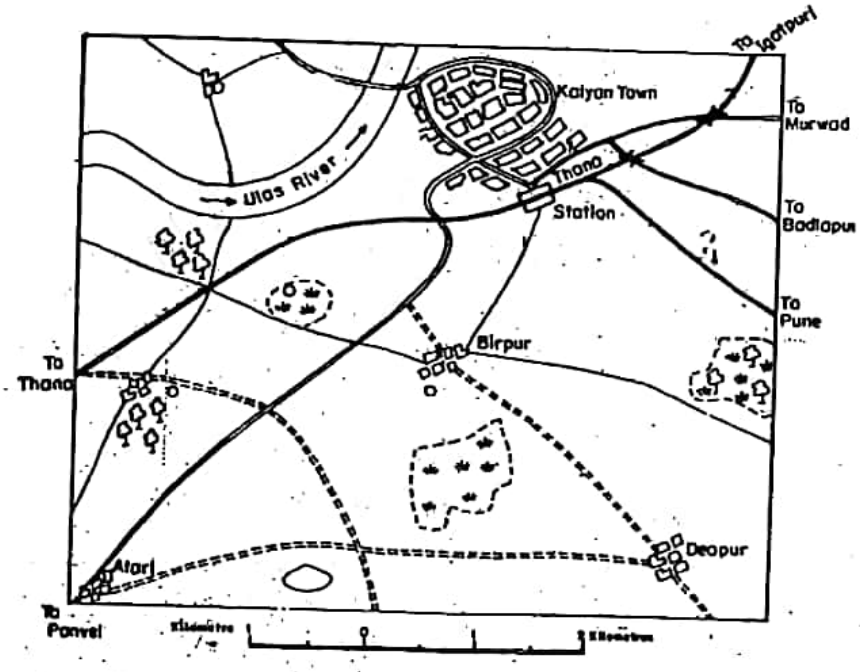


Fig. 5 Map showing Kalyan town and its surrounding areas

Fig. 2 shows only a part of the town but the map in Fig. 5 covers a very big area. It shows Kalyan town, where Anand and his friends Raju and Roshan live. It also shows other villages. From this map you can have a very good idea of the size of Kalyan town and its location. You can also find out the railway and the roads in this area.

All maps are not difficult to draw. They could be of great help in our daily lives. For example, suppose Raju invites Roshan and Anand to visit his home. Since both of them do not know the exact location of Raju's house they ask Raju to give directions from Roshan's house. Raju may say, "As you come out of your house on to the road, turn right and walk till you reach the road-crossing. Then turn left and go up to the next road-crossing, where there are traffic lights. There you turn right, walk past the cinema hall and cross the railway overbridge. When you reach the clock tower turn left and keep going on. After some distance you will find the gate of my house on your right." Still, Roshan and Anand feel that they may not remember the way. Therefore, Raju makes a rough drawing of this route without using any scale as given in Fig. 6. Such a rough drawing which is drawn without measuring the distance is called a SKETCH.

Now Roshan and Anand can reach Raju's place easily with the help of some landmarks such as traffic lights,

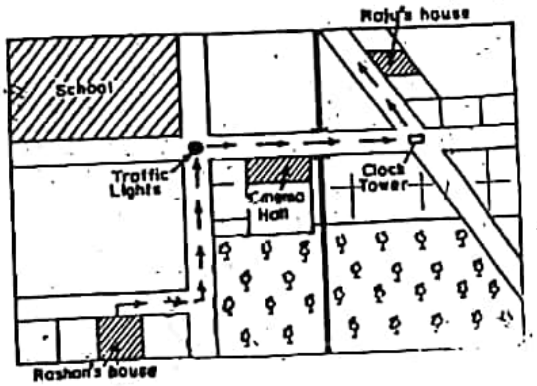


Fig. 6 Sketch showing a part of Kalyan town

road crossing, railway overbridge, etc. But the distances and directions may not be very accurate in such a case because it has been drawn without measuring them properly. As such where accuracy is required one needs to measure the actual distance on the ground and transfer it proportionately on the drawing with the help of a scale. Sometimes we want to know the actual measurement of various objects in our surroundings. For example, you may like to know the length and breadth of Raju's classroom. You cannot find it from the map as shown in Fig. 2 because this map is too small to show the length and breadth of the classroom. You will require a plan such as the one shown in Fig. 7.

Compare the scale of the plan with the scale of the map. You will notice that while one centimetre on the plan shows one metre on the ground, one

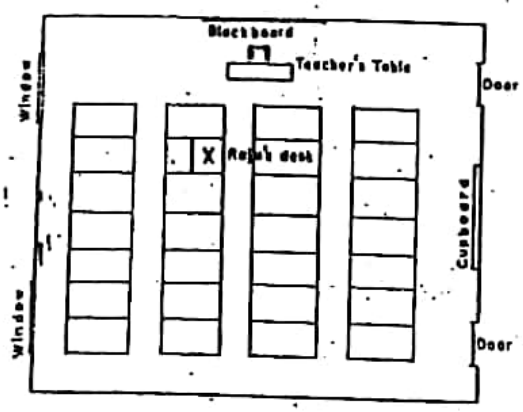


Fig. 7 Plan of Raju's classroom

centimetre on the map shows one kilometre.

Thus a plan shows a small area on a large scale but a map shows a large area on a small scale. A plan can show you details such as the length and breadth of the room and the positions of the door, windows, desks and the blackboard. On the other hand, a map shows only important features because it has to cover a large area.

So there are maps, sketches and plans and each has its own advantages. A map has the advantage that it can show a very big area—say a continent or a country or a part of a country. But because of its small scale it can show only the important features of the area and not many details. A sketch has the advantage that it can be drawn quickly, sometimes roughly, to give an idea of the position of a few things in any area. It may or may not have a scale. A plan can show a small area in great detail because of its large scale. Thus with the help of these aids, we can show many features of the land very conveniently on flat surfaces.

NEW TERMS YOU HAVE LEARNT

Sketch A drawing usually made from one's imagination without measuring the actual distance on the ground.

Plan A large scale drawing showing [illegible] desk.

Exercise

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Why cannot maps be as accurate as globes?
   (ii) What are the four cardinal directions?
   (iii) What is meant by the term 'the scale of the map'?
   (iv) Why are symbols used in maps?
   (v) What is the difference between a map and a plan?

2. Some of the statements given below are true and some are false. Pick out the statements which are false and rewrite them after making necessary corrections.
   (i) Sketches are always accurate.
   (ii) Maps are not always drawn on a large scale.
   (iii) Plans are drawn on a large scale.
   (iv) Generally, the bottom of the map shows north.
   (v) Distance on a map is measured with the help of the scale of the map.

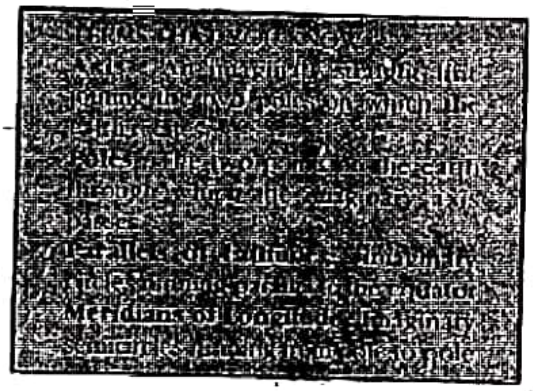
SKILLS IN GEOGRAPHY

3. Look at Fig. 5 and answer the following questions.
   (i) In which direction is the river flowing?
   (ii) How far is village Deopur from village Birpur
   (iii) What kind of road passes by the side of village Atari?
   (iv) Find out the length of the portion of the river shown in the map.

4. Draw a sketch of your school and locate the following.
   (i) The Principal's room
   (ii) Your classroom
   (iii) Playground
   (iv) Library

CHAPTER THREE

Latitudes and Longitudes



You can easily locate a place on the surface of the earth with reference to another place. But if there is no place or point of reference you will be in difficulties. The earth is a sphere and has no edges from which you can measure your distance. It has, however, two fixed points—the North Pole and the South Pole—which serve as basic points of reference. One set of lines are drawn in between the two poles in an east-west direction. These are parallel to the equator. That is why, they are called PARALLELS OF LATITUDE. The other set of lines are drawn joining the North and the South Poles. They are semi-circles. They are called MERIDIANS OF LONGITUDE. However, on some maps, they appear as east-west and north-south lines. With the help of these lines we can determine the position of any place on the surface of the earth.

Now we shall study how these latitudes and longitudes are drawn.

LATITUDE

You know that the axis of the earth which joins the North Pole and the South Pole is an imaginary line. Another imaginary line is the EQUATOR which is drawn in such a way that at all points it lies exactly halfway between the North Pole and the South Pole. It thus divides the earth into two equal

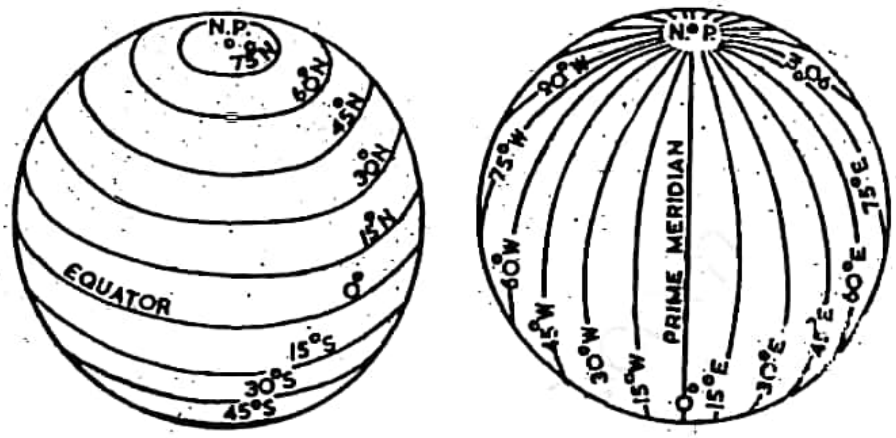


Fig. 8 Latitudes and longitudes

parts, i.e., the Northern and the Southern Hemispheres.

Latitude is a measure of the angular distance of a given point from the equator. It is measured in degrees from the equator toward either pole. One degree (°) is divided into sixty equal parts and each unit is called a minute (′). A minute is further divided into sixty equal-parts and each unit is called a second (″).

The equator represents the zero degree latitude. Since the distance from the equator to either of the poles is one-fourth of a circle round the earth, it will measure ¼ of 360 degrees, i.e., 90°, Thus 90° north latitude marks the North Pole and 90° south latitude marks the South Pole.

As such, all points north of the equator are called 'north latitudes'. Similarly all points south of the equator are called 'south latitudes'.

The value of each latitude is, therefore, followed by either the word north, or south. Generally, this is indicated by the letter 'N' or 'S'. For example, both Ernakulam in Kerala (India) and Lindi in Tanzania (Africa) are located at the parallels of 10° latitude. But the former is 10° north of the equator and the latter is 10° south of it. We, therefore, say that Ernakulam is situated at 10°N latitude and Lindi is situated at 10° S latitude.

IMPORTANT PARALLELS OF LATITUDE

The equator is the largest possible circle which can be drawn around the earth. There are some other important parallels of latitude which have been given special names. See Fig. 9.

The Tropic of Cancer is an important parallel of latitude in the Northern Hemisphere. It is at an

angular distance of 23½° (23° 30'N) from the equator. If you see the map of India, you will find that the Tropic of Cancer runs in an east-west direction almost midway through our country.

The Tropic of Capricorn (23° 30'S) is another parallel similar to the Tropic of Cancer but is in the Southern Hemisphere.

The Arctic Circle lies at a distance of 66½° (66° 30'N) north of the equator.

The Antarctic Circle (66° 30'S) is similar to the Arctic Circle but lies in the Southern Hemisphere.

HEAT ZONES OF THE EARTH

The midday sun is exactly overhead at least once a year on all latitudes in between the Tropic of Cancer and the Tropic of Capricorn. This area, therefore, receives the maximum heat and is called the TORRID ZONE.

The midday sun never shines overhead on any latitude beyond the Tropic of Cancer and the Tropic of Capricorn. The angle of the sun's rays goes on decreasing towards the poles. Beyond the Arctic and the Antarctic Circles, the sun does not rise much above the horizon. As such the areas bounded by the Tropic of Cancer and the Arctic Circle in the Northern Hemisphere, and the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere, have moderate temperature. These are, therefore, called TEMPERATE ZONES.

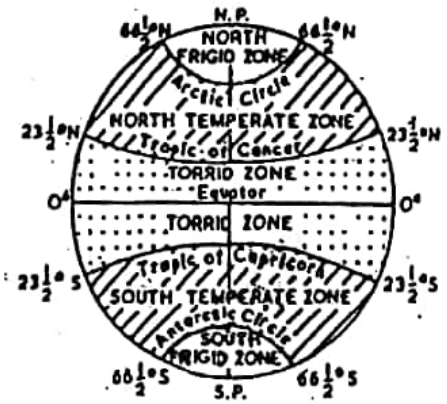


Fig. 9 Important parallels of latitude and heat zones of the earth.

Areas lying between the Arctic Circle and the North Pole in the Northern Hemisphere and the Antarctic Circle and the South Pole in the Southern Hemisphere, are very cold. It is because the sun does not rise much above the horizon. Therefore its rays are always very slanting. These are, therefore, called FRIGID ZONES.

LONGITUDE

To fix the position of a place, it is necessary to know something more than the latitude of that place. You can see, for example, that Hyderabad (in Pakistan) and Allahabad (in India) are situated on the same latitude (i.e., 25° 25'N).). Now, in order to locate them precisely we must find out how far east or west these places are from a given line of reference running from the North Pole to the South Pole. These

lines of reference are called meridians of longitude, and the distances between them are measured in 'degrees of longitude'. Each degree is further divided into minutes and seconds. They are semi-circles and the distance between them decreases steadily polewards, until it becomes zero at the poles, where all the meridians meet.

Unlike parallels of latitude, all meridians are of equal length. Thus, it was difficult to number the meridians. Hence all countries decided that the count should begin from the meridian which passed through Greenwich, where the British Royal Observatory was located. This meridian was called the PRIME MERIDIAN. Its value is 0° longitude and from it we count 180° eastward as well as 180° westward. Therefore the longitude of a place is followed by the letter E or W. Thus, if we have to state the longitude of Jabalpur which is situated 80° east of Greenwich, we shall say that its longitude is 80° E. It is, however, interesting to note that 180° East and 180° West meridians are the same line.

Now look at the grid of the parallels of latitude and meridians of longitude on the globe. You can locate any point on the globe very easily, if you know its latitude and longitude. For example, Dhubri in Assam is situated at 26°N latitude and 90°E longitude. Find out the point where

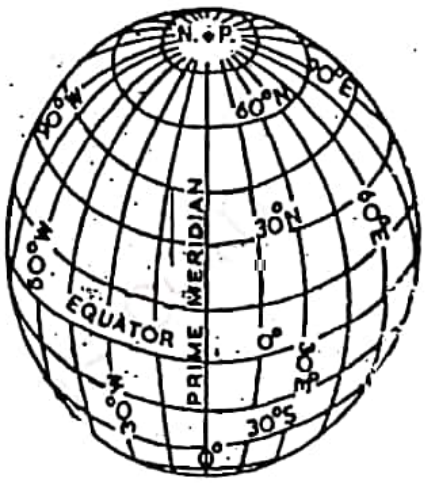


Fig. 10 Grid of parallels and meridians

these two lines cut each other. That point will be the location of Dhubri.

LONGITUDE AND TIME

The best means of measuring time is by the movement of the earth, the moon and the planets. The sun regularly rises and sets every day and naturally it is the best time-keeper throughout the world. 'Local' time can be reckoned by the shadow cast by the sun, which is shortest at noon and longest at sunrise and sunset.

When the Prime Meridian of Greenwich has the sun at the highest point in the sky, all the places along this meridian will have midday or noon.

As the earth rotates from west to east, those places east of Greenwich will be ahead of Greenwich time and those to the west will be behind it. The

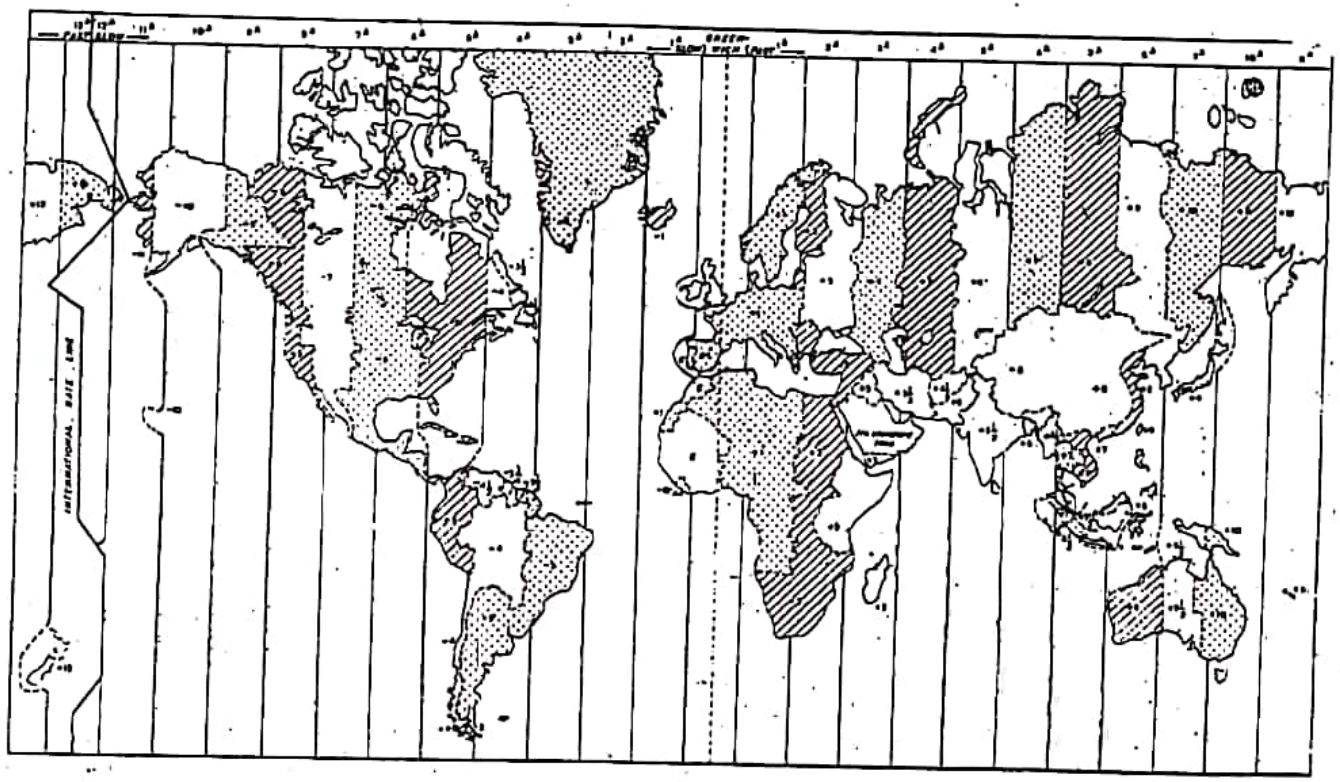


Fig. 11 Time zones of the world

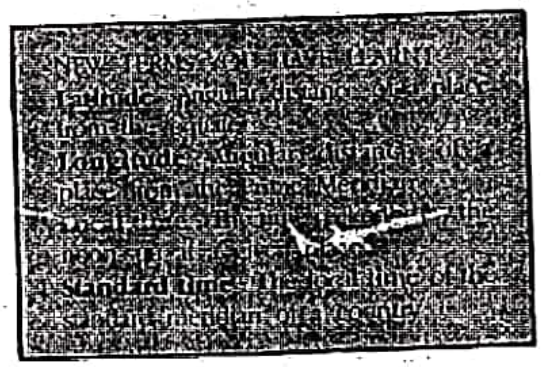
rate of difference can be calculated as follows. The earth rotates 360° in about 24 hours, which means 15° an hour or 1° in four minutes. Thus, when it is 12 noon at Greenwich, the time at 15° east of Greenwich will be 15 × 4 = 60 minutes, i.e., 1 hour ahead of Greenwich time which means 1 p.m. But at 15° west of Greenwich, the time will be behind Greenwich time by one hour, i.e., it will be 11.00 a.m. Similarly, at 180° it will be midnight when it is 12 noon at Greenwich.

At any place a watch can be adjusted to read 12 o'clock when the sun is at the highest point in the sky, i.e., when it is midday. The time shown by such a watch will give the local time for that place. You can see that all the places on a given meridian of longitude have the same local time.

STANDARD TIME

The local time of places which are on different meridians are bound to differ. This will create problems for the people. For example, it will be difficult to prepare a time-table for trains which cross several longitudes. In India, for instance, there will be a difference of about 1 hour and 45 minutes in the local times of Dwarka in Gujarat and Dibrugarh in Assam. It is, therefore, necessary to adopt the local time of some central meridian of a country as the standard time for the country. In India, the longitude of 82½° E (82° 30′E) is treated as the standard meridian. The local time at this meridian is taken as the standard time for the whole country. It is known as the Indian Standard Time (IST).

Some countries have a great longitudinal extent and so they have adopted more than one standard time. For example, in Russia there are as many as eleven standard times. The earth has been divided into twenty four time zones of one hour each. Each zone thus covers 15° of longitudes.



Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Which are the two basic points of reference on the surface of the earth?
   (ii) What is the difference between the parallels of latitude and the meridians of longitude?
   (iii) Which is the standard meridian of India?
   (iv) What is local time?
   (v) In which hemisphere does the Tropic of Cancer lie?
2. Some of the statements given below are true and some are false. Pick out the statements which are false and rewrite them after making necessary corrections.
   (i) The parallels of latitude are of equal length.
   (ii) The equator and the Prime Meridian are the two largest circles which can be drawn on the earth.
   (iii) In the torrid zone the noon-sun is seen exactly overhead everyday at least on one latitude.
   (iv) We count 180° meridian of longitude as both east and west.
   (v) Indian Standard Time and the local time are the same.
3. Give one term for each of the following.
   (i) The heat zones of the earth which are bounded by the Tropics on the one hand and the Arctic and Antarctic Circles on the other.
   (ii) The 0° meridian passing through Greenwich.
   (iii) The 66°30'S latitude.

SKILLS IN GEOGRAPHY

4. Trace a map of India and show therein the Tropic of Cancer and the Standard Meridian. Name a few towns which are situated on or very close to these two lines.
5. Find out the locations (latitude and longitude) of the following places from your school atlas.
   (i) Delhi
   (ii) Calcutta
   (iii) Mumbai
   (iv) Chennai
   (v) Srinagar
   (vi) Kohima
   (vii) Bhopal
   (viii) Thiruvananthapuram
   (ix) Dwarka
   (x) Ranchi

CHAPTER FOUR

Motions of the Earth

TERMS THAT YOU KNOW

Rotation: The spinning of the earth on its axis completing one circle in about twenty-four hours.

Revolution: Motion of the earth around the sun completing one revolution in about 365 days and 6 hours.

The earth, like other planets has two motions. It spins continuously on its axis once in about twenty-four hours, which is called ROTATION. The earth's axis is tilted at an angle of 23½° from a perpendicular to the orbital plane. In other words, the earth's axis makes an angle of 66½° with the plane of the

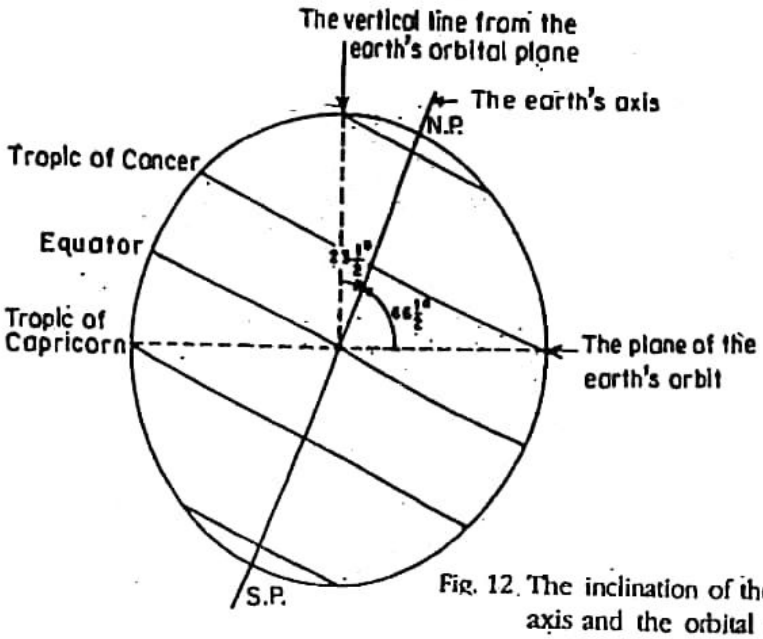


Fig. 12. The inclination of the earth's axis and the orbital plane

earth's orbit. This tilting of the earth's axis is referred to as the INCLINATION OF THE EARTH'S AXIS.

The northern and the southern points on the earth through which this axis passes, are known as the North Pole and the South Pole respectively.

While rotating on its axis, the earth also moves round the sun at a speed of about 100,000 kilometre per hour. It completes one circle in about 365 days and 6 hours. This annual motion of the earth is called REVOLUTION.

ROTATION

The earth receives its light and heat from the sun. When the earth rotates on its axis, one half of it, facing the sun, is lit. The other half remains in darkness. Thus each part of the earth's surface comes into the sunlight for a certain period and then turns away from it in 24 hours. The lighted part of the earth has day, and the other half, in darkness, has night. Imagine what will happen if the earth stops rotating on its axis! Infact, it is because of the rotation of the earth that day and night follow each other in regular succession in all parts of the earth.

The sun appears to move in the sky from east to west. Actually it is not the sun but the earth which moves. Try to remember what happens when you look outside a running train. You feel that trees, poles, houses and other objects are moving away in the opposite direction. In fact, it is the train which is moving and not the objects. Similarly, it is not the sun but the earth which moves from west to east.

Let us now perform an experiment to see how the sun rises and sets at any place. Take a ball to represent the earth and a lighted candle to represent the sun. Mark a point on the ball to represent a town X. Place the ball in such a way that the town, X, is in darkness. Now rotate the ball from left to right. The town, X, would gradually turn towards the sun (which is represented by your candle) and reach a position when it will receive some diffused light. It means that the town is having its DAWN or the time just before the rays of the morning sun appear. As you move the ball slightly, the town will have its SUNRISE or the first rays of the rising sun. At sunrise the sun appears on the horizon and its rays are slanting. As the ball continues to move, the sun seems to be climbing up in the sky until its rays are more or less vertical. This is NOON time in the town X. After that, the point, X, gradually moves away from the sun until it appears as if the sun has descended to the horizon. This is SUNSET This is followed by a short period of diffused light again, which is known as DUSK. When the town, X, has moved farthest from the sun, it would be MIDNIGHT. Therefore, when it is down at one place,

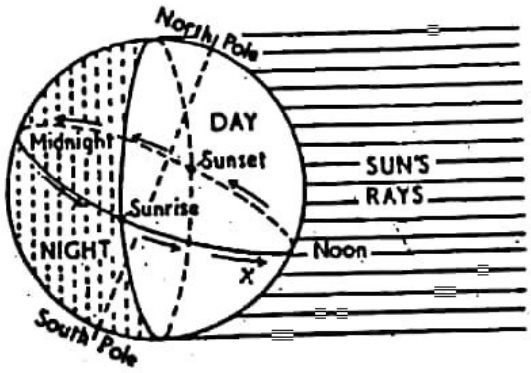


Fig. 13 The rising and the setting of the sun. Note that exactly half of the earth is lit by the sun. Follow the town, X, on the rotating earth and note its position in relation to the sun at sunrise, noon, sunset and midnight.

it may be noon, dusk or night in other places.

REVOLUTION

While rotating on its axis, the earth also moves round the sun. The earth completes one revolution in about 365 days and 6 hours. For the sake of our convenience, we consider a year as consisting of only 365 days, and ignore 6 hours. Thus in four years the difference becomes as much as 24 hours or one day. Hence, every fourth year we add one day to the year. The year to which one day is added has 366 days and it is called a LEAP YEAR. The extra day is added to the month of February, making the number of days in this month 29 instead of 28. The year 1984 was a leap year. Why was it so? Which will be the next leap year?

On its path around the sun, the earth's axis always remains inclined to one side. Because of this constant inclination in one direction, the Northern Hemisphere remains inclined towards the sun or faces the sun during one half of the year. Therefore, a larger part of this hemisphere receives sunlight. Every point in this hemisphere takes a longer time to go out of the sunlight, with the result that the days are longer. In contrast, the Southern Hemisphere is away from the sun. It, therefore, has shorter days and longer nights. During the other half of the year, the Southern Hemisphere is inclined towards the sun. Hence, it has longer days and shorter nights.

If you study Fig. 14 carefully, you will understand this. In this figure you see a circle running parallel to the equator in the Northern Hemisphere. Measure the length of that part of the circle which is in light and also that part which is in darkness. You will find that even if the earth rotates on its axis, more than half of this circle will always be in light and less than half will always be in darkness. Now imagine a point on this circle steadily moving as the earth rotates. This point will complete one circle in 24 hours bu the journey of this point throug sunlight will be longer than its journey through darkness, which means longer

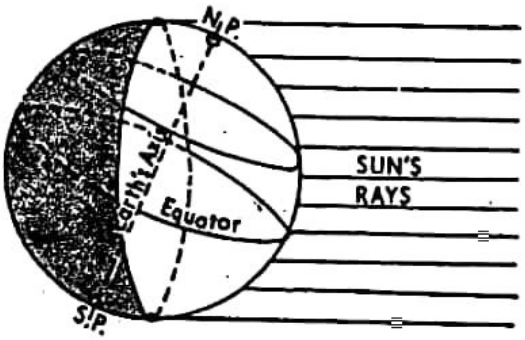


Fig. 14 Inclination of the earth's axis and unequal length of days and nights

days and shorter nights. Similarly, all points or places in the Northern Hemisphere would have longer days and shorter nights when this hemisphere is inclined towards the sun.

In the opposite case, when the Southern Hemisphere is inclined towards the sun, all places in the Southern Hemisphere will have longer days and shorter nights.

Draw a small circle around the North Pole as shown in Fig. 14. You will find that this circle will always be in sunlight which means that it will have a 24 hour day with no night at all. The exact opposite would be the case for a small circle around the South Pole. This circle will have a 24 hour night with no day at all.

When the Southern Hemisphere is inclined towards the sun, the South Pole will have no night and the North Pole will have no day.

It is only on the equator that the day and the night are always of equal length. As we move away from the equator, either northward or southward, the difference between the length of day and that of night generally goes on increasing.

THE SLANTING AND DIRECT RAYS OF THE SUN

It is our common experience that the rays of the sun at noon give more heat than the rays of the sun in the morning or in the evening. This is because the rays of the sun are almost vertical at noon and slanting in the morning and in the evening. Vertical rays of the sun fall over a small area, giving it a greater amount of heat. Slanting rays, on the other hand, spread over a wide area and give less heat.

THE CYCLE OF THE SEASONS

Let us follow the earth in its elliptical orbit around the sun as given in Fig. 15.

This figure shows four positions of the earth, each at an interval of about three months. These dates are more or less fixed. In all these positions, the axis of the earth makes an angle of 66½° with the plane of its orbit. The direction of its inclination always remains the same.

Study the position of the earth on 21 June. You will find that the North

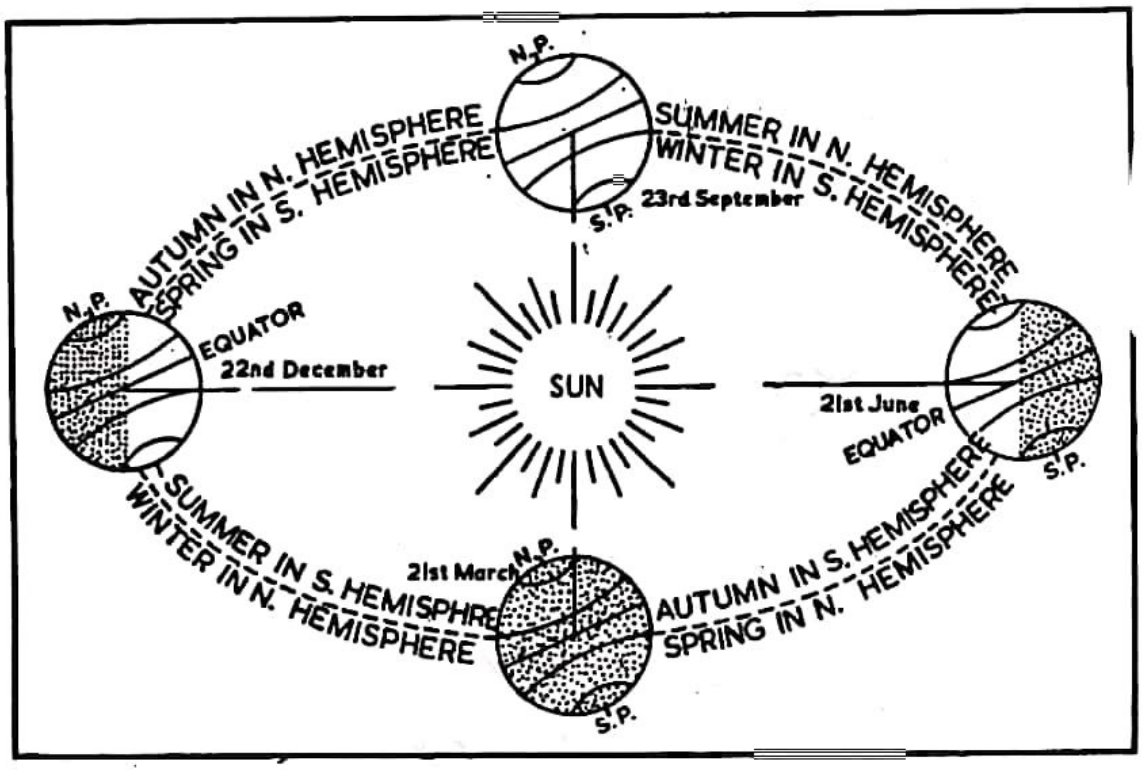


Fig. 15 Revolution of the earth and the seasons

Pole is inclined towards the sun, while the South Pole is away from it. The rays of the sun are falling vertically not on the equator but on 23½° north of it, on the Tropic of Cancer. You will also notice that the greater part of the Northern Hemisphere is receiving the rays of the sun. Here the days are longer, nights shorter and the rays of the sun at noon are vertical. It receives more heat than it loses. Therefore, it is having the summer season.

In comparison, the rays of the sun are slanting in the Southern Hemisphere. A relatively small part of this hemisphere is receiving the sun's rays. Hence, days are shorter and nights are longer. This is the winter season in the Southern Hemisphere.

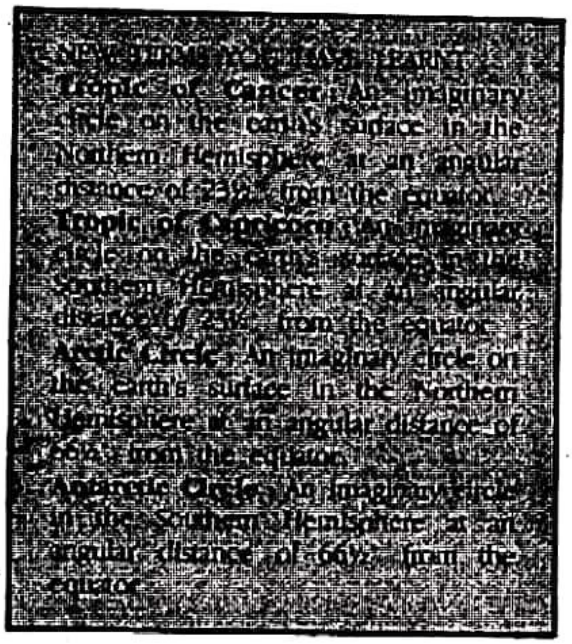
Now look at the position of the earth on 22 December. It is the Southern hemisphere which is now inclined towards the sun, while the Northern Hemisphere is away from it. The vertical rays of the sun are now falling vertically on places at 23½° south of the equator, i.e., the Tropic of Capricorn. The days are longer and the nights are shorter in the Southern Hemisphere. It is, therefore, summer in

the Southern Hemisphere and winter in the Northern Hemisphere.

Let us look at the two other positions of the earth. On 23 September and 21 March the rays of the sun fall vertically on the equator at noon. Both the poles receive the rays of the sun. As a result, exactly one-half portion of each hemisphere receives the sun's rays, making day and night equal all over the world on these two days.

On 23 September, it is the autumn season in the Northern Hemisphere and the spring season in the Southern Hemisphere. The opposite is the case on 21 March, when it is spring in the Northern Hemisphere and autumn in the Southern Hemisphere.

Thus you find that we have days and nights and change in the seasons because of the rotation and revolution of the earth.



Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) How much time does the earth take to complete one rotation?
   (ii) Why has every fourth year 366 days?
   (iii) On what days do we have equal days and nights all over the world?
   (iv) In which season is Christmas celebrated in Australia?

2. Distinguish between:
   (i) morning and evening
   (ii) rotation and revolution.

SKILLS IN GEOGRAPHY

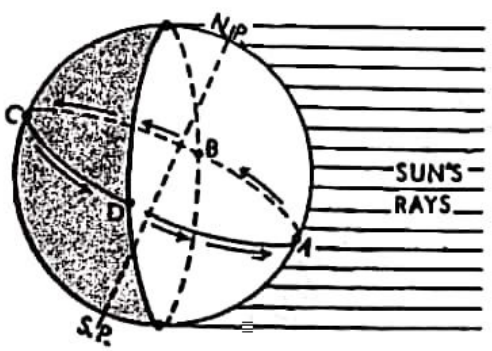
3. Draw a diagram and explain how days and nights are caused.

4. Draw a diagram to show the position of the earth in relation to the sun when you have the winter season.

5. Three children in different towns see the noon-sun exactly overhead on different dates. Ahmed at Muscat (South-west Asia) sees it on 21 June, Jill at Quito (South Africa) sees it on 21 March, Mary at Rockhampton (Australia) sees it on 22 December. Locate the three towns on a map.

6. Record the timings of sunrise and sunset at your place taking help from your local newspaper on the 21st of each month. Prepare a graph showing the length of day for all the twelve months. Answer the following questions with the help of your graph.
   (i) In which month are the days shortest?
   (ii) In which months are the days and nights nearly equal?

7. Answer the following questions with the help of the diagram given below.



   (i) Which point on the globe in the diagram directly faces the sun? What is the time of day at this point?
   (ii) What time is it at point B?
   (iii) Name the point where it is sunrise.
   (iv) At what point is it midnight?

8. Draw a diagram to show the earth's axis forming an angle of 66½° with the plane of its orbit. Draw another diagram in which the axis is perpendicular to the plane of the earth's orbit.
   Compare these two diagrams. What would happen if the earth's axis were perpendicular to the plane of its orbit?

9. Take a stick and fix it in an open, level ground. Observe its shadow in the morning, at noon and in the evening. Now answer the following questions on the basis of your observation.
   (i) At what time of the day is the shadow of the stick shortest? Why is it so?
   (ii) At what time of the day will the intensity of heat be maximum? Why?

CHAPTER FIVE

Realms of the Earth

TERMS THAT YOU KNOW

Continent : A large area of continuous land rising above sea level.

Ocean : A vast body of water on the surface of the globe, which surrounds the land.

The planet earth is our home. It is a unique planet because it contains life. This has been possible because of three important things which sustain life—land, water and air.

The domain of the earth consisting of its crust, i.e., rocks including stones and soil is known as the LITHOSPHERE. The domain of the waters on the earth's surface is known as the HYDROSPHERE. The realm of the air which surrounds the earth is known as the ATMOSPHERE. The narrow zone where all these three domains come in contact with each other is called the BIOSPHERE. 'Bio' means life. It is the zone which contains all forms of life. It is, therefore, very important.

LITHOSPHERE

The term 'lithosphere' means the crust or the outer skin of the earth. It includes all the big and small land masses which are found on the earth.

About one-third of the earth's surface is covered by land. Large land masses are called CONTINENTS. Similarly, large water bodies are called OCEANS (Fig. 16). All the oceans of the world are connected with one another. Therefore, the level of sea water remains the same everywhere. This level of sea water is called SEA LEVEL. We measure the height of land or depth of the ocean floor from the sea level. While the highest peak (Mt. Everest) is 8,848 metres above sea level, the greatest depth (Mariana Trench) is about 11,022 metres below sea level. However, the average height of the continents is only about 700 metres above sea level, whereas the

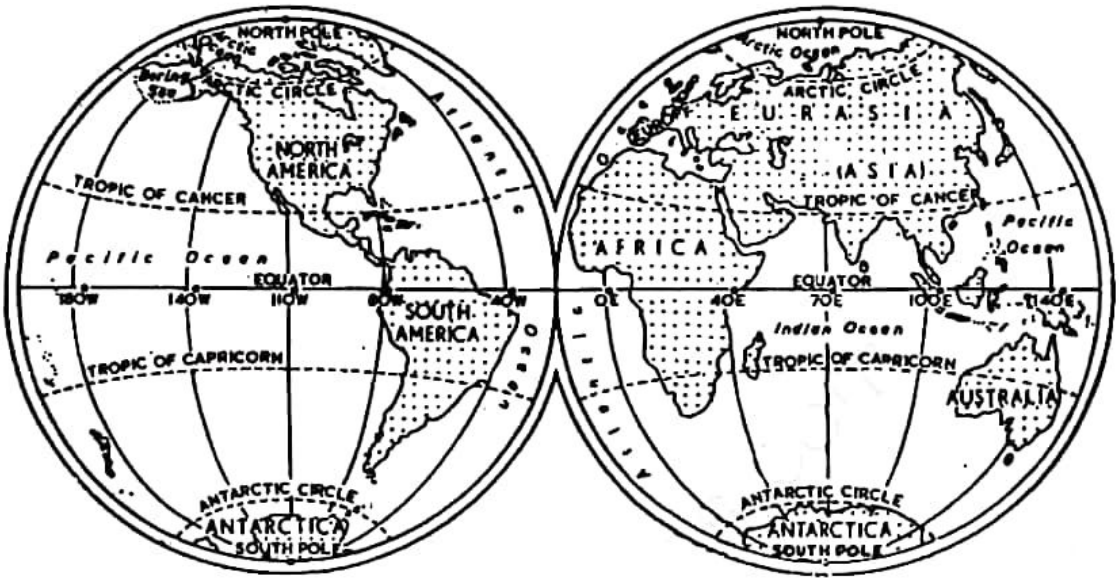


Fig. 16 Continents and oceans

average depth of the oceans is about 4,000 metres below sea level.

Continents

There are seven major land masses or continents on the earth. They are Asia, Europe, Africa, North America, South America, Australia and Antarctica. Most of the land area of the earth lies in the Northern Hemisphere.

Asia is the largest of all continents. It lies in the Northern Hemisphere. Sometimes, Europe and Asia are not considered as two separate continents but as one single continent known as Eurasia. You can see on a map that Europe and Asia are a continuous land mass separated by the Ural mountain and the Ural river only. For all practical purposes, Europe and Asia are considered as two separate continents.

Africa is the second largest continent next to Asia. The equator passes half-way through the continent, so that the northern half of Africa lies in the Northern Hemisphere while the southern half is in the Southern Hemisphere. Study the boundary between Asia and Africa. Can you find out the name of the canal which separates Africa from Asia?

The continent of North America is linked to the continent of South America at Panama's eastern border. North America lies wholly in the Northern Hemisphere but the greater part of South America is in the Southern Hemisphere.

Australia is the smallest continent and lies entirely in the Southern Hemisphere. It is often called the 'island continent'.

Antarctica is a rather big continent—bigger than Europe and Australia put together. The South Pole lies almost at the centre of this continent. Antarctica remains entirely covered with deep ice and snow. It is the only continent which is devoid of permanently settled human population.

Landforms

The surface of the earth is not the same everywhere. Some parts are rugged, very much elevated and several thousand metres above sea level. Some parts are flat and not much above sea level. These land features are named differently. Broadly, they are grouped under mountains, plateaus and plains. They form the major landforms on the earth's surface.

Mountains

A MOUNTAIN is a mass of land considerably higher than the surrounding area. It is a group of very high hills usually forming long chains called ranges. Mountains often consist of a series of parallel ranges extending over hundreds of kilometres. The Himalayas are an example.

Mountains are of different heights as well as of different shapes. These differences are mainly due to their age. Mountains such as the Himalayas are very high and have pointed peaks

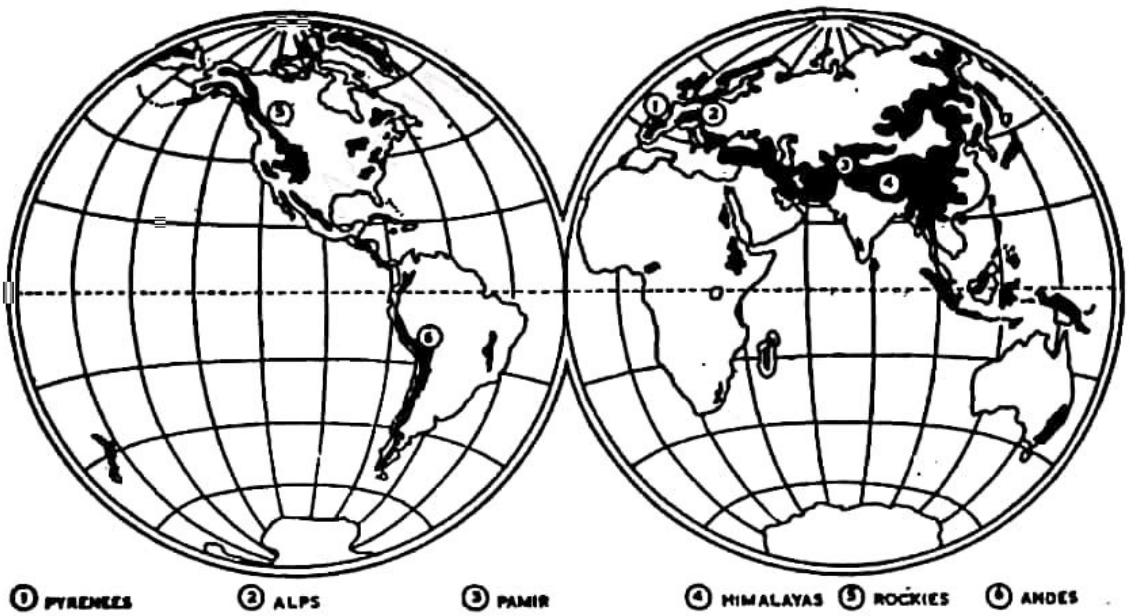


Fig. 17 Mountain systems of the world

because they are young in age. On the other hand, mountains such as the Aravalli are low and have rounded features because they are very old. Look at Fig. 17 and note the major mountain chains of the world. From the Pamir Knot in Central Asia, mountain ranges spread out in different directions. What are their names? Also find out the names of the important mountain ranges in other continents.

Plateaus

A PLATEAU is a broad and rather level stretch of land rising sharply above the neighbouring lowland. Some plateaus extend over thousands of square kilometres. The Deccan plateau is an example. Large parts of Africa, Australia, Asia and North America consist of plateaus. The Tibet plateau is the highest plateau in the world.

Plains

A relatively flat and low lying land surface is called a PLAIN. Some plains are extremely level. Others may be slightly rolling or undulating.

Most of the plains are formed by rivers and their tributaries. The rivers flow down the slopes of mountains and erode them. They carry forward the eroded material. Then they deposit their load consisting of stones, sand and silt along their courses and in their valleys. It is from these deposits that plains are formed.

Some of the largest plains made by rivers are found in Asia and North America. The Great Northern Plains of India are a good example of this kind. Find out some other large plains of the world which have been formed by rivers.

HYDROSPHERE

Look at Fig. 16. You will notice that water covers nearly two-thirds of the earth's surface. Oceans being huge bodies of water constitute the major part of the hydrosphere. Other water bodies such as lakes and rivers are also included in it.

Oceans

They are huge bodies of water, which are generally separated by continents. In order of size, the major oceans are: the Pacific Ocean, the Atlantic Ocean, the Indian Ocean and the Arctic Ocean. The extension of the Pacific, the Atlantic and the Indian Oceans around Antarctica is called the Southern Ocean.

The Pacific Ocean is the largest of all. Its area is larger than the combined area of all the continents. It is also deeper than any other ocean. The Mariana Trench in the Pacific Ocean is the deepest ocean in the world (11,022 metres). The Pacific Ocean is bounded by Asia and Australia on the one hand

and North and South Americas on the other.

The Atlantic Ocean is flanked by North and South Americas on one side and Europe and Africa on the other. Its coastline is very much indented, so much so, that it is longer than the coastlines of the Pacific Ocean and the Indian Ocean put together. The indented coastline has many good harbours. In fact, the Atlantic Ocean is the busiest ocean from the point of view of commerce.

The Indian Ocean is the only ocean named after a country, namely, India. It indicates the importance of India in international trade in former times. This ocean is bounded by land on three sides—Africa in the west, Asia in the north and Australia in the east.

The Arctic Ocean surrounds the North Pole and lies within the Arctic Circle. It is actually a northward extension of the Atlantic Ocean. It is connected with the Pacific Ocean by a narrow stretch of shallow water known as the Berring Strait. It is bounded by the northern coasts of North America and Eurasia. The greater part of it remains covered with thick ice for most of the year

ATMOSPHERE

The air envelope surrounding the earth is called the ATMOSPHERE. It extends upto some 1,600 kilometres above the earth's surface. In fact about 97 per cent of the air of the atmosphere is found very close to the earth's surface. The air generally becomes thinner as we go up into the atmosphere. At last it becomes so thin that there is no sharp boundary between the atmosphere and the airless outer space beyond.

The air is a mixture of gases such as nitrogen, oxygen, and carbon dioxide. The air near the earth's surface has a fairly constant proportion of these gases, i.e., nitrogen—78 per cent, oxygen—21 per cent and other gases—one per cent by volume. Oxygen may be regarded as the 'breath of life', for without it life would not be possible. Nitrogen alone cannot support life but it helps in the growth of living organisms. Carbon dioxide and water help plants to grow. In its lower parts, the atmosphere contains water vapour, which gives us rain and snow.

The density of the atmosphere varies with height. It is highest at sea level and goes on decreasing rapidly upwards. The temperature of the atmosphere also decreases as we go upwards.

Air has weight and, therefore, it exerts pressure on the earth's surface. We do not feel its weight because the pressure inside and outside our bodies is the same. The pressure of the atmosphere on the earth's surface varies from place to place. The difference in air pressure makes the air

move. Moving air is known as WIND.

The atmosphere serves as a blanket of the earth and maintains a fairly even temperature both at day and night. In its absence the days and nights on the earth would be like those on the moon, i.e., the days would be very hot and the nights would be very cold.

BIOSPHERE

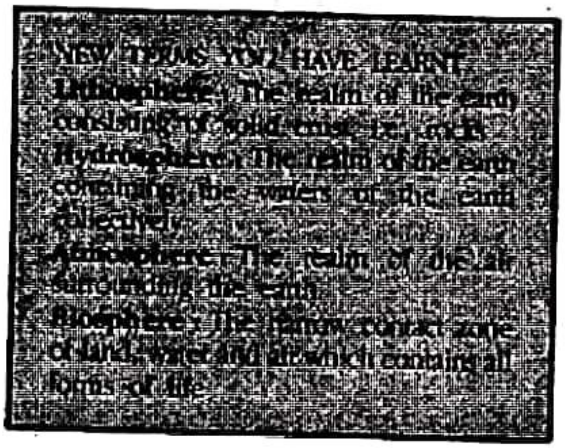
There is a very narrow zone where land, water and air come in contact with each other. Because of an ideal situation, all living things, e.g., different types of organisms and plants are found in this zone. It extends a little above and below the surface of the land and in water and air. This is called the BIOSPHERE. It is a unique feature of the earth.

The organisms in the biosphere vary in size from minute bacteria to huge trees or large whales and elephants. These organisms may be divided broadly into the plant kingdom and the animal kingdom. Human beings are the most important occupants of the biosphere.

All these realms or spheres of the earth affect each other in some way or the other. For example, felling trees may lead to washing off the soil cover. This may increase silting in the river beds and ultimately lead to flooding of the rivers. However, under natural conditions, a balance in nature could be observed. For example, new trees may grow. Similarly, if one part is submerged, some new lands may come up in other parts. But there is a limit to nature's capacity to REGENERATE and to PURIFY itself. In recent years, the number of people has grown fast. Increasing number of people require more and more materials, such as crops, timber, coal, etc. to meet their

Fig. 18 The biosphere

needs. As a result, many of the earth's valuable materials such as forests and coal are exhausting fast. They cannot be regenerated so soon. There is another kind of problem too. To meet our growing needs, we need more and more factories, thermal power stations, railways, motor vehicles and so on. The smoke emitted from the factories, thermal power stations and motor vehicles etc., contains harmful gases and other particles. Besides, wastes from factories and other places are also dumped on land or discharged into water. Upto a certain level, nature can manage to purify itself whether it be the atmosphere or the lithosphere or the hydrosphere. But if these pollutants, i.e., dust particles, smoke and other wastes, are added in large quantities, they start damaging air, land and water. As a result, the total biosphere is affected. We must, therefore, try to restrict the misuse of the materials of the earth. Besides, we should also control the pollution of air, water and land. This would help in maintaining a balance in nature.



Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Which are the realms of the earth?
   (ii) Which two continents are spread on both sides of the equator?
   (iii) What are the three major landforms?
   (iv) Which are the three main gases in the atmosphere?
   (v) Name the oceans of the earth.
   (vi) What is the importance of the biosphere?

2. Make correct pairs from the following two columns.

(a) The highest plateau	(i) Asia
(b) The largest continent	(ii) Australia
(c) The ocean around the North Pole	(iii) Antarctica
(d) The continent around the South Pole	(iv) Arctic
(e) The largest ocean	(v) South America
(f) The island continent	(vi) Africa
(g) The second largest continent	(vii) Pacific
	(viii) Tibet

3. Give one word for each of the following.
   (a) A mass of land considerably higher than the surrounding area.
   (b) A broad and rather level stretch of land rising sharply above the neighbouring lowland.
   (c) A relatively flat and featureless low lying surface.
   (d) A mixture of gases surrounding the earth.
   (e) Very huge bodies of water, generally separated by continents.

SKILLS IN GEOGRAPHY

4. Find out the areas of different oceans and continents and present them in order of their size.

5. Find out about the life of the people in different regions—mountains, plateaus and plains. Which of the three do you like the most?

6. Collect information regarding pollution of the Ganga and efforts to cleanse it.

2
UNIT

AFRICA

Africa stands next only to Asia in size. It occupies about 20 per cent of land area of the earth. But its population is only about three-fifths of that of India.

Africa is a continent of plateaus. These are occupied by thick forests, extensive grasslands and vast deserts. Of all the continents, Africa is most tropical. It lies in the tropical and warm temperate zones. It has a variety of climates, vegetations and animals.

The continent is rich in several resources such as forests, wildlife, minerals and power. The important crops of Africa are millet, wheat, cassava, cotton, groundnut, cocoa, fruits, and some spices like clove.

Africa is a continent of many countries, big and small. A majority of them have become independent only in recent years. Earlier, almost all of them were, like our country, under foreign rule. All of them are now busy with their economic development. They are engaged in improving their agriculture and setting up industries.

You will study about some of these countries in the following pages. They represent some typical natural conditions and human activities. Congo in central Africa, for example, represents a typical equatorial rain-forest. Nigeria in western Africa is a developing country, which lies partly in a forest land and partly in a grassland. The Arab Republic of Egypt is a part of the Sahara desert in North Africa. It, however, owes its prosperity to the river Nile. South Africa lies in warm temperate region but enjoys a moderate climate. It is rich in mineral resources. After a long struggle, against apartheid i.e. a policy of segregation on the basis of the colour of people, the people of South Africa have been successful in forming a fairly elected democratic government.

CHAPTER SIX

Africa – Land, Climate, Resources and their Utilization

TERMS THAT YOU KNOW

Strait : A narrow stretch of water connecting two large bodies of water or seas

Isthmus : A neck of land separating two seas

Waterfall : A sudden descent of water over a big step in the bed of the river

Wildlife : Animals and birds leading a free life in their natural surroundings

The African continent is separated from Europe by the Mediterranean Sea and from Asia by the Red Sea. However, it almost touches Eurasia at three different points: (a) the Straits of Gibralter in the north-west, (b) the Suez Canal in the north-east, and (c) the Straits of Bab-el-Mandeb in the east. By the beginning of the twentieth century several European countries had become so powerful that they had brought most parts of the world under their rule. Almost the whole of Africa had come under the domination of one or the other European power. After Wold War II, the struggle for independence started gaining ground in Africa. Today, the whole of Africa is free from foreign domination. As a result, the political map of Africa has changed rapidly in recent years.

THE LAND

The map shows some of the major landforms of Africa. Almost all of Africa appears to be one huge plateau though it consists of several plateaus. The plateau is higher in the south and in the east. A few volcanic mountain peaks rise above the plateau in the eastern

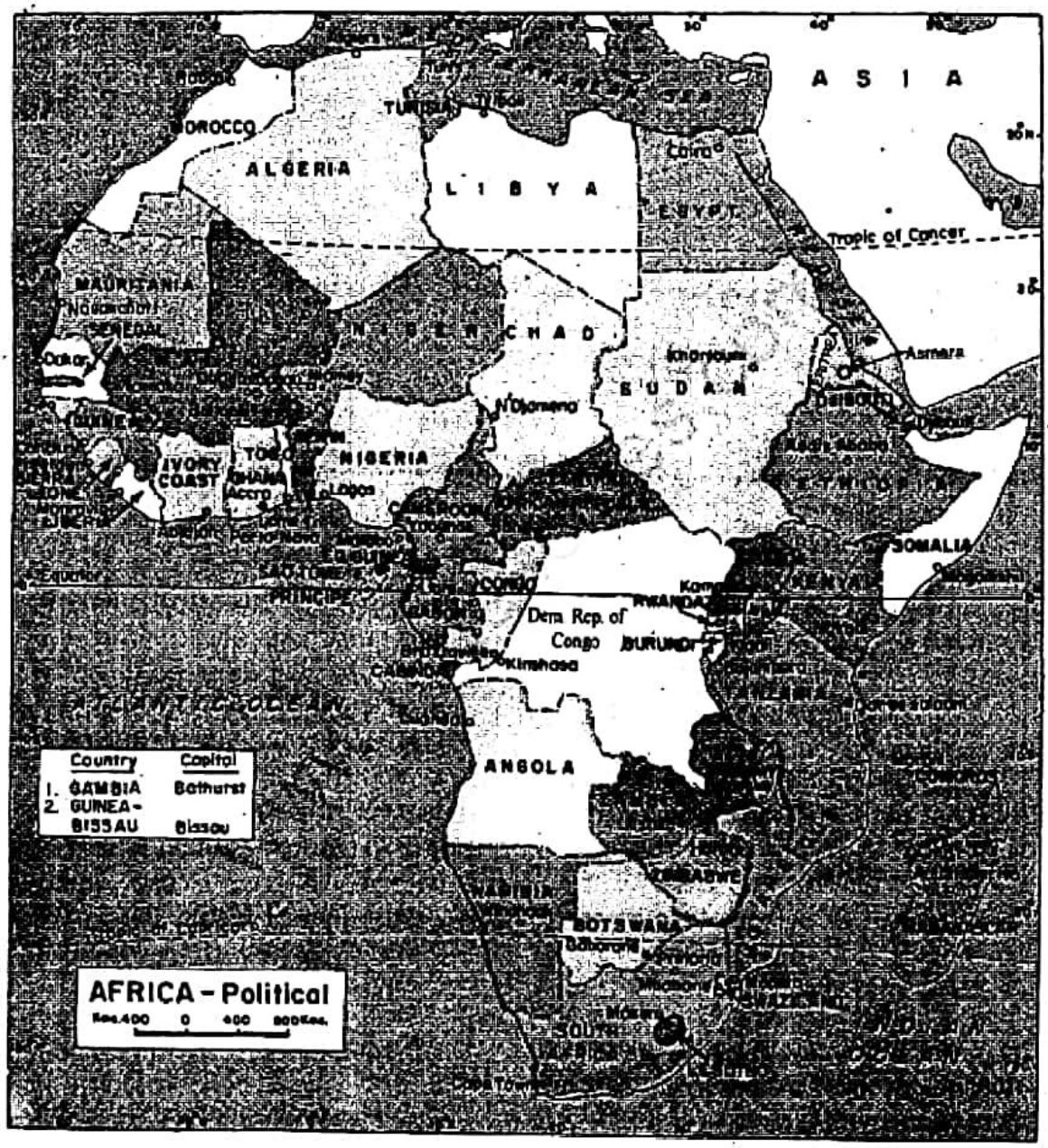


Fig. 19 Africa—political divisions

part near the equator. In fact, the highest peak of Africa is located in this highland region. It is Mount Kilimanjaro with a height of 5,895 metres above sea level. It remains snow-covered throughout the year.

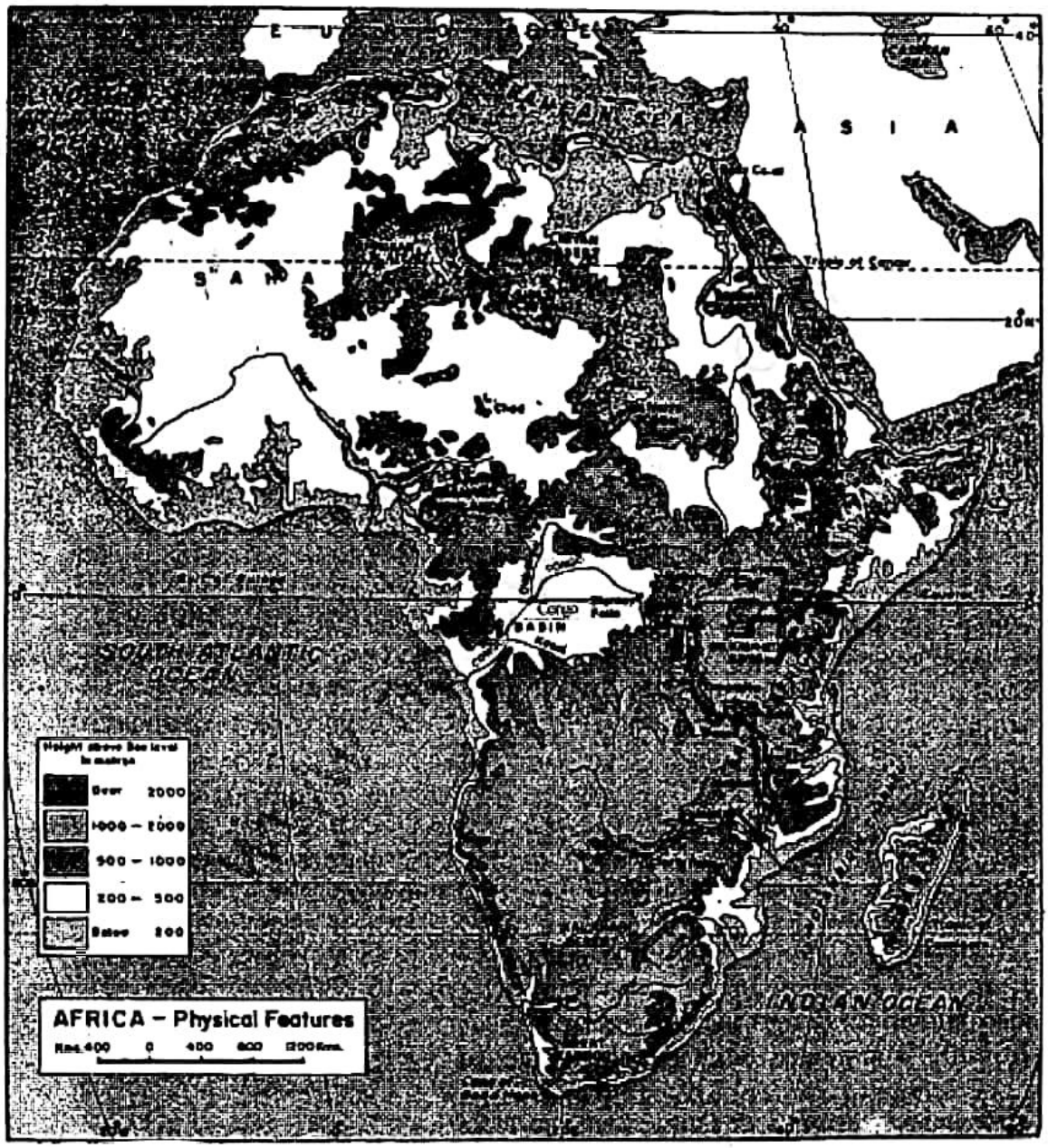


Fig. 20 Africa—physical features

The lowland areas are in the western and the northern parts and along the coast.

One of the special physical features of Africa is its Great Rift Valley. A RIFT VALLEY is a long and deep valley formed due to cracks or rifts in the land. It is bounded by wall-like steep slopes on both sides. In Africa, there is a long chain of such rift valleys running from the south of lake Malawi northward to the Red Sea and then through the Gulf of Suez and the Gulf of Aqfuaba to the Dead Sea. Hence it is known as the 'Great Rift Valley'

Many of these valleys are filled with water called lakes. Therefore, there are several large lakes in the highland region of Africa. Lake Victoria is the largest lake in Africa. It is also the source of river Nile, which is the longest river in the world. It rises in the rainy equatorial region and flows northward. After a long journey through the Sahara desert it reaches the Mediterranean Sea. Another important river is the Zaire in central Africa. It is also known as Congo in the later part. It drains a large area and discharges a huge amount of water into the Atlantic Ocean. In fact it carries the greatest volume of water among all the rivers of Africa. The Niger in the western part and the Zambezi and the Orange in the southern part are the other important rivers of Africa.

Victoria Falls on river Zambezi

A splendid view of the Victoria Falls on the river Zambezi. It's original name in the local language meant 'the smoke that thunders'. While travelling through Africa, Livingstone saw it for the first time in 1855 and named it after Queen Victoria. Notice the width of the fall which is more than 2 kilometres.

With the exception of the Nile and the Zaire, few African rivers can be used for shipping. This is because the rivers drop from the higher plateaus to the coastal lowlands making waterfalls.

Victoria Falls on the Zambezi is higher and wider than even the famous Niagara Falls of North America.

About one-third of Africa is a desert land. The Sahara is the largest desert in the world. It is located in the northern part of Africa. The Kalahari desert in southern Africa is another great desert.

CLIMATE AND NATURAL VEGETATION

Africa extends between 37° 14'N to 34° 50'S latitudes. Thus the major part

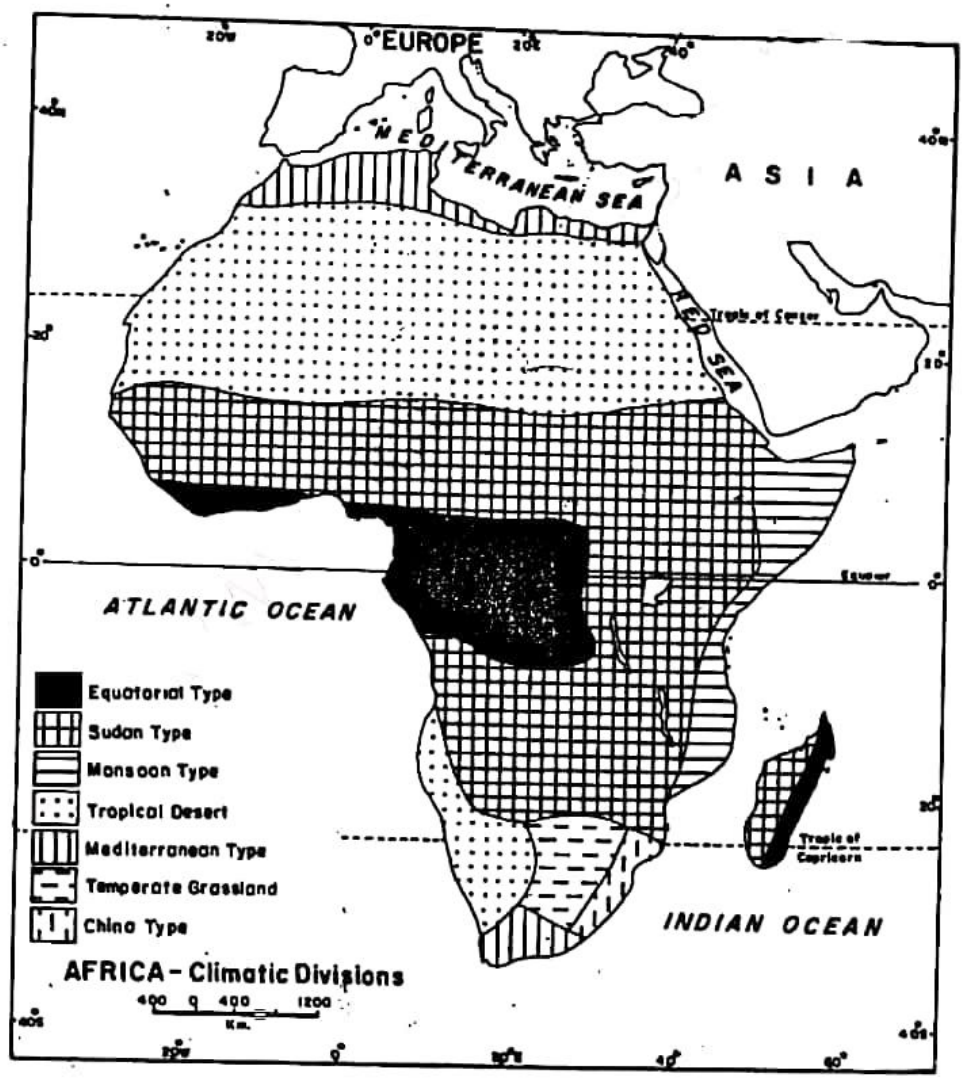


Fig. 21 Africa—climatic divisions

of it lies within the tropical zone. It is, in fact, the most tropical of all the continents. The temperature is very high almost throughout the year. The highest temperature in the world has been recorded at Al-Aziziyah (Libya) as 58°C. Only on the high plateaus and mountains is it somewhat moderate. Even on the plateaus the day temperatures are high although the nights are cool.

There are marked variations in the distribution of rainfall. It has caused wide variations in climate.

The belt lying along the equator on both sides has a hot, wet climate throughout the year. It rains almost daily and there is only one season, namely, the hot-wet summer.

This is known as the equatorial type of climate. Because of the abundance of heat and moisture, most of the region is covered with thick forests called TROPICAL RAIN-FORESTS. It has a varied wildlife.

To the north and south of the rain-forests, there are regions of warm summers and mild winters. In these belts, most of the rain occurs in summer. There is a distinct dry period. Total rainfall is also much less than that in the tropical rain-forests. This climate is known as the Sudan type of climate. This climate is found in a very large part of the continent. Its vegetation is mostly grasses. The tropical rain-forests

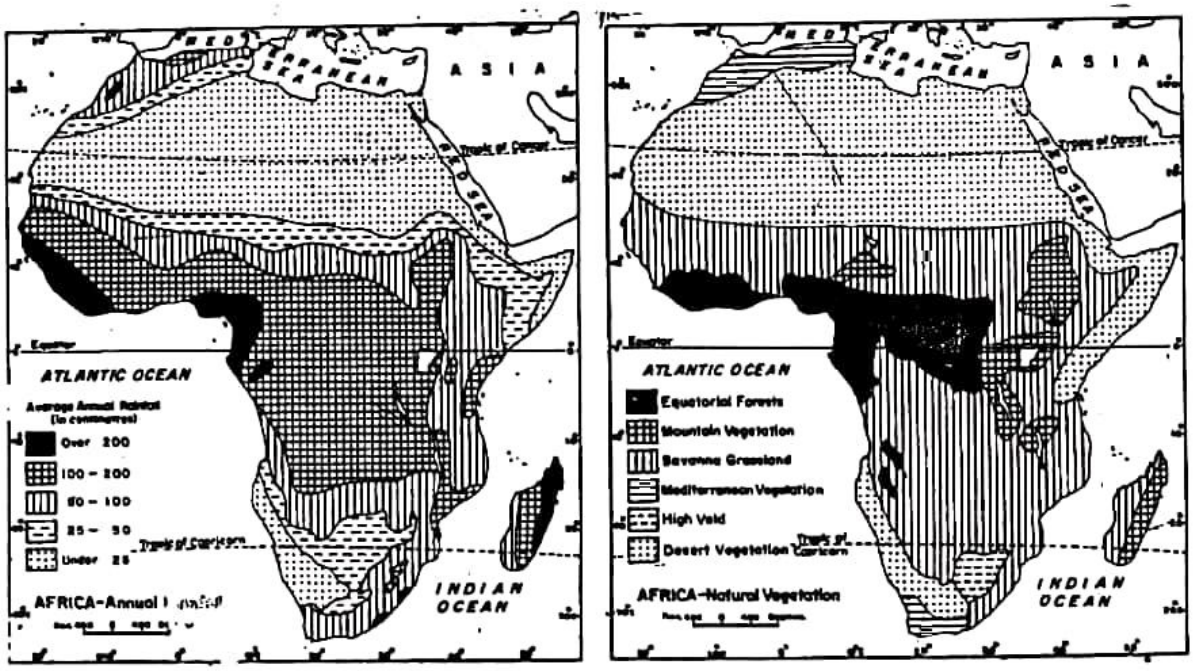


Fig. 22 Africa—annual rainfall and natural vegetation

gradually begin to open up and give place to woodlands, which finally turn into grasslands. The region covered with tall and coarse grasses is known as the SAVANNA. It is the homeland of a variety of grass-eating animals and the wild beasts that live by killing them.

Beyond the savanna, both in the northern and in the southern parts of Africa, there are extensive deserts. They are known as the Sahara in the north and the Kalahari in the south. Temperature is very high. In fact the highest temperature in the world is found here. There is almost no rainfall. The climate is hot and extremely dry known as the desert type of climate. Vegetation is either wholly absent or includes only scrub and bushes.

The northern and the southern coasts of Africa have mild and rainy winters and warm and dry summers. This is known as the mediterranean type of climate.

The climate is cooler in the highlands of southern and eastern Africa.

NATURAL RESOURCES AND THEIR UTILIZATION

The bounties provided by nature to any area are known as NATURAL RESOURCES. They include things such as soil, water, minerals, forests and animals. Africa is rich in several natural resources.

Soil

Soil is one of the most important natural resources. It supports different kinds of plants and trees. Soil is formed very slowly. It takes hundreds of years to form a one centimetre thick layer of soil.

Some soils are better suited for crops. Such fertile soils are usually found in the river valleys and plains. However, some of the less fertile soils can also be made fertile by adding fertilizers. But some soils are not at all suitable for crops, though they can support other kinds of plants or grasses.

In Africa, only 10 per cent of the soil is suitable for crops. It includes the volcanic soils of east Africa, the alluvial soils of the Nile valley and certain soils of the savanna lands, which are very fertile. In other parts of the continent, climatic conditions and the nature of the landform have been unfavourable for the formation of good soil. However, a very large part of central Africa is under forest cover, which is also an important natural resource of the continent.

Water

A large part of Africa is dry. However, the remaining parts get good rainfall. There are many rivers which carry plentiful rain-water throughout the year. A good deal of this water is used for irrigation. Many rivers reach

the sea through a series of waterfalls because they flow from the higher plateau areas on to the lower coastal plains. As such ships and boats are prevented from sailing very far upstream. These can, however, be used for the development of hydro-electricity.

The Kariba dam on the Zambezi is the largest producer of water-power in Africa. The Aswan dam on the Nile in Egypt is another very big dam.

Minerals

Africa is very rich in several valuable minerals. It leads the countries of the world in the production of diamond, gold and platinum.

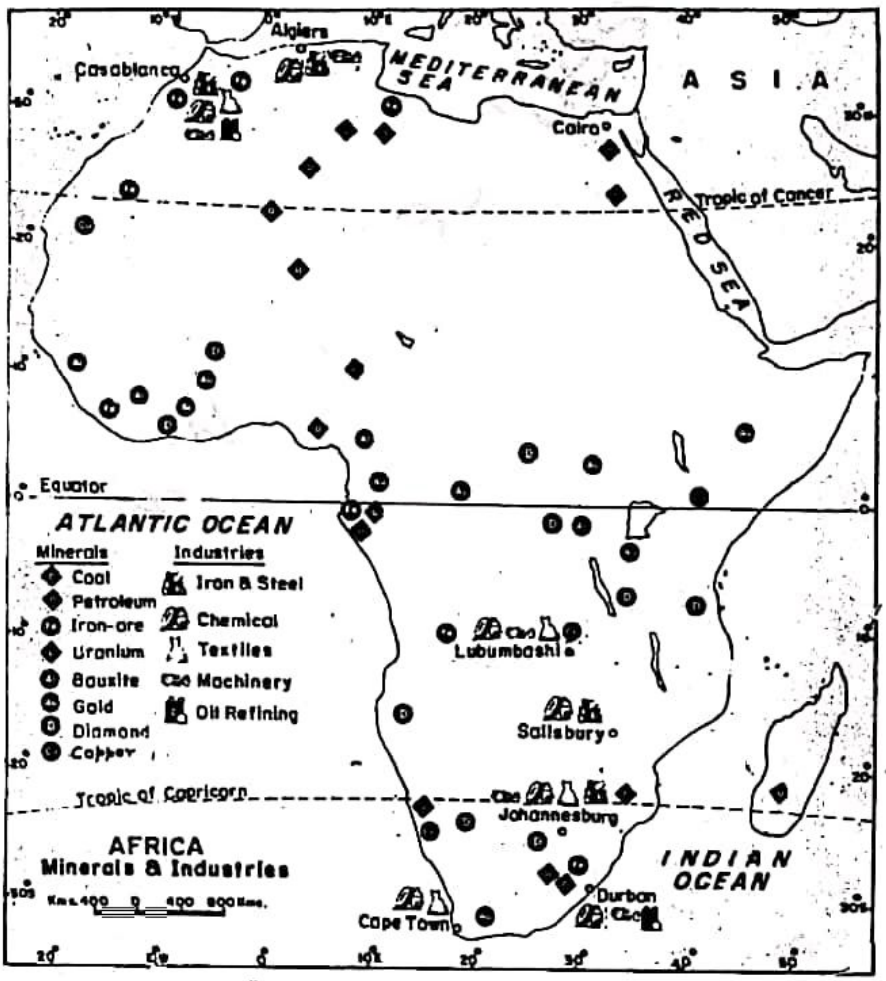


Fig. 23 Africa—minerals and industries

More than 95 per cent of the world's diamond production comes from Africa. The price of diamond depends on its size and brightness. Good quality diamonds, often used in jewellery, fetch a high price. Inferior quality diamonds are used for industrial purposes.

Africa is responsible for more than half the world's gold production. South Africa is the major producer of gold and platinum in Africa. As you know, gold is used for making ornaments but its greatest value lies in the fact that it serves as the basis for issuing currencies in all the countries of the world.

Africa has large reserves of cobalt, manganese, chromium, copper, tin, bauxite, and uranium. But there is not much coal and iron ore in this continent. This has hampered the production of steel, which is so important for modern industrial growth. In the past, most of these resources were used recklessly by the European powers, who exported them in large quantities. As a result, several large copper mines are now closed. Today, the independent nations of Africa are facing the problem of finding out ways by which these resources could be utilized wisely for their economic prosperity. Cobalt and manganese, which are mixed with iron to make steel, are found in the southern half of Africa. South Africa leads the countries of the world in the production of chromium, a metal which does not rust. Congo and South Africa are the main producers of copper (which is used for making electric wires), bauxite (which yields aluminium) and uranium (which is used in producing atomic energy). Petroleum is found in many parts of Africa such as Nigeria, Libya and Angola.

Forests

Forests and trees are very important sources of wealth. Besides timber, many other products are obtained from them. Large parts of central Africa are covered with thick forests. They yield hardwood which may be used as timber. They have many valuable trees such as mahogany, ebony and kapok.

Rubber trees grow wild in these forests, though they are native to South America. However, they are now being planted properly. Africa exports rubber in large quantities.

Three different types of palm trees are found in Africa. They are coconut palm, oil palm and date palm. Coconut palms are found in the tropical islands (such as Zanzibar and Pemba) and along the equatorial coasts such as Tanzania. They yield copra from which coconut oil is obtained. Oil palm, from which palm oil is obtained, is common in west Africa. Nigeria exports a good deal of this oil. Date palm grows in the

oases in the drier regions. Dates constitute an important item of food for the local people. Egypt exports a large amount of dates.

Collecting cocoa pods

Cocoa is one of the most important cash crops of Africa. The photograph shows a collection centre in Ghana where fresh cocoa pods are being packed in sacks. Notice the shape and size of the cocoa pods.

Cacao and kola are trees which provide us beverages. Cocoa is obtained from the cacao trees. Like coffee, it is a very popular drink and is also used for making chocolate. Cacao grows well in the equatorial lowlands. West African countries, such as Ghana and Nigeria, export a good deal of cocoa. Kola trees yield nuts which are used in preparing cola drinks and chewing gum.

Africa has a large variety of fruit trees. In the tropical region, banana, pineapple, papaya, jackfruit and mango are common. Citrus fruits such as lemon, orange and lime are also grown here. The mediterranean regions grow olives, apples, peaches and grapes. East Africa produces cashewnuts. Zanzibar and Pemba islands are the biggest producers and exporters of cloves in the world.

Wildlife

There is an abundance of wildlife in Africa. The extensive equatorial forests and swamps as well as the huge grasslands are ideal homes for a variety of birds and animals.

Elephants, wild buffaloes, snakes, pythons, monkeys, hippopotamuses and rhinoceros are some of the important animals found in the forests and swamps. Deer, stag, zebra and giraffe belong to the open woodlands and grasslands. Some animals such as lions prey on these grass-eating animals. Camels are found in the deserts. The ostrich, a large, fast-running bird, is found in the Kalahari desert.

Wild animals and birds are important natural resources. Previously they were hunted for their skins, bones, horns, tusks and feathers, which

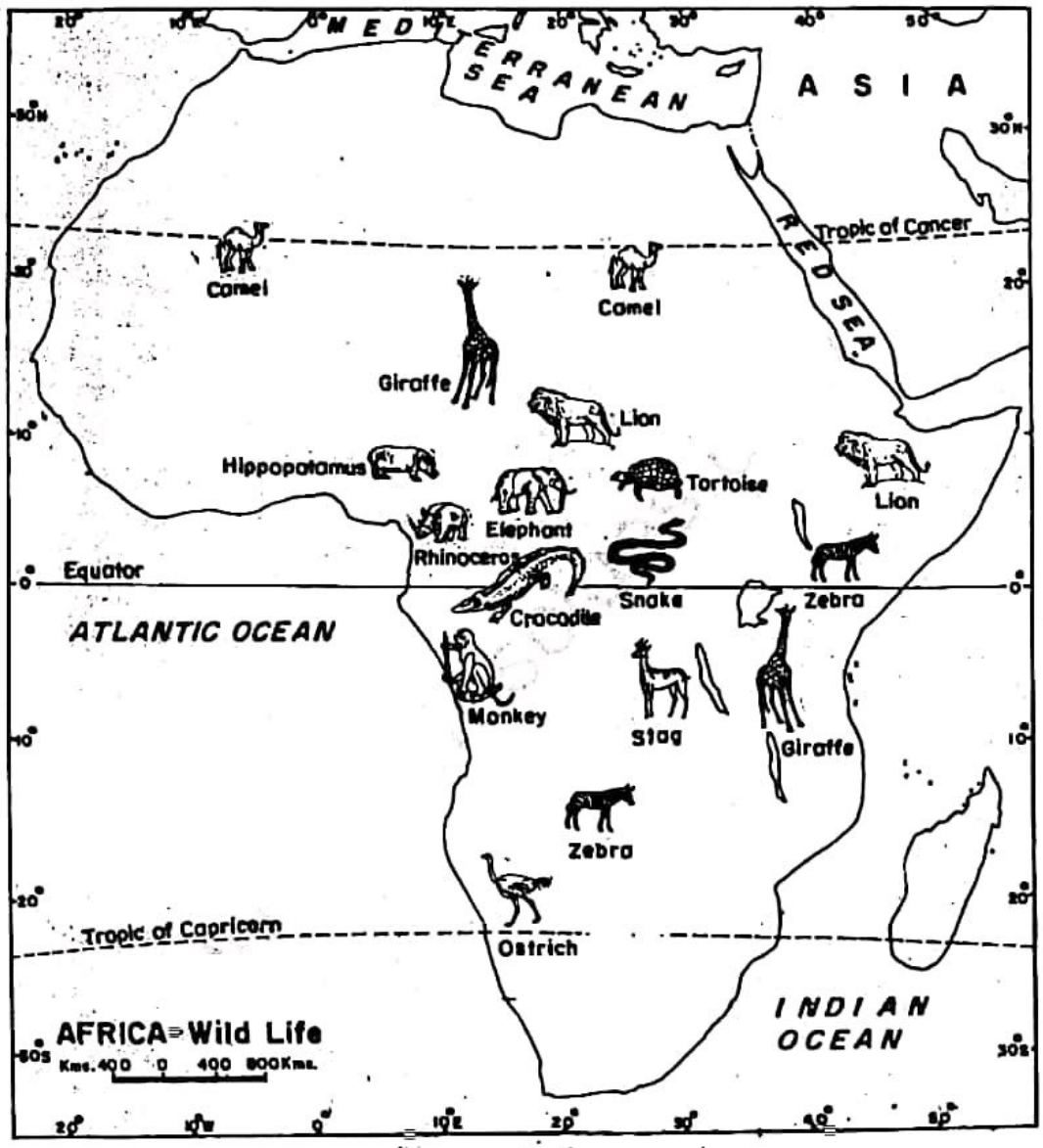


Fig. 24 Africa—wildlife

were sold for good prices. As a result, the number of these animals and birds reduced. The governments of the different countries of Africa have, therefore, made laws against unlicensed hunting. Several wildlife sanctuaries and national parks have been developed. These are restricted woodlands and forests where hunting is not allowed. The animals can live freely in their natural surroundings. Tourists from all over the world visit

these national parks to watch wildlife in natural surroundings. Tourism is thus a fast growing industry which provides good income to the local people. However, hunting of these animals has not stopped completely, and so there is a need to enforce the laws.

In the higher savanna regions of eastern, northern and western Africa, cattle grazing is very important. Large herds of cattle are owned by nomadic tribes, who move from one place to another with their herds.

Crops

Different kinds of crops are grown here. Some crops are grown by the people for food. These are called FOOD CROPS. There are other crops which are

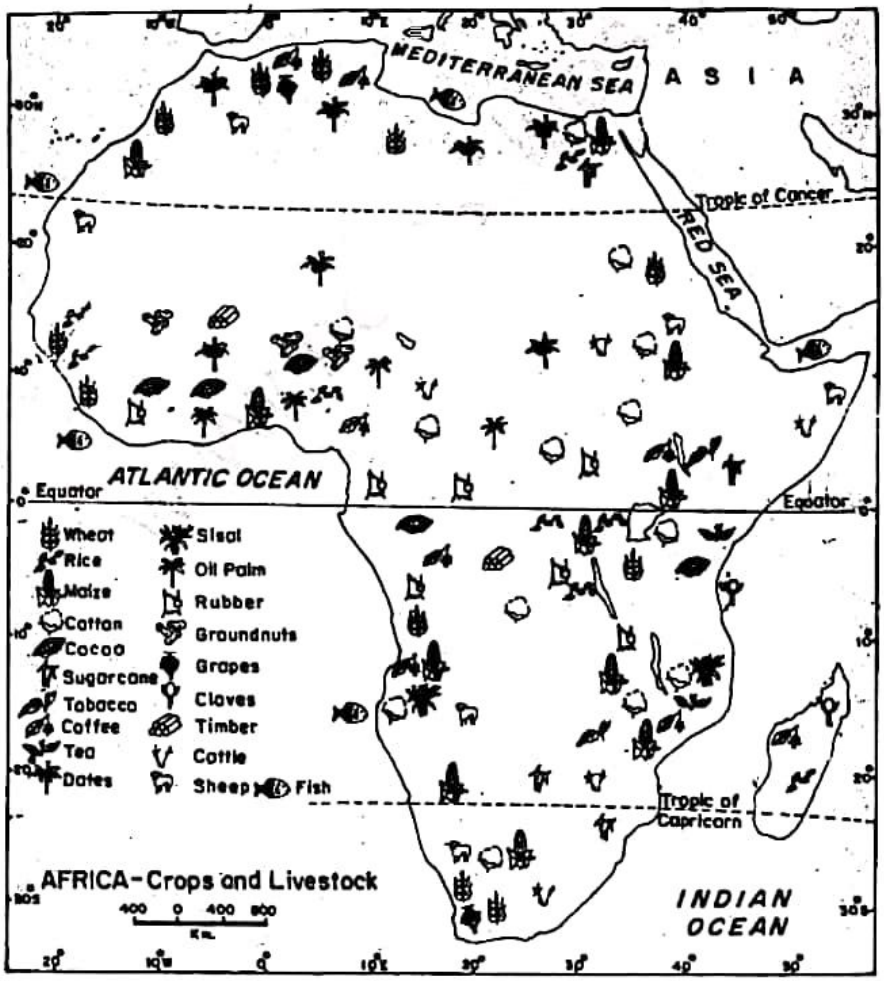


Fig. 25 Africa—crops and livestock

grown mainly for manufacturing industries. These are known as CASH CROPS.

Most of the food crops of Africa are root crops such as yam and cassava. With the exception of maize, cereals are not very important. Wheat, rice and millets like sorghum are grown only in small quantities.

Amongst the cash crops, palm oil, groundnut, cocoa, coffee, cotton and sisal are important.

Palm oil and groundnut are produced mainly in west Africa. Cocoa and coffee from Africa constitute about 60 and 24 per cent of world trade respectively. Cotton has been grown in the Nile Valley for several thousand years. About nine per cent of the world's trade in cotton comes from Africa. Sisal is a vegetable fibre that is used in making ropes and sacks. Africa is one of the world's largest producers and exporters of sisal. In fact, Tanzania leads the countries of Africa in sisal production. Sisal plants thrive well on poor, sandy soils. They are reared in a nursery. Afterwards they are planted in rows in large fields. After three or four years, their leaves are cut off and crushed by machines. The fibre is left, which is dried and made into ropes and sacks.

The islands of Zanzibar and Pemba are famous for cloves and coconuts. They produce about nine-tenths of the world's cloves. The clove trees grow to a height of about 12 metres. They have long, dark and shining leaves. The creamy pink buds of the trees are picked just before they burst open. Picking must be done within a very short time. The picking season is a very busy time.

In the past few years, many African nations increased their production of cash crops. This could provide them money to build dams, industries, transport and communication lines and improve their living conditions. Hence, the area under food crops decreased in many countries. In some parts of Africa, drought conditions are prevailing because of the failure of rainfall for many years. There has been acute food shortage in several countries of Africa.

THE PEOPLE

It is difficult to describe the people of Africa as there is so much of variety as well as overlapping of languages and customs.

About 70 percent of the people are the Blacks. The rest of them have come from other parts such as Europe and Asia. Most of the Africans belong to different groups called *tribes*, with their own languages and customs. Some of these tribes are very large having millions of members spreading over different parts of the continent. However, some of these tribes have only hundreds of people.

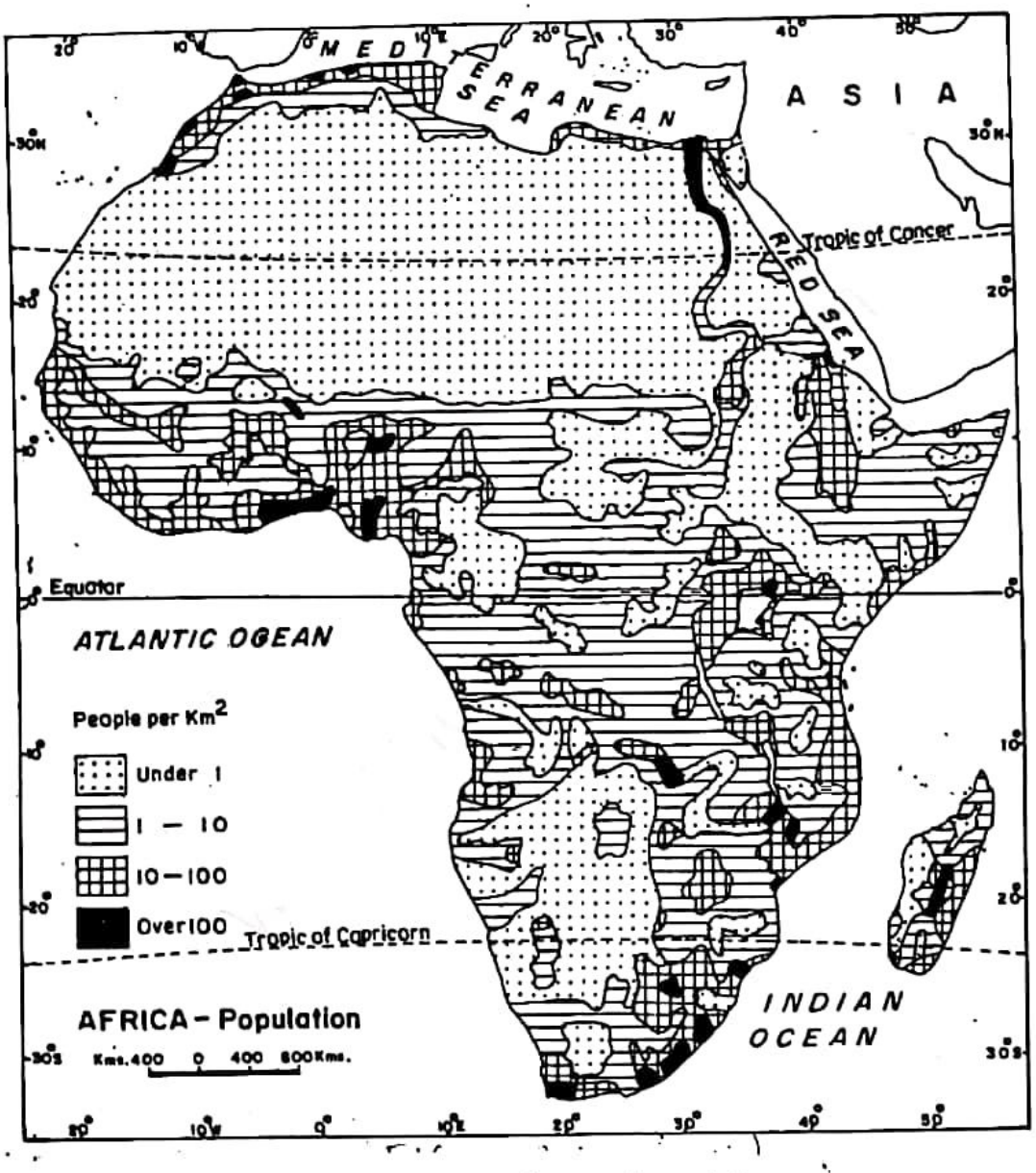


Fig. 26 Africa—distribution of population

Like in our country, several hundred languages are spoken here. This presents problems in communication. Many Africans, therefore, find it useful to be able to speak at least two languages like us. One is the local language or dialect. This enables them to communicate with people in their own village or tribe. In addition, they learn to speak

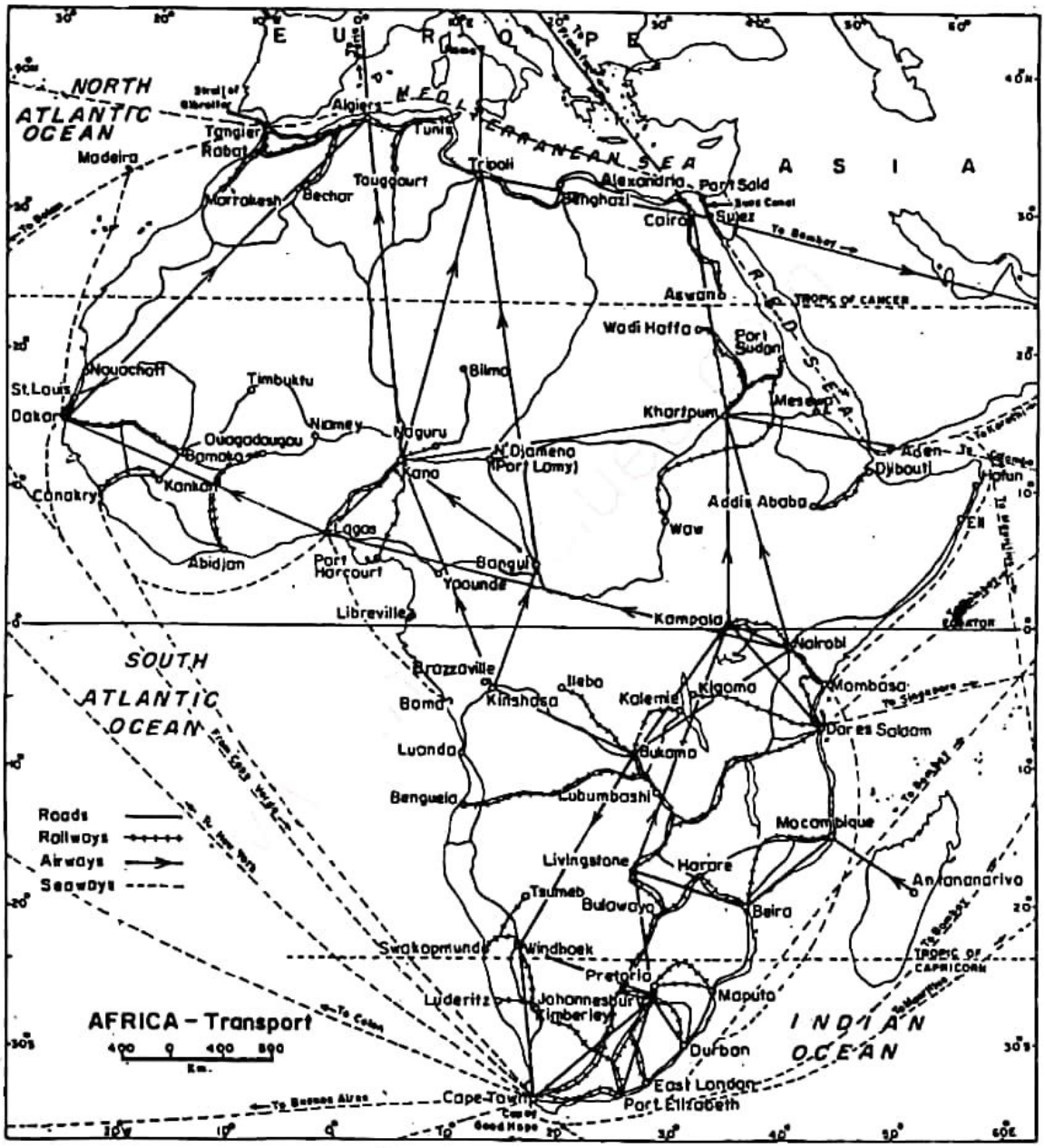


Fig. 27 Africa—transport lines, major cities and ports

French, Italian, English, Arabic or Swahili. SWAHILI is a language which is understood by many people. Different religions such as Islam, Christianity and Animism are followed by the people of Africa. ANIMISM is the religion followed by many tribes. It is based upon love and respect of nature.

The total population of Africa is about 778 million. If it is distributed uniformly over the whole continent there will be only 26 persons per square kilometre. In other words, DENSITY OF POPULATION in Africa is 26 persons per square kilometre. We may, therefore, say that it is a thinly populated continent. The actual distribution of population is, however, uneven.

Look at the population map and note the vast spaces which are unpopulated. The Sahara desert in the north and the Kalahari desert in the south-western part have very little population. Why are these regions thinly populated? Why do we find a dense population in the valley and the delta of the Nile and some parts of west Africa?

TRANSPORT

Africa does not have enough means of transport. The extensive deserts and thick forests hinder the construction of roads and railways. Rivers are useful only for local transportation. The presence of waterfalls makes them largely unnavigable. Railways and roads are not well developed. Mostly they link the mining and other important centres with the coast. Air transport is becoming more and more important but it is costly.

Look at the map in your atlas and note the railway routes in south, east, north-east and west Africa. Locate on the map the two sea routes of the world, one passing through the Suez canal and the other going around the Cape of Good Hope.

Africa is a continent of great promise because it has vast natural resources. The new independent countries of Africa are making great progress in developing their agriculture, industries and transport routes. India and many other nations are helping African nations to develop their resources.

NEW TERMS YOU HAVE LEARNT

Rift valley : A long and deep valley with steep slopes on both sides, formed due to a crack or a rift in the land

Tropical rain-forests : Dense and thick forests of the equatorial region where the temperature and rainfall are very high

Savanna : The tropical grasslands in Africa having tall and coarse grasses

Density of population : The average number of persons per unit area, i.e., square kilometre

Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Which mountains lie in the north-western and south-eastern parts of the continent?
   (ii) Why do most of the rivers in Africa have waterfalls before they flow into the sea?
   (iii) Why has there been a serious food shortage in some countries of Africa ?
   (iv) Which are the thickly populated parts of Africa?
   (v) Which language of Africa is understood by many people?
   (vi) Name two trees which give citrus fruits.

2. Make correct pairs from the following two columns:

(a) The world's longest river	(i) Congo
(b) The African river discharging a huge amount of water into the Atlantic Ocean	(ii) Kariba
(c) The desert of northern Africa	(iii) Kalahari
(d) The dam on the Nile	(iv) Nile
(e) The dam on the Zambezi	(v) Aswan
(f) The desert of southern Africa	(vi) Sahara

3. Some of the trees and plants found in Africa are sorghum, ebony, kola, wheat, mahogany, sisal, cotton and cacao. List them under the following categories.
   (i) Trees which give hardwood
   (ii) Trees which give fruits for making beverages
   (iii) Plants which yield fibre
   (iv) Plants which produce cereals

SKILLS IN GEOGRAPHY

4. On an outline map of Africa show the following.
   (i) Rivers—the Nile, the Congo the Zambezi, the Niger and the Orange
   (ii) Mountains—the Atlas and the Drakensburg
   (iii) The Kalahari Desert
   (iv) The islands of Zanzibar and Pemba
   (v) Lake Victoria

5. Make a list of the countries of Africa and write down their capitals.

6. Prepare a model of the river basin of Congo

7. Collect information regarding different tribes of Africa.

8. Collect information about the adventures of David Livingstone, who explored central Africa.

CHAPTER SEVEN

Land of Forests–Democratic Republic of Congo

TERMS THAT YOU KNOW

Cassava : An important plant of the tropical region. The roots of the plant are eaten as food.

Export : Goods and services sold by one country to another country

Congo was ruled by Belgium for a long time. But it became an independent country in 1960. It is about three-fourths the size of India but it has a small population which is just a little more than that of Kerala State. See the location of Congo in the map of Africa.

LAND AND CLIMATE

The greater part of Congo lies within the basin of river Congo from which it has derived its name. The Congo basin is a large saucer-shaped depression surrounded by plateaus. The Congo is one of the largest rivers of the world. But it is navigable only in parts because it has numerous waterfalls and rapids, i.e., small waterfalls.

Congo lies in the equatorial-region and so it has high temperature and heavy rainfall throughout the year. The abundance of heat and moisture causes plants and trees to grow very rapidly. The land is, therefore, covered by tropical rain forests. These forests are evergreen because all trees do not shed their leaves at the same time. In these dense forests trees compete with each other for sunlight and become very tall. Many of them reach a height of 40 metres or more. Trees of several species are found in a very small area. Below the tall trees there are several small trees. Beneath them is a mat-like green cover of grasses, shrubs and climbers. Because of the trees and the undergrowth, it is very difficult to travel in these forests. River courses are the only means by which one can travel in these forests. The foliage in these forests is so dense that the rays of the sun hardly reach the forest floor. These forests are, therefore, dark and gloomy.

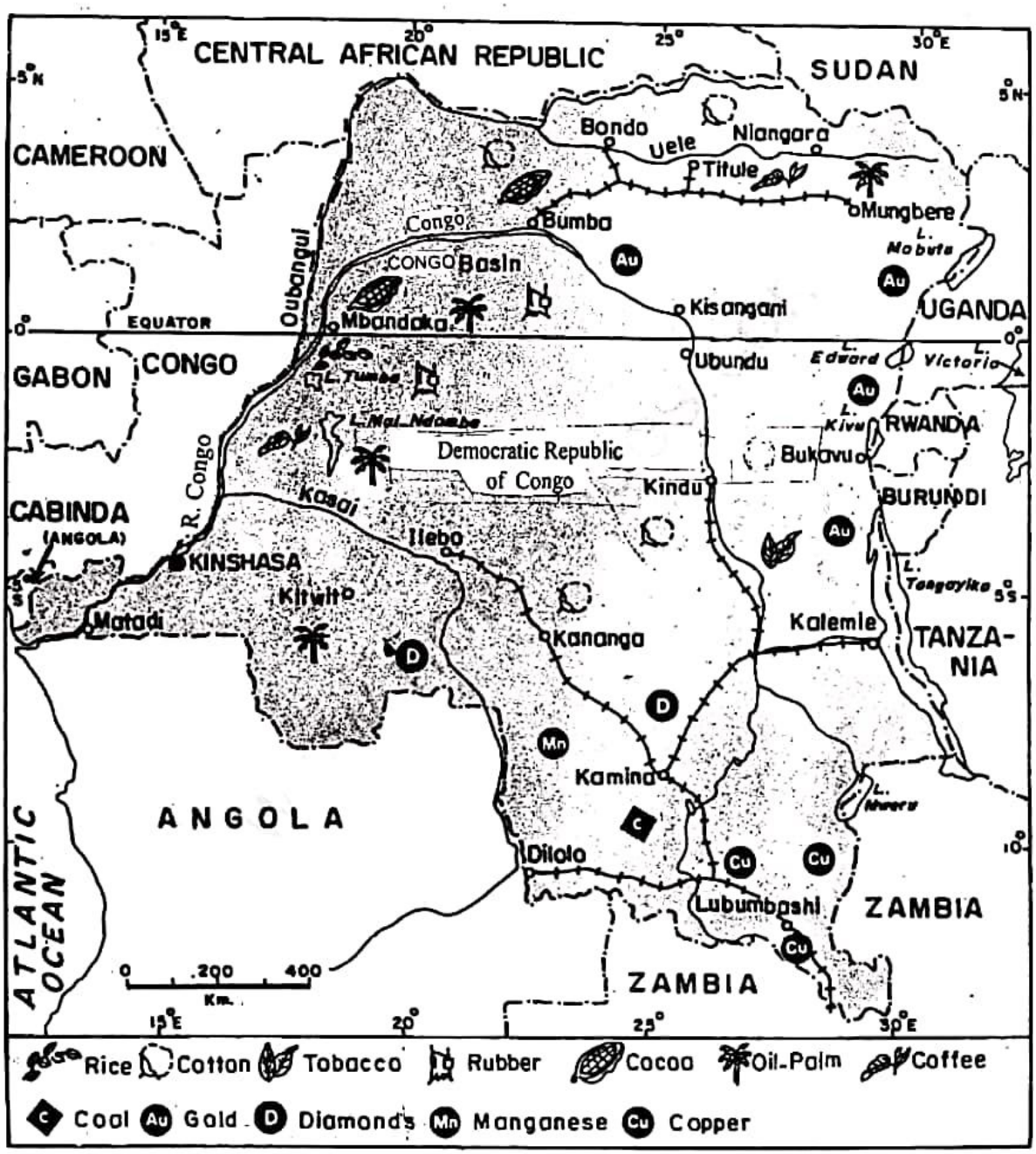


Fig. 28 DEMOCRATIC REPUBLIC OF CONGO

On both sides of the rain-forests, sayanna grasslands are found.

RESOURCES AND THEIR UTILIZATION

Congo is rich in several natural resources such as forests, wildlife, soil, minerals and water power. Agriculture and mining are the two important economic activities of the people.

Forests

A large part of the country is covered with equatorial or tropical rain-forests. Though they contain one of the largest reserves of hardwood in the world, they have not yet been utilized much.

Wildlife

Congo is often called a gigantic zoo because of its large variety of wildlife. Snakes, pythons, monkeys, elephants and hippopotamuses are some of the examples of animals living in the forests and swamps of Congo. Besides, a variety of birds also live in its forests.

Soil and Crops

Although Congo is a lowland, only one-fifth of its total land is under cultivation. It is because of its vast forest cover.

The principal food crops grown here are rice, maize, cassava and sorghum. Rice is grown in the north, the north east and in the Kasai province in the south. Maize is grown in the savanna region. Cassava is a kind of tuber. Its plant grows to a height of about a metre and a half. The tuber is dried and pounded into flour.

Cash crops such as rubber, coffee, cotton and oil-palm are grown just for export. Cattle-rearing is done on the highlands especially in the savannas.

Methods of agriculture are mostly traditional. The food crops are used mainly by the families producing them. Efforts are being made to improve agriculture by providing fertilizers and using new methods of farming.

Minerals and Industries

Congo has vast reserves of copper, diamond, cobalt, tin, zinc, manganese and uranium. They are found mainly in the southern province of Shaba (Katanga). It is one of the largest producers of copper and industrial diamond in the world. Most of the minerals extracted within the country are exported.

Most of the industries in Congo process agricultural and mineral products for export. They are located mainly in Likazi (Jodotville) and Lubumbashi (Elizabethville).

Water Power

There is huge potentiality for water power. It has a number of dams and hydel power stations. It also supplies water power to its neighbouring countries—Congo and Burundi.

However, there is a lot of scope for future development.

THE PEOPLE

The people of the country are mainly the Blacks. They, however, belong to different tribes. Nearly two-thirds of the population consists of the Bantu-speaking Blacks.

Its total population is about 49 million. Because of the country's huge size, the density of population is low, i.e., about 20 persons per square kilometre

Congo is mainly rural. However, the number of people now living in urban areas is growing very fast. In fact, the rate at which the towns and cities have developed in Congo is one of the highest in Africa. Many of these urban centres were developed by the European settlers. They are similar in appearance to any city of a developed country. Kinshasa is the largest city and is the capital of Congo. Lubumbashi (Elizabethville) and Kisangani are other important cities. Matadi is the chief port of the country which is situated on the river Congo.

NEW TERM YOU HAVE LEARNT

River basin : A large area drained by a single river and its tributaries.

Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) In which river basin is Democratic Republic of Congo located?
   (ii) Why is the river Congo navigable only in parts?
   (iii) What is an evergreen forest?
   (iv) Which are the main food crops of Congo
2. What are the characteristics of equatorial rain-forests? Why have these forests not yet been used much?
3. Why are most of the minerals from Congo exported and not used?
4. Explain how cassava is grown and used.

SKILLS IN GEOGRAPHY

5. In an outline map of Congo, locate the important cities and ports.

6. Study the maps given in this lesson and answer the following questions.
   (i) Why does a large part of northern Congo not have a railway line?
   (ii) Which countries form the southern boundary of Congo?
   (iii) Name the neighbouring countries of Congo?
   (iv) Which parts of Congo have copper mines?

7. 'Although Congo is rich in minerals it is industrially backward'. Discuss this topic in your class.

CHAPTER EIGHT

Land of Palm Oil — Nigeria

TERMS THAT YOU KNOW

Tributary: A stream or river which joins a larger river.

Hydroelectricity: Electricity produced by the force of falling water on turbines.

Nigeria is located in the western part of Africa. In population it leads all the countries of Africa. It is one of the wealthiest and most progressive countries of the continent.

LAND AND CLIMATE

Nigeria is a country of lowlands and plateaus. The coastal area in the south is a lowland covered with rain-forests. The surface of the land is undulating, i.e., it rises and falls so that it looks like waves.

Further north, lies the Plateau of Jos where woodlands gradually give place to grasslands. The extreme north of the country merges with the Sahara Desert.

The Niger is the most important river after which the country is named. It drains the greater part of Nigeria before it falls into the Gulf of Guinea. Rivers of the north-eastern part of the country flow into lake Chad, thus forming an inland drainage system, i.e., one where the rivers do not reach a sea or an ocean.

Coastal Nigeria has an equatorial type of climate and has rainfall throughout the year. In the interior there is a marked dry season in summer. Hot and dust-laden winds often blow from the north east during this season known as the HARMATTAN.

RESOURCES AND THEIR UTILIZATION

Crops

Nigeria is mainly an agricultural country. The major part of its land is

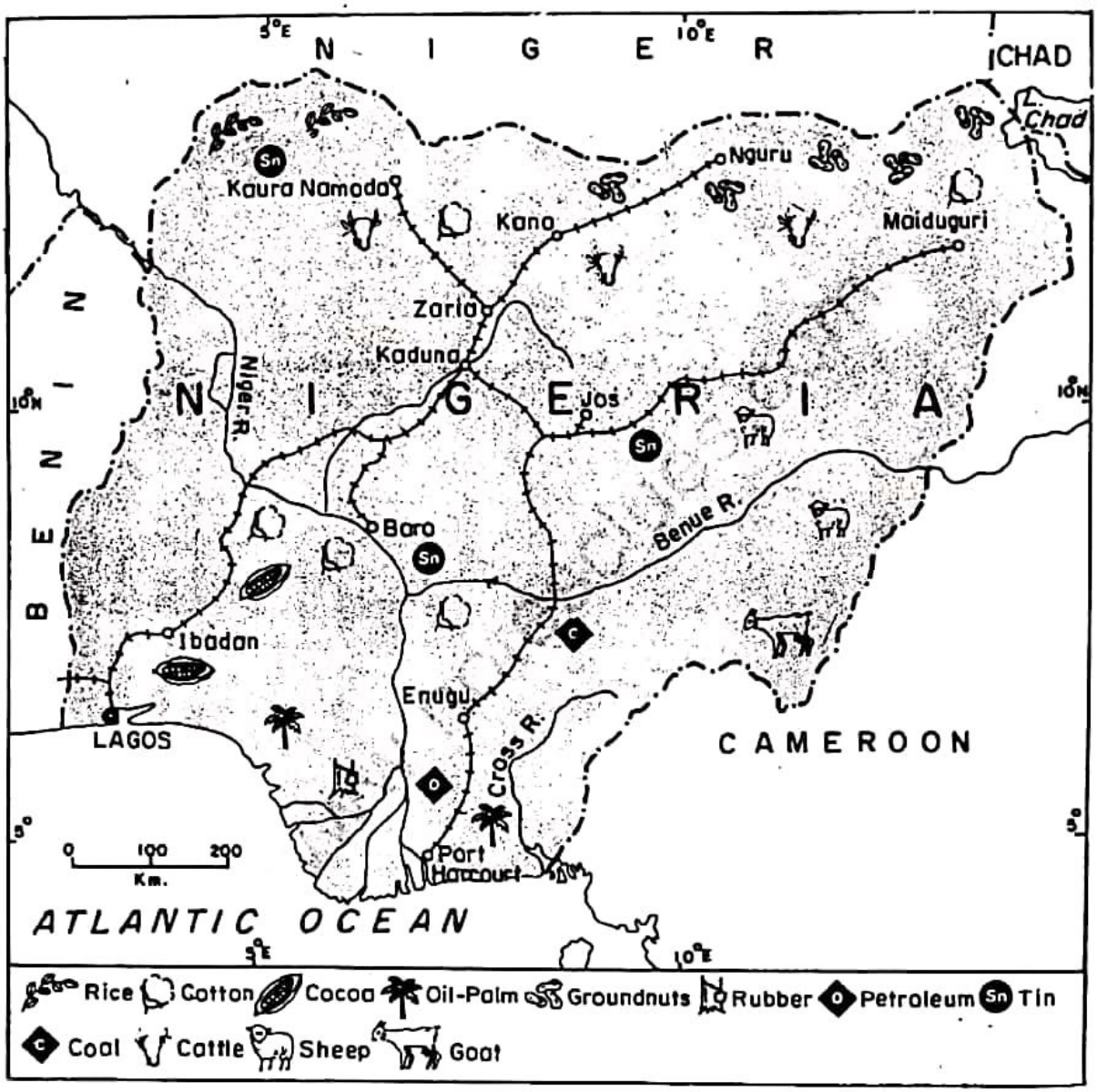


Fig. 29 Nigeria

under food crops which are consumed locally. They include yam, cassava, millet, maize, sweet potatoes, rice and beans. The country is self-sufficient in food and is very important for certain agricultural exports. It is the world's largest exporter of palm kernels, palm-oil and groundnuts. It is the second

largest producer of cocoa. It also produces cotton, rubber, tobacco and bananas.

The oil palm tree grows very well in the equatorial climate. It reaches its full height of approximately 12 metres in about fifteen years. The fruits of the tree grow in clusters. Oil is extracted from the hard nut as well as from the pulp of the fruit by simple, crude methods or by machines. The chemical properties of the two oils are different. It is used in making margarine, soap, candles, hair-oil and other things.

Animal Rearing

It is important in the northern grasslands. Cattle, goats and sheep are reared. The goat-skins are supplied to the leather industries of Nigeria.

Forests

One-third of the country's total area is under forest. Timber and plywood are the important exports.

Water Power

Nigeria is rich in water power resources. Kainji dam has been constructed on the river Niger. There are four hydel power stations in Jos in the north.

Minerals and Industries

There are large reserves of tin and columbite in the central plateau. They are exported on a large scale. Nigeria also possesses iron, lead, zinc, manganese and limestone. It is the only coal producing country of western Africa. It is one of the largest mineral oil producing countries of Africa. In the 1970s it experienced a real oil boom because of increased production. This affected the economic condition of Nigeria in many ways. On the one hand it helped in earning more money for the country, and on the other it affected agriculture adversely. Increased income generated demand for services of all types. As a result the percentage of people employed in services increased from about 10 in 1970 to 57 in 1990 But the percentage of people engaged in agriculture dropped from 75 in 1970 to 43 in 1990

Nigeria has several industries such as textiles, food processing, leather and tanning, oil mills, cigarettes, rubber factories and metal works.

The transport and communication system of Nigeria is one of the best in Africa.

THE PEOPLE

The majority of the people are the Blacks. They, however, belong to different tribes.

Nigeria has a population of 121 million. The density of population is about 131 persons per square kilometre. The density of population is comparatively higher in the south-western and south eastern parts than in the rest of the country.

Lagos is the capital city of Nigeria. Lagos and Port Harcourt are the

principal ports. Ibadan is the largest city and an important trade centre. Important industrial centres are Kano, Kaduna and Jos in the north and Lagos and port Harcourt in the south.

NEW TERM YOU HAVE LEARNT
Inland drainage : A river system in which rivers do not reach the sea or the ocean.

Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) How did Nigeria receive its name?
   (ii) Which industries are found in Nigeria?
   (iii) Name the river on which the dam in Nigeria is located. Also name the dam.

2. Make correct pairs from the following two columns.

(a) The capital city of Nigeria	(i) Kano
(b) An important part of Nigeria	(ii) Cocoa
(c) An important trade centre of Nigeria	(iii) Lagos
(d) The most important cash crop of Nigeria	(iv) Port Harcourt
(e) An important industrial centre of northern Nigeria	(v) Ibadan
	(vi) Accra
	(vii) Palm oil

3. What are the major crops of Nigeria? What climatic factors are responsible for their growth?

4. In what ways has the oil boom in Nigeria affected its economic condition?

SKILLS IN GEOGRAPHY

5. In an outline map of Nigeria show the following with suitable symbols.
   (i) A dam on river Niger
   (ii) Important business centre of the northern region
   (iii) The railway line joining Kano and Lagos
   (iv) Areas producing mineral oil.

6. Collect information about and pictures of the land and people of Nigeria.

CHAPTER NINE

The Gift of the Nile— the Arab Republic of Egypt

TERM THAT YOU KNOW

Gulf : A small area of the sea penetrating into the land. It is usually of a larger extent than a bay.

The Arab Republic of Egypt is situated in Africa but it is at the junction of two continents, namely, Africa and Asia. Until the Suez Canal was constructed, the isthmus of Suez formed a land bridge between Africa and Asia. The Suez Canal serves as a very useful and convenient gateway of international trade between the countries of the east and the west.

Look at the map and note the neighbouring countries of Egypt. You will notice that Egypt is a part of the Great Sahara Desert which occupies nearly half the northern part of Africa. A very small part of Egypt lies in Asia also. The life-giving waters of the Nile have made it one of the richest and most thickly populated lands of Africa. No wonder the Egyptians consider their land the gift of the Nile! The Nile Valley has been the home of one of the oldest civilizations of the world.

LAND AND CLIMATE

The larger part of the country is a desert because of scanty rainfall. This part is almost wholly uninhabited. Hot, dry and sand laden winds blow from the south during early summer, i.e., April and May. These are known as KHAMSIN.

There is a narrow strip of land along the river Nile, which is fertile. The river has deposited rich mud on both sides during floods. In fact, not more than one thirtieth of Egypt is

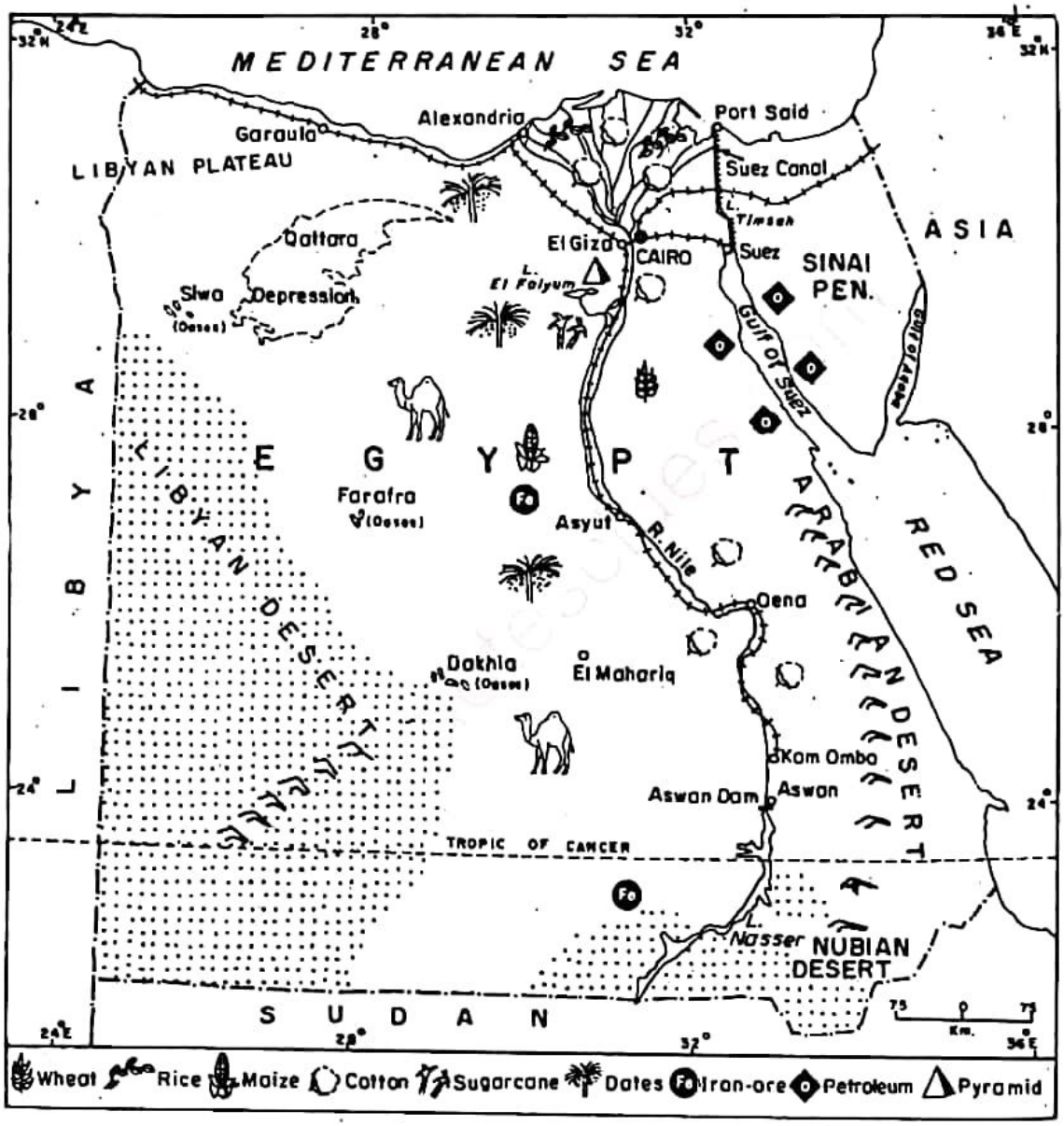


Fig. 30 The Nile Valley

populated. People live on both the banks of the Nile in a strip of land, which has a maximum width of about 25 kilometres. At places, it is not more than two or three kilometres wide.

The Nile is the longest river in the world. Its source lies in Lake Victoria. This lake is located in the equatorial

region, where it rains heavily throughout the year. It, therefore, collects a large volume of water before entering Egypt.

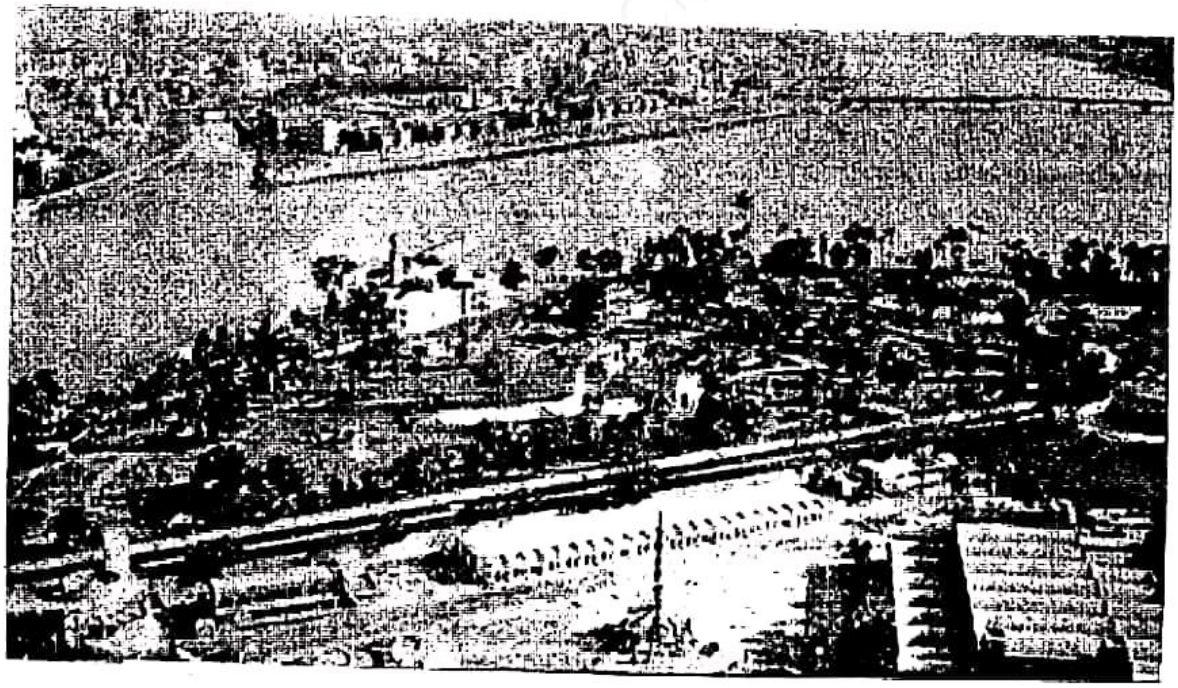
At Cairo, the river splits into a number of channels, distributing its water over a wide tract. Such channels by which river water is distributed are known as DISTRIBUTARIES.

Look at the distributaries of the Nile in your map. They form a triangle which has its head or apex at Cairo. Such a triangular land which is at the mouth of a river and has a number of distributaries is called a DELTA. This name was given by the Greeks because its shape is like the fourth letter of the Greek alphabet: Δ (*delta*). A delta is made up of fine silt or alluvium brought down by a river. Fresh alluvium is constantly deposited at the mouth of the river. As a result, a delta continues to extend gradually into the sea or lake into which the river drains.

RESOURCES AND THEIR UTILIZATION

Crops

Agricultural land is very limited in Egypt. Only three per cent of the total



The Nile at Cairo

A panoramic view of Cairo city along the banks of the river Nile. You will notice a number of bridges connecting the banks of the branching river.

land is under cultivation. However, nearly two-thirds of the population is engaged in agriculture. Hence, there is a great pressure of population on agricultural land.

Even though the Nile Valley and its delta are one of the world's most fertile lands, agriculture cannot be carried out without irrigation. The flood waters of the Nile have been used for irrigation with great skill for the last 5,000 years. The Egyptian farmer, called FELLAH, has to work very hard on his small field but he is able to grow at least two crops annually.

The principal crops of Egypt are maize, rice, wheat, millet, and sugarcane. Dates are an important product, grown especially in oases.

Cotton is the most important cash crop of Egypt. It is world famous for its fine quality. Cotton plant needs a fertile soil, high temperature and abundant sunshine. It grows well here with irrigation water. Its fruit or ball ripens in about six months, after which it bursts open showing the white fluff that is cotton. Rain, fog, dust and pests can damage cotton crop. That is why the hot, dry and clear weather of Egypt is very suitable for cotton growing.

Water Resources

Several high dams have been built on the Nile. The largest among them is at Aswan. Canals taken from the dams irrigate crops throughout the year. Hydroelectricity is also produced at these sites.

Minerals and Industries

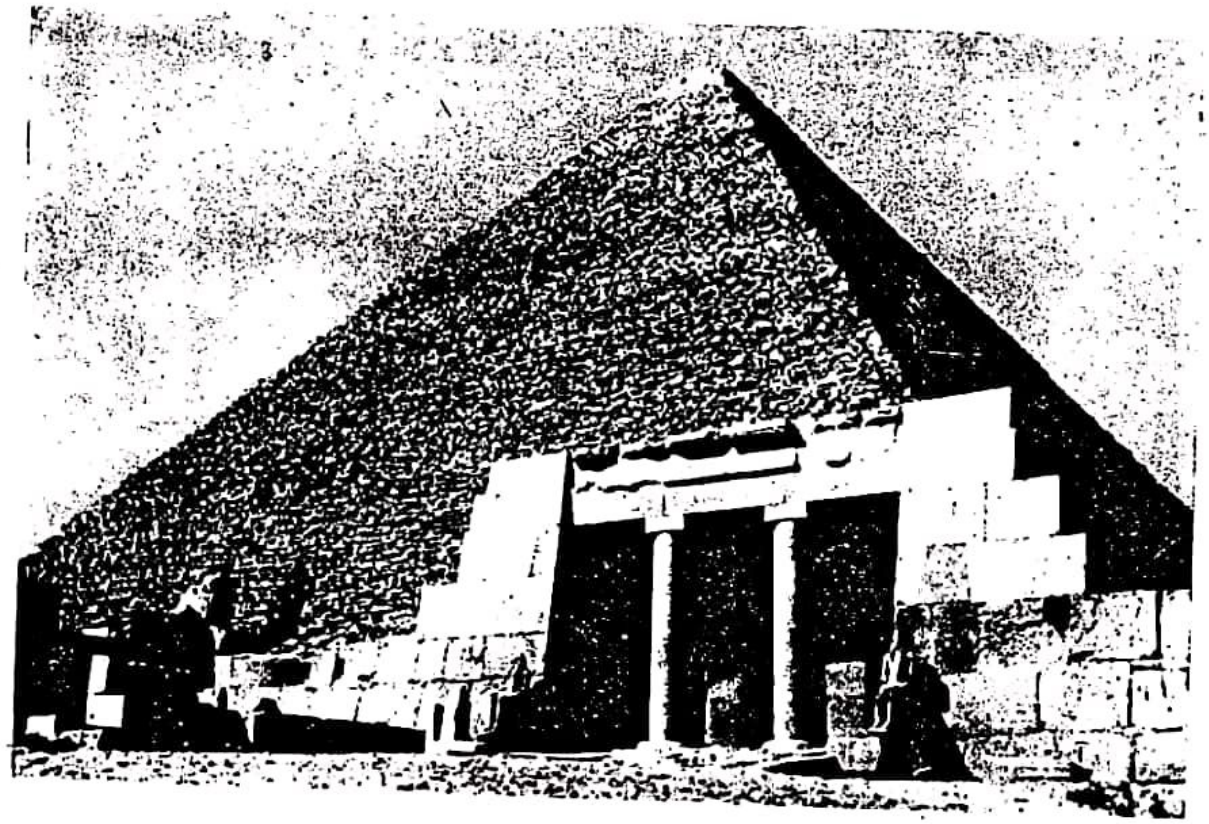
Mineral oil is the most important mineral wealth of Egypt. It is found in Sinai and along the Red Sea coast. Other minerals such as phosphates, sea salt, manganese and iron ore are also produced.

The cotton textile and food industries are quite important and also the oldest. Engineering industries, i.e., manufacture of different kinds of equipments, chemical industries, i.e., manufacture of fertilizers, glass, soap, etc., and oil refineries are developing fast.

THE PEOPLE

The inhabitants of Egypt are mostly Arabs and are followers of Islam. The total population of the country is about 65 million. The average density of population is thus 66 persons per square kilometre. The actual distribution, however, is very uneven. In the Nile Valley it is more than 900 persons per square kilometre.

Cairo, the capital of Egypt is the largest city of Africa. The famous pyramids and sphinx are located near Cairo. Alexandria is the chief sea port and the second largest city of Egypt. Port Said at the Suez Canal is a big trading centre.



A pyramid

Look at the typical structure and shape of a pyramid. Big rock pieces have been used in its construction. These pieces have been joined without any cement. It is indeed astonishing how such marvellous structures were built by Egyptians in those days.

TRANSPORT

The roads and railways run along the course of the river Nile. The network of transport lines is very dense in the delta region, However, there are roads in all directions. Cairo is the centre of the transport system. Besides, it is also a very important international airport. But, it is the Suez Canal which has put Egypt on the world map of international trade. This canal was cut across the isthmus which separates Africa and Asia. It now links the Mediterranean Sea with the Red Sea. The opening of the Canal in 1869 shortened the voyage from Mumbai to London by more than 7,000 kilometres. The canal is 173 kilometres long and a ship takes about 10 to 12 hours to pass through it.

NEW TERMS YOU HAVE LEARNT

Distributaries : The channels of a river by which it distributes its water

Delta : A more or less triangular tract made up of alluvium at the mouth of a river. It is traversed by a number of distributaries

Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Name the source of the Nile.
   (ii) Which is the most important cash crop of Egypt?
   (iii) Why is irrigation necessary for agriculture in Egypt?
   (iv) Which seas are connected by the Suez Canal?
   (v) Which is the biggest dam on the river Nile?

2. Distinguish between:
   (i) A tributary and a distributary
   (ii) A strait and an isthmus.

3. Complete the following statement by choosing the correct ending from those given below the statement.
   The Suez Canal is the busiest international waterway because...
   (a) it charges nominal toll on the goods passing through it.
   (b) it saves the long journey round the Cape of Good Hope.
   (c) it is an all-sea-level canal.
   (d) it is the longest sea canal.

4. What are the favourable conditions for the growth of cotton in Egypt?

5. Why is Egypt called the gift of the Nile?

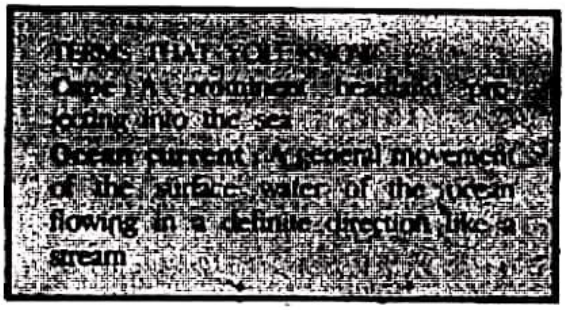
SKILLS IN GEOGRAPHY

6. On an outline map of the world show the Suez Canal route and the Cape of Good Hope route between London and Mumbai

7. Collect information about and photographs of the nomadic people of the Egyptian desert.

CHAPTER TEN

Land of Gold and Diamonds — South Africa



South Africa lies in the southernmost part of the continent. It is a large country, about three-eighths the size of India, but has only a small population. It has a variety of natural resources. It is known for its mineral wealth, particularly gold and diamonds.

Look at the map of the country. It is bounded on three sides by two oceans—namely, the Atlantic Ocean and the Indian Ocean. It occupies an important position on the international trade route.

LAND AND CLIMATE

Almost the whole of South Africa is a high plateau sloping towards the west. The Drakensberg mountains in the east form the edge of this plateau. Some of its ridges are higher than 3,000 metres. To the east of these mountains, the land drops down rapidly. To the south, the land drops down in steps.

The plateau region is covered with grasses. It is called 'the veld'. It is a Dutch word which means field.

South Africa lies in the warm temperate zone. It has a moderate climate due to several reasons. It is surrounded on three sides by oceans. The great height of the plateau is another reason for its cool climate. It is further cooled by the cold ocean current along the west coast.

The Orange and the Vaal rivers flow

from the Drakensberg mountains westward to the Atlantic Ocean. The Limpopo river flows along the northern boundary of the country for some distance.

Except in coastal areas, the rainfall is not much and decreases from south to north and from east to west. Most of the country has rains in summer but the southern coast gets rain during winter.

RESOURCES AND THEIR UTILIZATION

Soil and Crops

Since a large part of the country on the western side does not get sufficient rain, it is a dry land. The eastern part has a good rainfall but most of it is hilly and unsuitable for cultivation. It is only in the veld region in the north central part that the land is fertile and

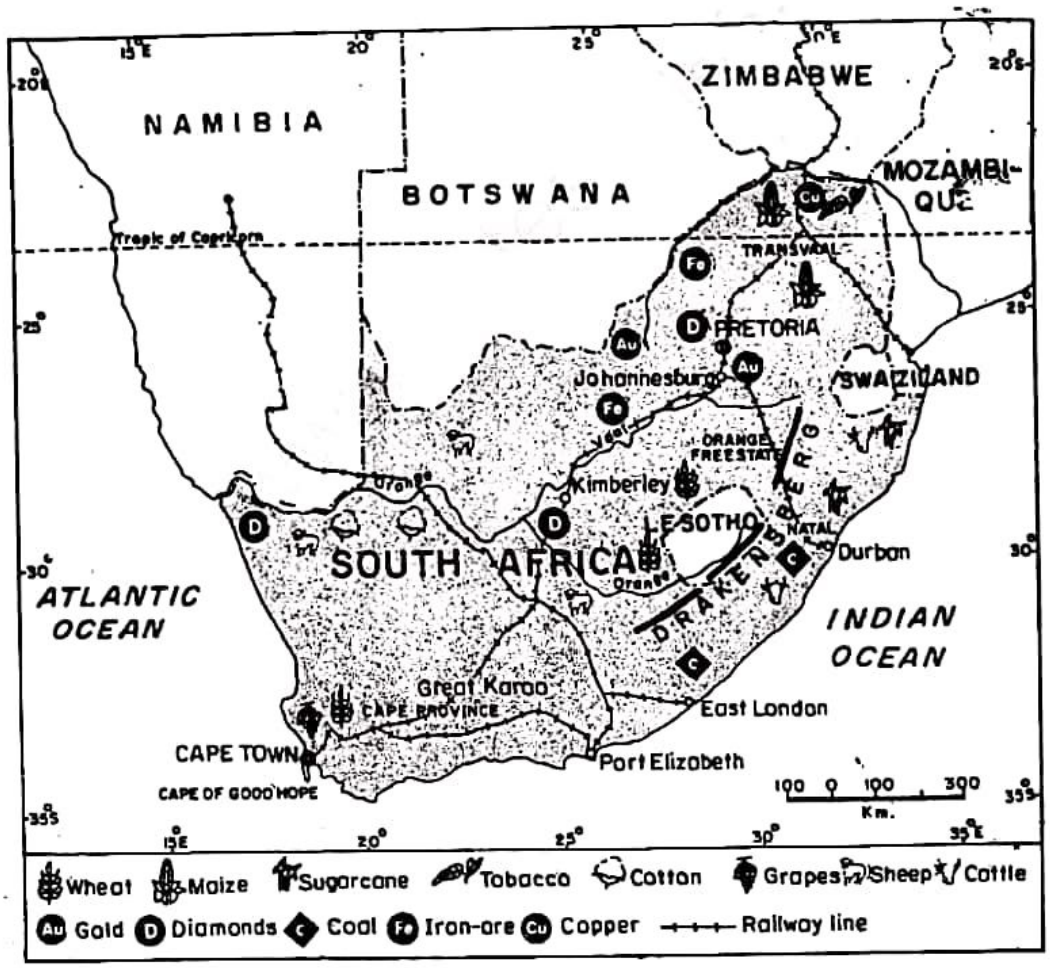


Fig. 31 South Africa

rainfall is moderate. As such only one-eighth of the total land of South Africa is under cultivation. Maize is the most important crop. Wheat, oats and barley are also grown.

Animal Rearing

It is more important than the cultivation of crops. The breeding and rearing of animals on pastures is known as PASTORAL FARMING. Cattle, goats and sheep are reared for their milk, meat, wool and skin. The Merino sheep of South Africa are famous for their fine wool. In fact, as an exporter of wool, South Africa is next only to Australia. In some areas cultivation of crops is combined with animal rearing. This type of agriculture is known as MIXED FARMING.

Minerals and Industries

South Africa is the leading producer of gold and diamonds in the world, It accounts for nearly half of the world's production of gold. The gold mines are near Johannesburg. Rocks containing gold are blasted, crushed, washed and sorted. Then with the help of chemicals, gold is dissolved and separated from the ore. The centre of diamond mining is Kimberley. Platinum, manganese, uranium, copper, iron, asbestos and coal are the other important minerals of the country. Mining is the most important activity of the people.

South Africa is the most industrialized country of Africa. It manufactures a number of products from its agricultural raw materials. Tinned fruits, processed food, sugar, cigarettes, meat, dairy products and textiles are the important products. The iron and steel industry has become a major industry. Metal works and chemical industries are also developing.

THE PEOPLE

The first European settlers in South Africa were the Portuguese and the Dutch. These early colonists came to be known as Afrikaners. The British came later. The native people were gradually pushed into the interior by the Europeans, who took control of the area. The native people became the tenant farmers or labourers in fields, mines and factories.

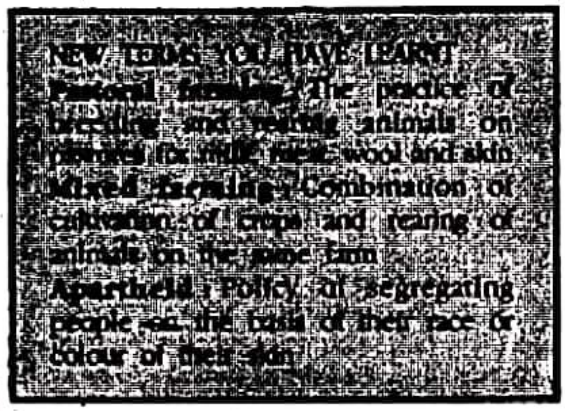
Today, the total population of South Africa is about 44 million. The density of population is only 36 persons per square kilometer.

Nearly two-thirds of the population consists of the Blacks belonging to different tribes. About one-fifth of the population is composed of the whites. The rest of the population includes the Asians and mixed groups. Despite being in minority, the whites ruled the country. They followed the policy of segregation for the non-whites. It meant complete

separation of the non-white people in every sphere of life—political, economic and social. The policy was known as *apartheid*. The non-whites struggled for their rights and ultimately in 1994 they were successful in getting voting rights. For the first time, a truely elected democratic government, came to power in 1994. Dr. Nelson Mandela became the first Black President.

Johannesberg is the largest city of South Africa. It is a commercial and industrial centre. Pretoria is the administrative capital of the country. Cape Town is the seat of legislative and the large t port. The other two important ports are Durban and Port Elizabeth.

The country has a good network of railways. This has enabled it to exploit its mineral wealth and to develop its agriculture and industries.



Exercises

REVIEW QUESTIONS

1. Answer the following questions briefly.
   (i) Which is the important mountain range of South Africa?
   (ii) What is the veld?
   (iii) Why does South Africa enjoy a moderate climate?
   (iv) What is meant by mixed farming?
   (v) What is apartheid?

2. Make correct pairs from the following two columns.

(a) The centre of diamond mining in South Africa	(i) Johannesburg
(b) The centre of gold mining in South Africa	(ii) Cape of Good Hope
(c) The capital city of South Africa	(iii) Cape Town
(d) The biggest port of South Africa	(iv) Kimberley
(e) The southernmost tip of South Africa	(v) Pretoria
	(vi) Port Elizabeth

3. What is meant by pastoral farming? Why is it important in South Africa?

4. Which are the important minerals of South Africa? How is gold mined and refined?

5. Why is agriculture less important in South Africa?

SKILLS IN GEOGRAPHY

6. On an outline map of South Africa mark the following with the help of suitable symbols.
   (i) The Drakensburg mountains
   (ii) The Orange river
   (iii) The Veld
   (iv) Zimbabwe, Mozambique, Botswana and Namibia
   (v) Tropic of Capricorn
   (vi) Pretoria, Cape Town

7. Collect information and photographs about resources of South Africa and developmental activities.

3
UNIT

SOUTH AMERICA

South America is the fourth largest continent in the world. Most part of this continent lies in the Southern Hemisphere. Its Andes mountains are next only to the Himalayas in their average height. It contains wide plateaus and highlands as well as vast lowlands.

It is drained by the Orinoco, the Plata and the Amazon river systems. A large part of the continent lies in the tropical belt. It has extensive rain-forests and grasslands.

South America is rich in some mineral resources such as mineral oil, copper, silver, bauxite, tin and iron ore. Only about 10 per cent of the soil is suitable for agriculture. Wheat, maize, sugarcane, coffee and banana are the important crops. Agriculture and cattle rearing are the two important activities of the people.

Water resources are abundant in this continent. These have been used to produce electricity. But these can be utilized on a much larger scale than has been done so far.

South America has mostly light industries such as meat-packing plants, textile mills, sugar refineries and shoe factories. Heavy industries using mineral resources are developing slowly.

A very rapid growth of population has been experienced in this continent. Most of the people live within a few hundred kilometres from the sea coast. The standard of living is not very high because economic development has been slow. Today, countries of South America are trying to improve their farming as well as industries.

CHAPTER ELEVEN

South America — Land, Climate, Resources and their Utilization

South America is the fourth largest continent in the world. About two-thirds of the continent lies in the tropical belt south of the equator.

South America, Central America, Mexico and the West Indies together make up Latin America. You may wonder why the word 'Latin' is part of the name. Latin was the language of ancient Romans. As many Indian languages have developed from Sanskrit, several European languages such as Spanish, Portuguese, French and Italian have developed from Latin. The people speaking these languages are called Latin people. A large number of them, mainly from Portugal and Spain began to settle in these areas from the sixteenth century. Because of this the continent began to be called Latin America.

Look at the map of South America. Which oceans and seas surround the continent? Find out the location of the Panama Canal in the map. Which is the largest country of South America? Name the two land-locked countries.

THE LAND

South America has the following physical divisions—the Western Coastal Strip, the Western Mountains, the Central Plains and the Eastern Highlands.

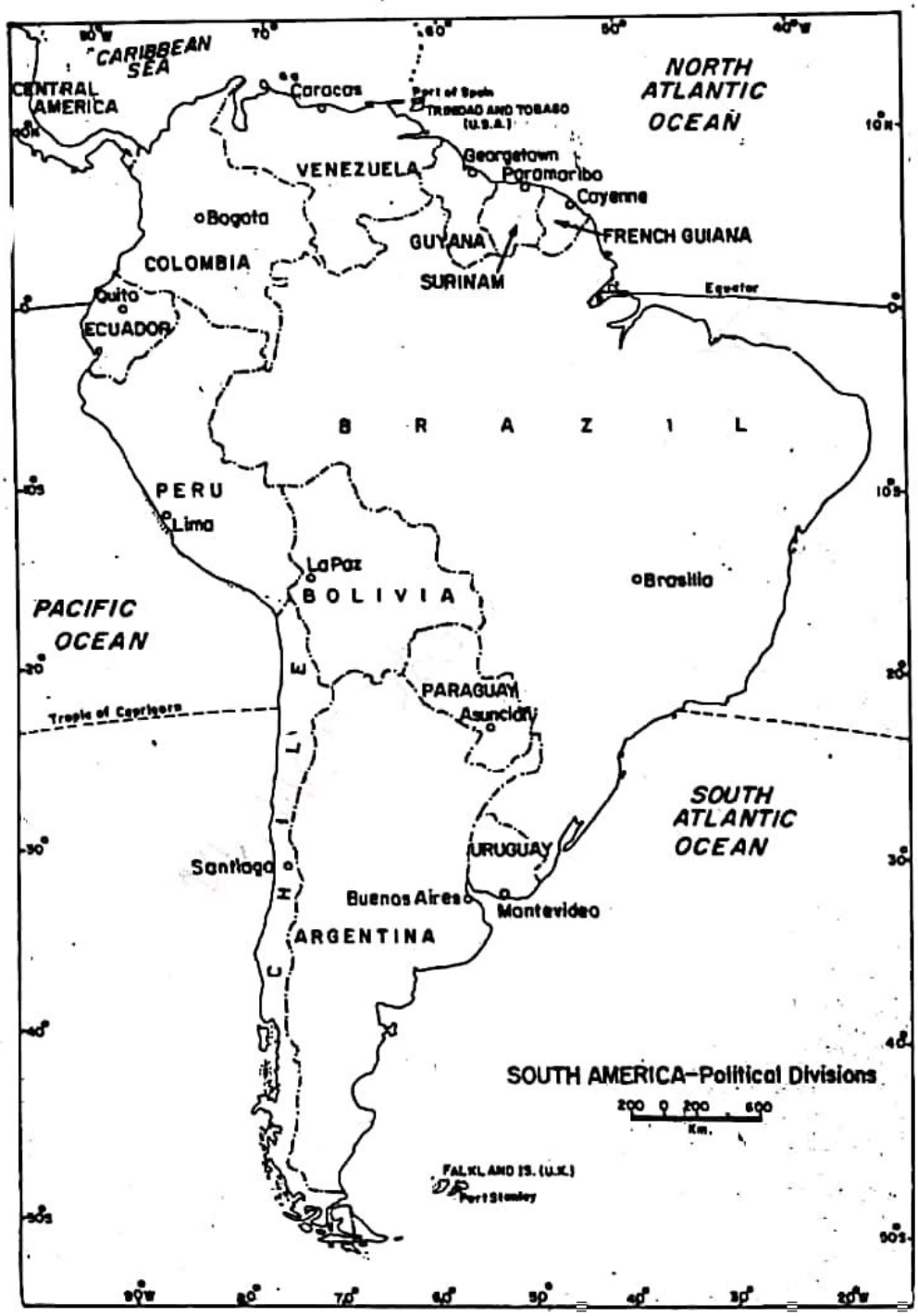


Fig. 32 South America—political divisions

The Western Coastal Strip

There is a narrow strip of lowland along the Pacific Coast in the western part of South America. It stretches from north to south with great variations in its width.

The Western Mountains

Notice on the map how mountains and hills form a wall along the western part of South America. These mountains run from the Caribbean Sea to the very southern tip of South America. These are called the ANDES. They form the second highest mountain systems in the world next to the Himalayas. They are called the YOUNG FOLD MOUNTAINS. They are young because they have been formed comparatively recently in the earth's history. Since these mountains have resulted due to the forces acting beneath the earth's surface from two opposite sides giving rise to the formation of folds on the earth's surface, they are called fold mountains. Look at the map and name the countries through which the Andes mountains run.

There are three main ranges in the Andes. Two of them on the eastern side are very high. These ranges come closer at a few points and separate again. In between these ranges there are high plateaus. The Bolivian Plateau is one of them. Lake Titicaca, one of the largest lakes of South America, is located in this plateau region.

The Andes have several lofty peaks. Many peaks are so high that in spite of being located near the equator they are covered with snow all the year round. Mt. Aconcagua is the highest peak of the Andes. It is 7,021 metres high above sea level. The Andes have several volcanic peaks. Some of them are active, others are dormant or extinct. Cotopaxi in Ecuador is the highest active volcano in the world. Volcanic eruptions and earthquakes are very common in this part.

The Central Plains

They lie between the Andes and the Eastern Highlands. The central plains mainly consist of the basins of the Orinoco, the Amazon and the Plata. The Amazon is the largest river in the world as it discharges the greatest volume of water. It rises in the Andes and after flowing through the entire width of Brazil, falls into the Atlantic Ocean. It is 6,280 kilometres long.

The Eastern Highlands

The Guyana and the Brazilian highlands along the eastern coast form the Eastern Highlands. The Angel Falls is the highest waterfall in the world. It is located in the south-eastern part of Venezuela.

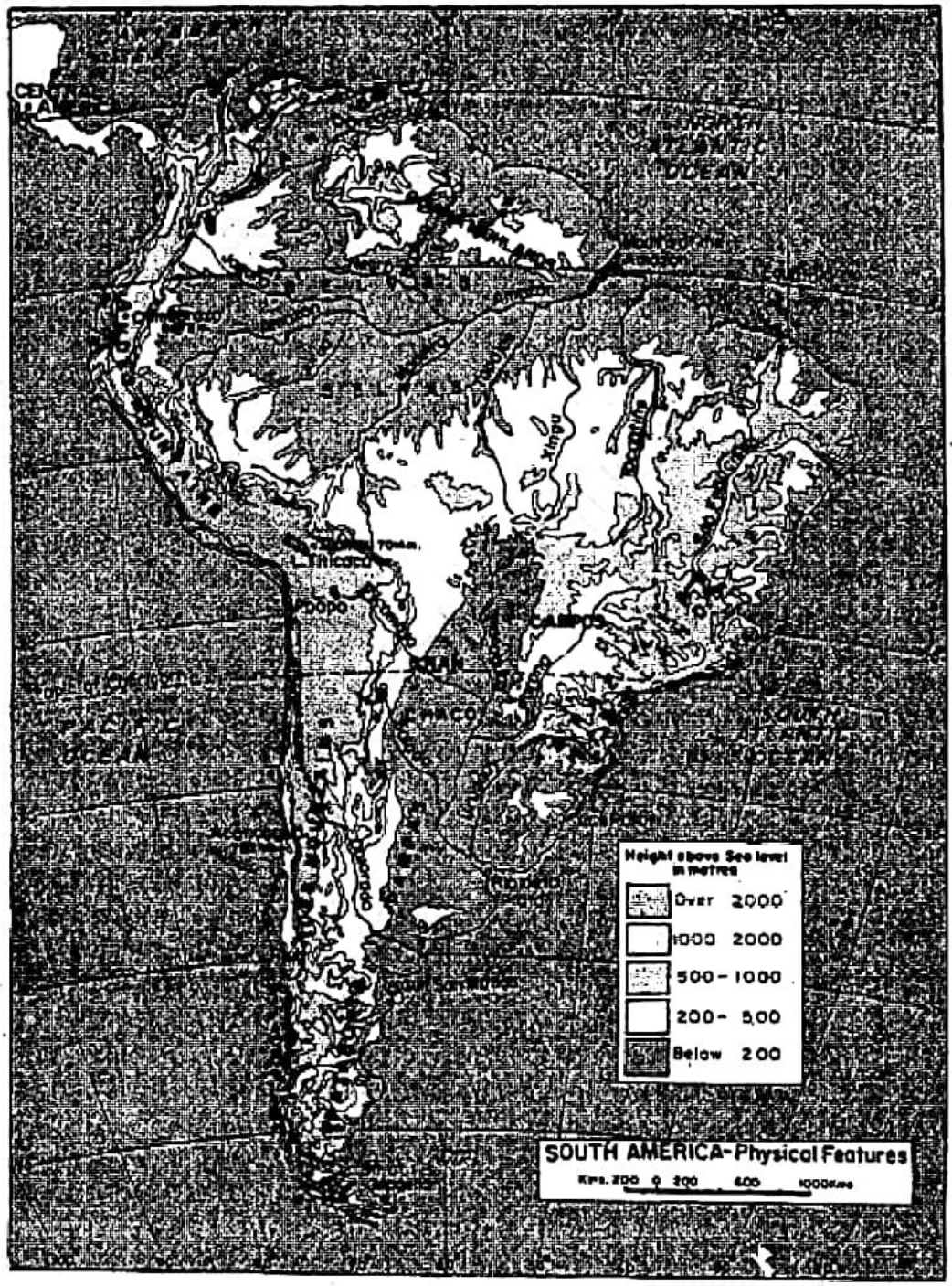


Fig. 33 South America—physical divisions

CLIMATE AND VEGETATION

The greater part of South America lies within the tropical zone. Therefore, its climate is generally hot. The Amazon basin which lies close to the equator has an equatorial type of climate. It is hot and wet all the year round. This region is, therefore, covered with equatorial rain-forests locally known as the SELVAS.

On either side of the Amazon forests lies the belt which has the savanna type of climate. This is the region of grasslands. In the north, in the Orinoco river basin, they are locally known as the LLANOS. In the south, in central Brazil, they are known as CAMPOS. In this region, there is a distinct dry period and the rain occurs mainly in summer.

In the lowlands of northern Argentina and western Paraguay, it is dry during winter and wet during summer. Rains are heavy. This region is covered with thick forests and grasslands and is locally known as the GRAN CHACO.

Parts of southern Peru and northern Chile have a typical hot, desert type of

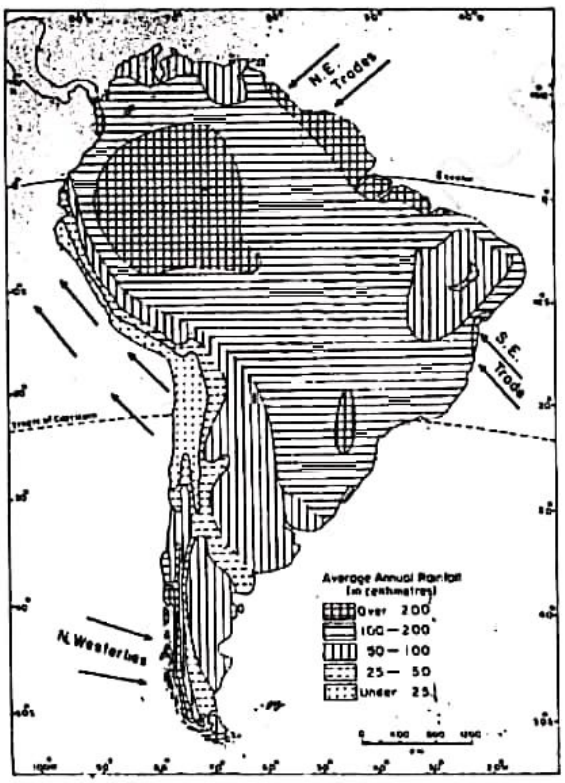


Fig. 34 South America—annual rainfall

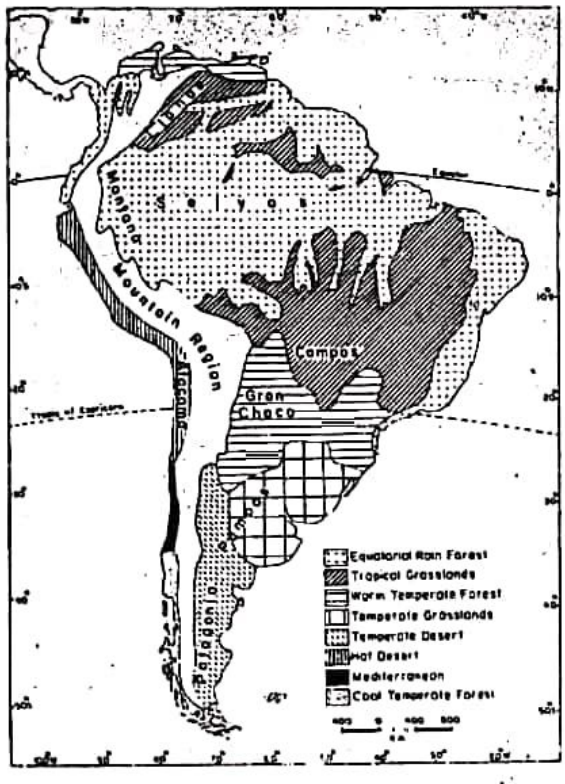


Fig. 35 South America—natural vegetation

climate. This region is known as the Atacama Desert. Its natural vegetation consists of scrubs, prickly pear and cactus.

Further south, that is in central Chile, there is the mediterranean type of climate. This region has rainy winters and warm and dry summers. Its vegetation consists of evergreen forests with trees having thick and shining leaves, which are able to resist summer droughts. Oak, walnut, chestnut and fig are some of the common trees of the region.

In the extreme south, that is in southern Chile, there is the OCEANIC or MARINE type of climate. Rainfall occurs here all the year round. As the region lies in the temperate zone, the climate is cool. This type of climate is generally found on the western coasts of the temperate regions. It is a region of temperate, mixed forests where beech and pine are the valuable trees.

South of the tropical grasslands of southern Brazil lies the region of temperate grasslands. This region has a warm climate with rain all through the year, although it rains more in summer than in winter. These grasslands in central Argentina are known as the PAMPAS.

Further south, on the eastern side of the Andes, lies the desert of Patagonia. Its climate is dry because it lies in the RAINSHADOW AREA of the western mountains.

RESOURCES AND THEIR UTILIZATION

South America is rich in a variety of natural resources. It has extensive forests which abound in wildlife. A large number of products are obtained from these forests. Its extensive grasslands are used for growing crops and also for rearing domestic animals. The continent is equally rich in minerals and water power.

Forests

A very large part of the continent is covered with forests. Most of these, in the Amazon basin, are tropical rain-forests. They are important storehouses of hardwoods such as mahogany. However, the lightest wood in the world, balsa, also comes from rain-forests. The Carnauba palm trees of Brazil yield wax. It is used for furniture polish, shoe polish and candles. Other products include cinchona bark (used for the medicine, quinine) and chicle (used for chewing gum). The Amazon basin is the home of the rubber tree. With the development of rubber plantation in other parts of the world such as Malaysia, the wild rubber from the Amazon proved to be costlier. So the demand for it decreased in the world market. The rain-forests in general, have not been utilized very much due to several difficulties. For example, a variety of trees are found in a small area making it uneconomical to

fell trees of a particular species at a time. Besides, these forests are dense and inaccessible because of the lack of transport facilities. It is difficult to construct and maintain roads and railways in such areas. Yerba is an important tree of the Eastern Highlands. Its leaves are brewed like tea. Quebracho, meaning 'axebreaker', is an important hardwood tree of the Gran Chaco. It yields tannic acid used for tanning leather. The forests along the eastern slopes of the Andes are known as montana. They yield valuable softwood.

Wildlife

South America abounds in a variety of wildlife, specially in the Amazon basin. The continent possesses about 1,500 species of very colourful birds. Candor is the largest bird of prey in the world. Rhea is a flightless bird. It is like the ostrich of Africa and the emu of Australia. Monkeys are important tree dwellers of the Amazon forests. The spider monkey is known for its acrobatic skills. The owl monkeys are night lovers. Then, there are squirrel monkeys, which are known for their gentleness.

There are many kinds of reptiles. Snakes and pythons are the most common among them. Anaconda is a very large python, which is about ten metres long.

Ant-eaters and armadillos are the most ancient types of mammals found in South America. Puma is a dangerous animal of the cat family. It is stronger than the leopard. Jaguar is another animal of prey. Both these animals live on land as well as on trees. They prey upon monkeys and other tree dwellers.

Llamas are the strange animals of South America. They live in the highlands of the Andes. Being surefooted they are used as beasts of burden in this mountainous region.

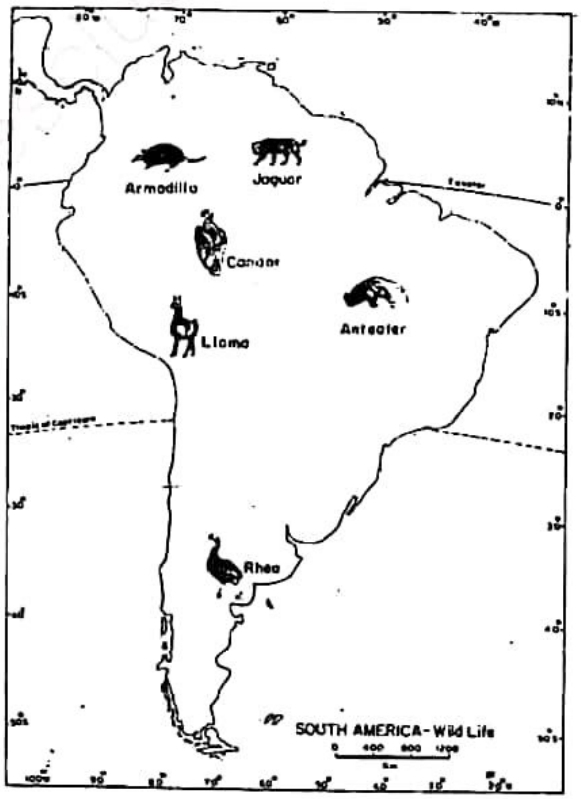


Fig. 36 South America—wildlife

These long-necked animals belong to the family of the camel and can go without water for many days. Alpaca is a smaller variety of llama found on the high plateaus. Guanaco, a wild variety of llama, is found in the desert of Patagonia.

Water

South America has huge water resources. However, it has not yet begun to make full use of these resources. For example, it has a few large lakes such as lake Titicaca, but fishing in the lake is restricted to local consumption only. It means under-utilization of a resource.

Though there are several rivers only the Orinoco, the Amazon and the Parana are really long and deep enough to be used for water transportation. Hydroelectric power generation has increased in recent years. Brazil, Argentina, Paraguay and Venezuela have built large hydroelectric plants. Brazil, in particular, has developed a number of hydroelectric projects.

Fisheries

Sea-waters around South America, especially along the western coast, abound in fish. South America accounts for about one-fifth of the world's total catch of fish. Fishing is an important industry of Peru. It is one of the leading countries of the world in the fishing industry.

Soil and Crops

Only about 10 per cent of the soil is suitable for farming. Most of the good farmland is found in Argentina and Uruguay.

A large part of the grasslands have been brought under cultivation. Another important farming region is along the Pacific Coast in the middle part of Chile. Wheat and maize are the important food crops of South America. Wheat is a crop of cool, temperate regions. It is grown in Argentina and Chile. Maize requires a warm climate with a fair amount of rainfall. Its main producers are Brazil and Argentina. In fact, maize is native to South America and it reached the rest of the world after the discovery of this continent.

Coffee, sugarcane, cocoa and banana are important cash crops which are grown on large plantations. Growing of plants or trees on a large scale for commercial purposes is known as PLANTATION AGRICULTURE. In this type of agriculture, the farm activities are carried on in a specialized manner as done in a factory. Brazil, Colombia and Ecuador are among the leading producers of coffee in the world. Cotton is another important cash crop grown in Brazil.

There are large farmlands and plantations in South America. These are

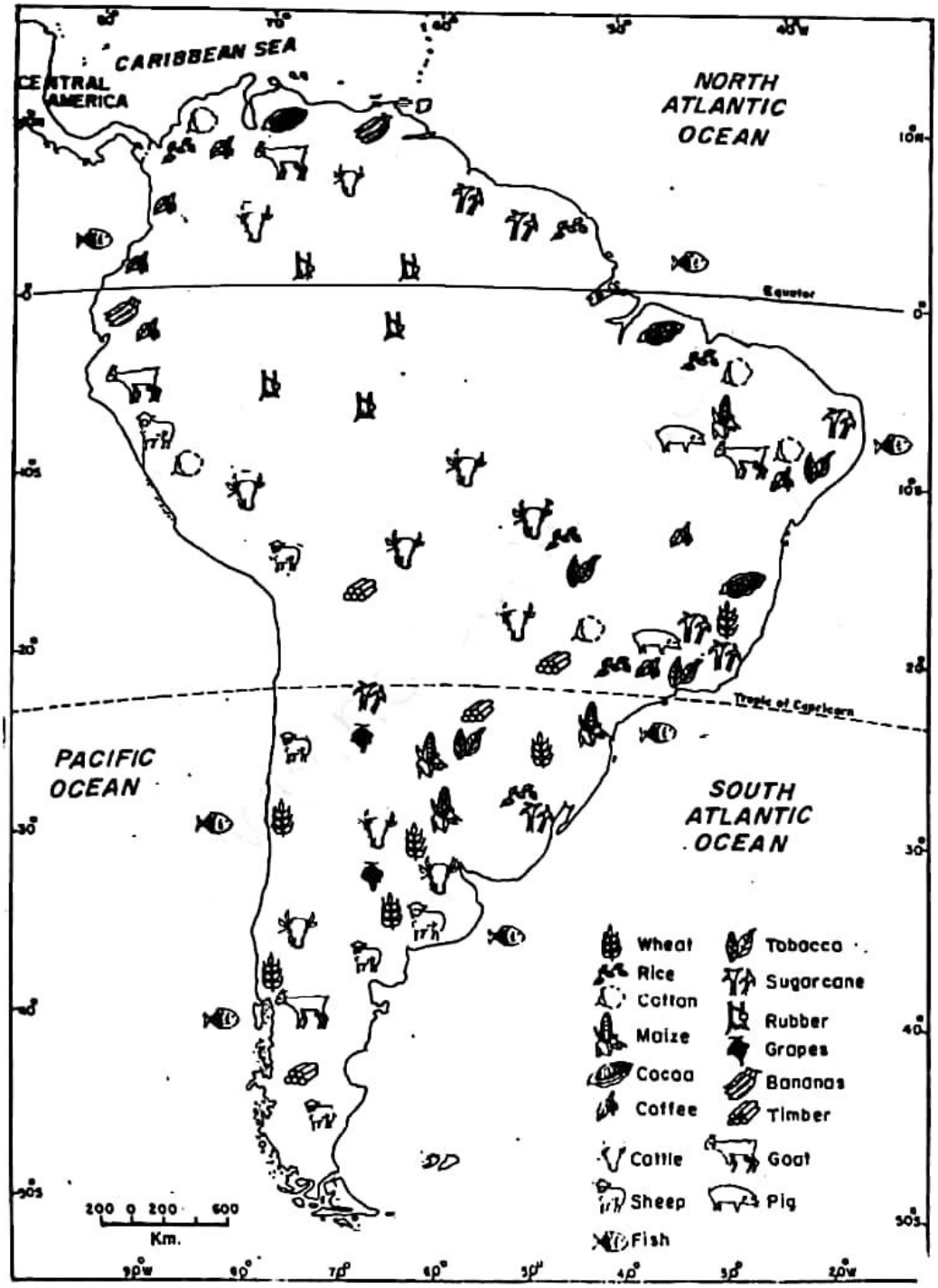


Fig. 37 South America crops and livestock

owned by a few individuals or groups of people. Most of the people are farm workers who do not own enough land to support themselves.

Animal Rearing

South America has extensive grasslands on which cattle, sheep and goats are reared in large numbers mainly for beef, meat and wool. The most important cattle rearing areas in South America are the semi-humid parts of Argentina, Uruguay and Brazil. In these areas the original grasses which were not very nutritious have been replaced by a more valuable variety of grass—ALFALFA. The alfalfa is a leguminous plant, which besides being nutritious, helps in maintaining the fertility of the soil. Cattle fatten very quickly on these grasses.

The sheep-rearing areas are in Argentina and Chile. South America is among the world's leaders in cattle and meat production. Argentina's main industry is meat-packing and processing. Today it is one of the largest meat exporters.

Mineral Wealth

South America is very rich in minerals. There are huge deposits of mineral oil in Venezuela and the islands of Trinidad and Tobago. Much of the oil is being drilled from below the lake waters in Maracaibo in Venezuela. Asphalt or coal-tar is found in Trinidad. About one-seventh of the world's mineral oil comes from South America. Its iron-ore reserves are equally important.

Brazil has one of the largest iron-ore deposits of the world. Copper and tin are among the other important minerals of South America. They constitute about one-fifth of the world's total output. Chile is the major producer of copper in the world. Bolivia is the world's fourth largest producer of tin.

South America is very fortunate to possess rich deposits of nitrates in the desert of Atacama. Nitrate is an important source of manures and fertilizers. Chile is the largest producer of nitrates. Similarly, Guano Islands, oft the coast of Peru, are extremely fortunate in having the world's most concentrated single source of natural manure. These rainless and desert islands are the home of millions and millions of Guano birds. These birds live entirely on sea fish. It is believed that they consume nearly five million tonnes of fish in these waters every year. The droppings of the seabirds have been in use for several hundred years as valuable manure for a variety of crops. Today they are in great demand for sugarcane and cotton crops. This natural manure contains all the ingredients of plant food that can be readily assimilated by the plants.

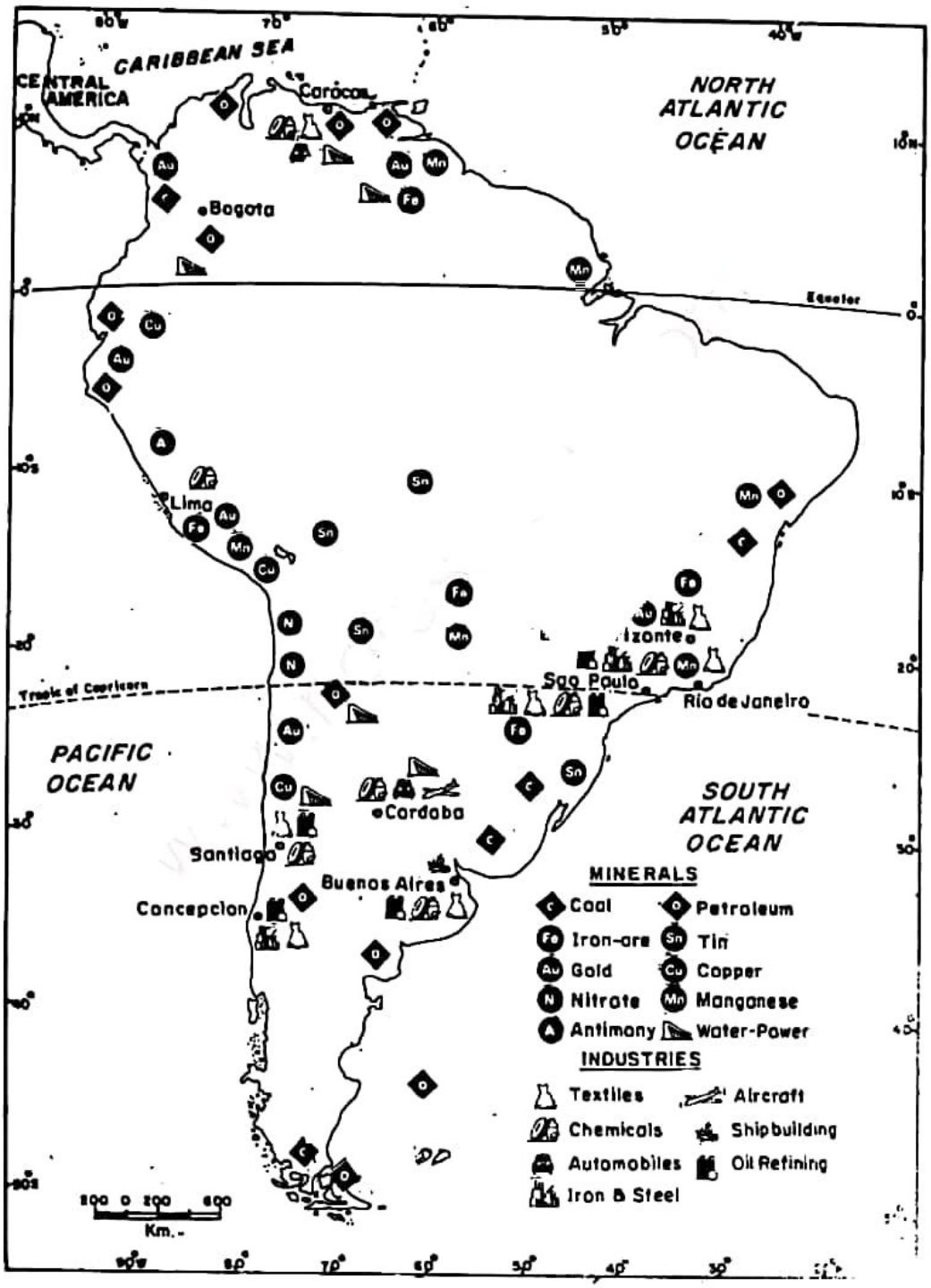


Fig. 38 South America—minerals and industries

Apart from these minerals South America possesses sizeable reserves of bauxite, manganese, silver and antimony. Surinam and Guyana are the major producers of bauxite in the continent. Most of these resources are, however, exported because there are not many industries within these countries to use them.

THE PEOPLE

The people of South America belong to three main racial groups. They are the American Indians, the Blacks, and the Europeans. Besides these, there are a large number of people of mixed races. They are MESTIZOS, a new race of people of mixed Indian and European blood, MULATTOS, another race of people of mixed European and Black blood, and ZAMBO, yet another race of people of mixed Black and Indian blood. There is little racial feeling in the countries of South America. Among these mixed races the mestizos form the largest group People of Indian origin have settled in large numbers in Surinam, Guyana and the islands of Trinidad and Tobago.

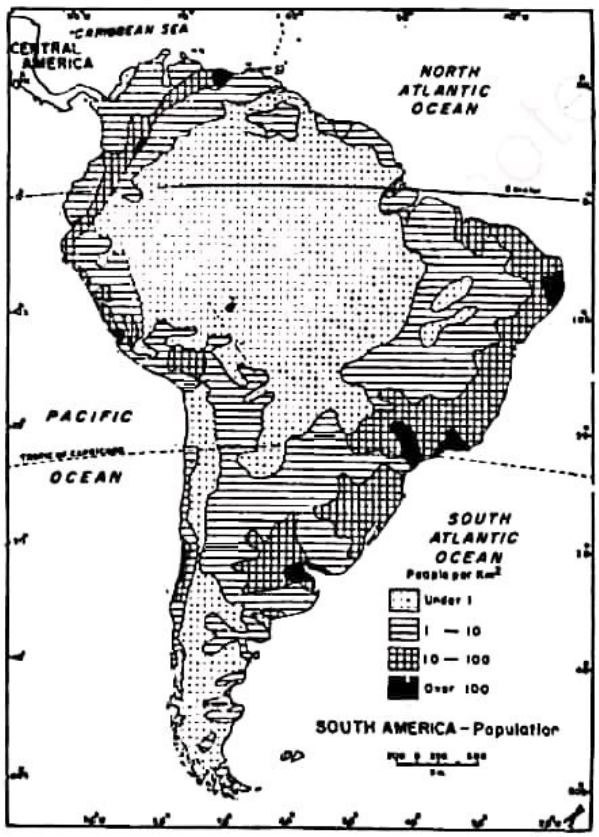


Fig. 39 South America—distribution of population

The total population of South America is about 333 million. The density of population is about 19 persons per square kilometre. But the distribution of population is very uneven. Nearly one-half of the continent has a population density of less than two persons per square kilometre. Large areas of the Amazon Lowlands, the Llanos, the Gran Chaco. the Guyana Highlands, Atacama and Patagonia deserts are practically uninhabited. These lands fail to attract people because of their unfavourable climates. The most densely populated areas of the continent are near the coast. A large number of people live in rural areas and work as farmers. Gradually their number is decreasing as various manufacturing industries are coming up. It has added to the

concentration of people in the port towns and capital cities.

TRANSPORT

The modern means of transport are not well developed in South America. The extensive equatorial forests, the high mountain ranges of the Andes and the Eastern Highlands have stood in the way of a good network of land

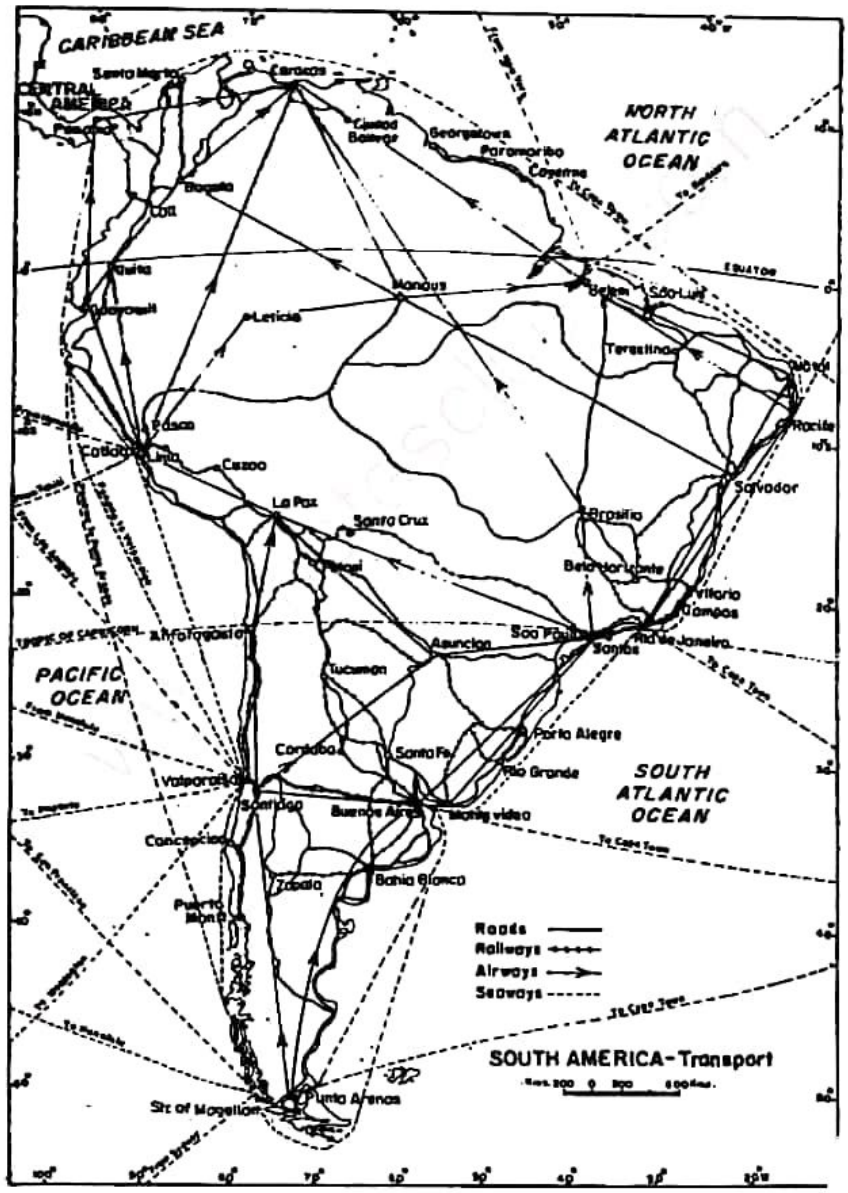


Fig. 40 South America—transport and major cities

transport. Rivers are the only means of transport in the forests of the Amazon basin. Cheap river transport is provided by the Amazon and the Plata river systems. These rivers are navigable for long distances. The main railways and roads are concentrated in the plains of Argentina and Brazil. Some of the highest railways of the world are across the Andes in Chile.

NEW TERMS YOU HAVE LEARNT

Fold mountains : Mountains formed due to the internal forces working from two opposite directions resulting in folds

Plantation agriculture : Growing of plants or trees on a large scale in a specialized manner, as done in a factory, for commercial purposes

Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) Name four Latin American countries.
   (ii) Mention the major physical divisions of South America.
   (iii) Why are the Andes called young mountains?
   (iv) Why is the climate of South America generally warm?
   (v) Name three important cash crops of South America.
   (vi) Why are most of the minerals of South America exported?
2. Distinguish between:
   (i) The campos and the pampas
   (ii) Mestizos and mulattos.
3. Make correct pairs from the two columns given below.

(a) A tree yielding wax	(i) Rhea
(b) A hardwood tree which is the source of tannic acid	(ii) Armadillos
(c) A flightless bird	(iii) Quebracho
(d) An ancient type of mammal	(iv) Balsa
(e) A very large python	(v) Anaconda
	(vi) Carnauba

4. Describe the distribution of grasslands in South America and the economic activities associated with them.

5. Which parts of South America are densely populated and why?

SKILLS IN GEOGRAPHY

6. On an outline map of South America, mark the following and label them.
   (i) The Andes, the highest peak/the highest volcanic peak
   (ii) The Falkland islands
   (iii) The Patagonia and the Atacama deserts
   (iv) Lake Titicaca and the Amazon river
   (v) The railway line across the Andes.

CHAPTER TWELVE

The Coffee Pot of the World—Brazil

TERM THAT YOU KNOW
Trade : Buying and selling of goods and services

Brazil lies in the north-eastern part of South America and occupies a little less than one-half the total area of the continent. In area, this is the fifth largest country in the world. It is more than two and a half times the size of India. But its population is about one-sixth of that of our country.

Look at the map of Brazil. It is surrounded by the Atlantic Ocean from two sides. Name the countries which have common borders with Brazil. Which two countries of South America do not have a common border with Brazil? Note the position of the equator on the map of Brazil. You will find that the greater part of the country lies to the south of the equator.

Brazil got its present name from the redwood tree, brasil, which was the most important product of the country, when it was discovered about 500 years ago.

LAND AND CLIMATE

The greater part of the country is a vast plateau, known as the Brazilian Highlands. The eastern and south-eastern parts of the plateau are comparatively high. In these parts at several places the highlands drop abruptly towards the narrow coastal plains.

The northern part of the country is an extensive, flat lowland built up by the Amazon and its tributaries. They have brought down great quantities of alluvium (fine soil) from the surrounding highlands over centuries forming this great plain. In the extreme

north lie some portions of the Guyana Highlands.

Brazil is mainly a tropical country with a small part in the south extending into the warm temperate zone. The Amazon basin and northern coastlands have the equatorial type of climate. Here the season is hot and wet throughout the year. What type of natural vegetation would you expect in this region?

A major portion of the Brazilian plateau has the savanna type of climate with rains during the summer. The natural vegetation of the region is the savanna grass. On the southern parts of the plateau the climate is mild and cool. The region is covered with temperate forests. Further south along the borders of Uruguay is the zone of temperate grasslands.

RESOURCES AND THEIR UTILIZATION

Brazil is rich in forests, soil and mineral resources.

Forests

Brazilian forests are among the richest in the world. They provide many useful products such as timber, gum, resins, waxes, essential oils, cellulose, fibres and nuts.

Many kinds of timber are obtained from these forests. Balsa, a very light wood, is used for making lifeboats and as a substitute for cork. Its Parana pine is in great demand for building purposes.

The bark of the cinchona tree is used for making quinine which is a valuable medicine in treating malaria. Carnauba palm trees yield wax which is found on its leaves.

Brazil is the homeland of rubber. The rubber tree was first found growing wild in the Amazon forest. From here it was taken to the countries of Africa and Asia. Once the Amazon basin was the only rubber-producing region in the world. Today its production is almost negligible.

Animal Rearing

Grasslands and permanent pastures occupy about one-eighth of the total area of Brazil. Therefore, animal rearing is a very important activity. Cattle, pig, sheep, goats and horses are the common domestic animals. Of these, the cattle are the most numerous and important. These animals are reared mainly for their meat, wool and hide.

Crops

Brazil is mainly an agricultural country Fertile soils and warm climate favour growth of different kinds of crops. Maize, rice, beans, cassava and potatoes are the food crops grown mainly for local consumption. Coffee, cotton, sugarcane, cocoa and tobacco are grown mainly as cash crops. Coffee is by far the most important crop of

Fig. 41 Brazil—crops and livestock

Brazil. This crop was introduced in Brazil by the Portuguese more than 100 years ago. Today, Brazil is the largest producer and exporter of coffee in the world.

Coffee is grown mostly on the slopes of the high plateaus in the tropical region. The coffee tree requires much rainfall and a high temperature, especially when it produces berries. At the time of harvest, it needs less rainfall and more sunshine.

In Brazil, coffee is generally grown on very large plantations which are called FAZENDAS. A large coffee fazenda usually covers an area of several square kilometres and may contain as many as

a million coffee trees. On such a big fazenda, nearly 3,000 to 4,000 workers are required to look after the trees. They live on the fazendas. Each family looks after a certain number of trees. It has a small plot of land on which it grows maize, sugarcane, and vegetable for its own use.

The coffee trees may grow to a height of about nine metres. But they are pruned to the size of a low bush of about three metres. This height is suitable for picking the berries. The coffee trees begin to yield berries within five to six years after planting. The berries resemble cherries. The full-grown berries are picked, sorted and washed. The berries are cured and dried. The outer cover or the hulls are removed usually with a hulling machine. The beans thus left are polished, cleaned, sorted and packed for export.

The beans are roasted and ground into coffee powder. Since coffee quickly loses its flavour after roasting, this process is conveniently done in the countries where the coffee is consumed.

Cotton is another important crop. Brazil is one of the leading cotton producing countries of the world. The north-eastern part of Brazil is known for its sugarcane plantations. Brazil is now an important producer of sugar as well. It is also one of the largest producers and exporters of cocoa in the world, standing next only to Ghana and Nigeria in Africa.

Many kinds of fruits are grown in Brazil. Bananas, pineapples, oranges and grapes are the chief fruits of the country.

Minerals and Industries

Brazilian highlands like the plateau of South Africa are rich in minerals. The richest mining areas are in the state of Minas Gerais.

Brazil is rich in high quality iron-ore and mica. It also produces manganese and quartz crystal in large quantities. It exports manganese and iron-ore.

Brazil lacks good quality coal which hampers the development of its iron and steel industry. But Brazil is very rich in water resources. Its torrential rivers flowing towards the east and the south form a series of falls on their way as they drop from the Brazilian Plateau. This helps in generating electricity on a large scale.

Most of the industries of Brazil are based on local raw materials and abundant supplies of hydroelectricity. The most important is the textile industry, which includes spinning and weaving of cotton and wool. Cities of Sao Paulo, Rio-de-Janeiro, Belo Horizente and Santos are important industrial centres. Brazilia is the capital city.

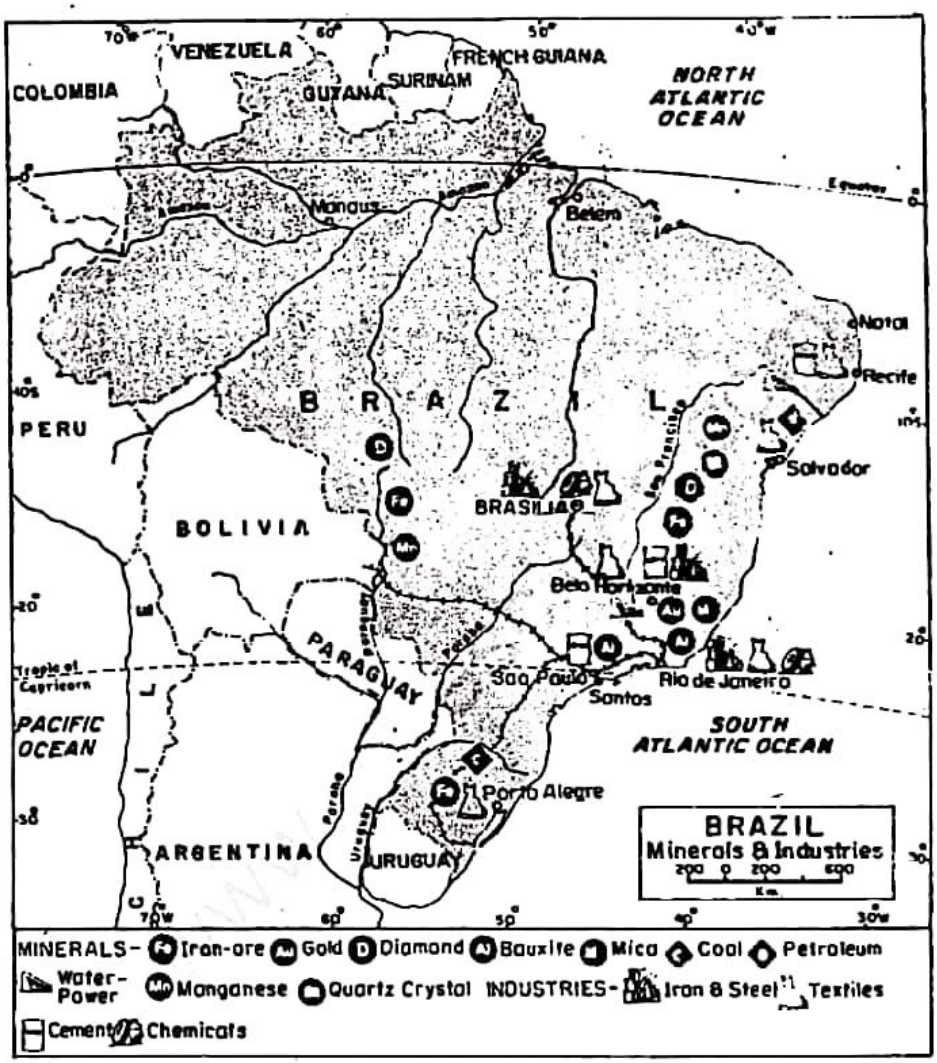


Fig. 42 Brazil—minerals and industries

THE PEOPLE

Brazil has a population of about 165 million. But its huge size gives it a low density of population, i.e., about 19 persons per square kilometre. Majority of the people live in the Atlantic coastal region. The Amazon lowland is very sparsely populated.

TRADE AND TRANSPORT

Brazil depends a great deal on trade with other countries. For many years coffee has been its leading export. Cotton takes a second place. A great variety of other products such as cocoa, iron-ore, wood, sisal and sugar are also exported. Brazil imports

mainly manufactured goods, especially machines, machine tools, coal, petroleum, chemicals, wheat and flour.

Brazil has a long coastline and there are several port cities. At the moment, roadways and railways have developed mainly in the southern and eastern parts. But roads are being constructed in the interior parts.

NEW TERM YOU HAVE LEARNT
Fazenda : A very large coffee estate or plantation in Brazil.

Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) How did Brazil receive its name?
   (ii) Which are the two main plateaus of Brazil?
   (iii) What type of climate is found in the Amazon basin?
   (iv) Name the two leading exports of Brazil?
   (v) Why is the Amazon lowland very sparsely populated?
2. Brazil is a land of green and thick forests. Some of its more useful trees are described in the first column. Match them correctly with their names given in the other column.

(a) One of the most important redwood trees	(i) Brasil
(b) A very, very light wood used for making lifeboats	(ii) Parana Pine
(c) A tree from which wax is derived	(iii) Cinchona
(d) A tree whose bark is used in combating malaria.	(iv) Balsa
	(v) Carnauba

3. What conditions are favourable for a good coffee crop.
4. Give an account of the major agricultural and mineral products of Brazil. What are its exports?
5. Write some of the main characteristics of industries in Brazil.

SKILLS IN GEOGRAPHY

6. In an outline map of Brazil mark the following and label them.
   (i) Coffee-growing areas:
   (ii) Areas growing sugarcane
   (iii) Important mineral zone
   (iv) Brasilia, Rio-de-Janeiro and Santos
   (v) Railway line from Brasilia to Santos.

CHAPTER THIRTEEN

The Land of Wheat and Cattle — Argentina

TERM THAT YOU KNOW

Rotation of crops : Different crops grown one after the other on the same piece of land, mainly with a view to restore fertility of the soil

Occupying the southern part of the continent, Argentina is the second largest country of South America. Name the countries having common boundaries with Argentina. Argentina owes its wealth to its rich grasslands, the pampas.

Look at the map of Argentina and find out the latitudes and longitudes between which Argentina is situated. Which island forms its southernmost portion? Note the islands that lie south-east of the country. Argentina is nearly four-fifths the size of India. But its population is even less than that of Gujarat.

LAND AND CLIMATE

Argentina is mainly a country of lowlands. These lowlands lie to the east of the mountainous areas of the Andes. They run all through its length from north to south. In the north, they are occupied by marshy lowlands of the Gran Chaco. In the south, beyond the Colorado river, they merge into an extensive low plateau of Patagonia. With almost a flat surface, the plateau of Patagonia slopes gradually towards the east.

The most important part of the lowlands is the pampas. In Spanish, it means 'extensive plains'. The pampas are made up of deep, fine soil free from any stone. For thousands of years stormy winds have carried fine rock particles from the dry west and deposited them in layers one over the

other. In some places, these layers of fine soil are more than 300 metres deep. The pampas are, therefore, one of the most fertile grasslands of the world.

The lofty mountains of the Andes form a boundary between Argentina and Chile. The Andes have several high peaks. Mt. Aconcagua is the highest of them all. In the southern part of the country, there are several lakes.

The climate of Argentina is generally temperate. Temperature decreases from north to south and rainfall from east to west. Most of the rainfall comes in the summer months. Which are they?

Grass is the chief vegetation of Argentina. European grasses and alfalfa have now replaced original grasses that were less nutritious. The Gran Chaco is a land of warm temperate forest interspersed with patches of savannas. Quebracho is the most important tree of these forests. Its wood is very hard.

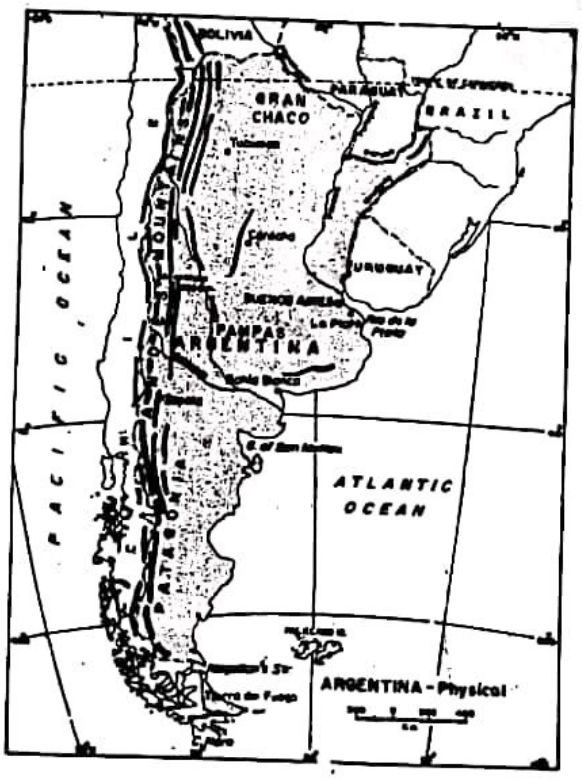


Fig. 43 Argentina

RESOURCES AND THEIR UTILIZATION

Forest

The most valuable product of the forest in Argentina is the quebracho tree. Tannin can be extracted from its bark. Tannin is a liquid used for tanning leather. The quebracho wood is used for making railway sleepers, telephone poles and fencing posts.

Animal Rearing

It includes cattle as well as sheep rearing. It is another important activity. While cattle are reared mainly in the wet areas of the east, sheep are reared in the dry west. It is because sheep can survive on scanty grasses.

In Argentina cattle are reared on large pastoral farms spreading over several square kilometres of land.

These farms are run on the lines of a big factory. There are several departments to look after different aspects such as cattle, fodder crops, machinery water-supply, transport, etc.

Gauchos rounding up cattle

Two gauchos on horseback. Look at their dresses and the big ropes in their hands. With the help of these ropes they are rounding up the cattle.

Cattle are looked after by gauchos, who put them to pasture and round them up. They belong to a mixed race of Europeans and American Indians.

Great attention is paid to the rearing of best quality beef-cattle. Cattle are sent to the ports for export. They are slaughtered and each part is utilized in some way. For example, bones are turned into fertilizers, hides and fats form other by-products. Meat-packing and beef-extracting factories are located at ports.

In Patagonia and the dry western parts, sheep-rearing is most important. Sheep provide meat and wool.

Crops

Because of the cool, temperate climate and fertile lowlands, crops are grown on a large scale. In fact, the pampas are the main source of Argentina's wealth. Wheat, maize and linseed are the main crops grown in the pampas. Argentina is one of the leading exporters of wheat, maize and linseed oil in the world. Barley and oats are grown mainly as rotation

crops. Besides linseed, sugarcane and cotton are the chief cash crops. Agriculture is one of the most important activities of the people.

Minerals and Industries

The mineral resources of Argentina are limited. Mineral oil is the most important mineral wealth of Argentina. Coal, zinc, chrome, lead and uranium are the other minerals of the country. Uranium is used in the production of atomic energy.

Most of the industries of Argentina are based on the raw materials obtained from its pastoral farming and

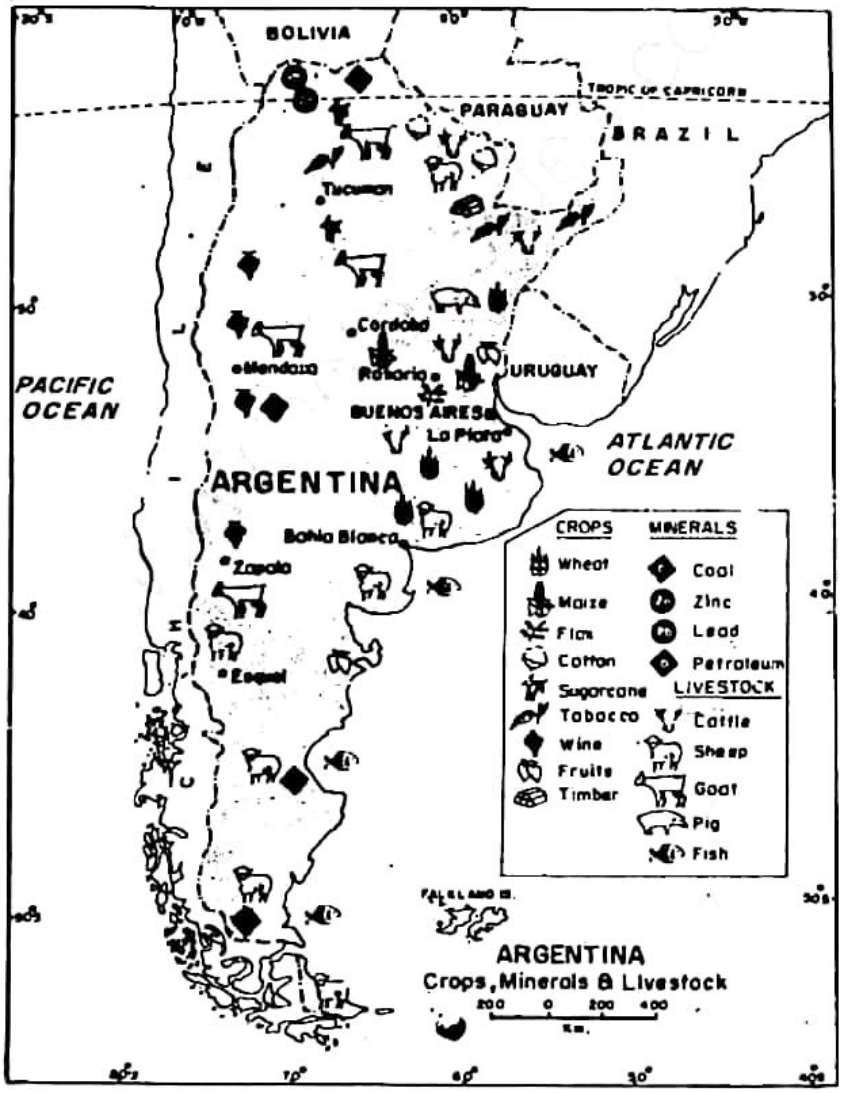


Fig. 44 Argentina—crops, minerals and livestock

agriculture. These industries are concentrated in the areas surrounding the city of Buenos Aires. The major industrial activities of this area are meat-packing, food processing, flour milling, leather tanning and making of leather goods. The region is also known for its cotton and woollen textiles and its sugar mills.

Argentina now manufactures various machines. It has set up big cement plants and oil refineries. It also now manufactures some chemicals and medicines.

THE PEOPLE

The total population of Argentina is over 36 million, giving an average density of about 46 persons per square kilometre. About three-fourths of the population lives in cities. Buenos Aires is the capital and principal city of Argentina.

TRADE AND TRANSPORT

Beef, wheat, maize, linseed and wool are the main exports of Argentina. Its chief imports are machinery and vehicles, iron and steel, chemicals, pharmaceuticals, fuel and lubricating oils. Being a lowland, transport lines are easily constructed. Argentina leads the countries of South America in the total length of railway line. The trans-Andean railway line between Chile and Argentina passes over some of the highest mountains of the world. Most of the railway lines converge in Buenos Aires. It is also the major port of Argentina.

NEW TERM YOU HAVE LEARNT

Gauchos : A mixed race of Europeans and American Indians, who look after cattle in a sheep farm

Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) Which is the highest peak in Argentina?
   (ii) Why are the pampas significant?
   (iii) Why are sheep reared in the dry parts of Argentina?
   (iv) What are the by-products of the beef industry?
   (v) Name the two important exports of Argentina.

2. Give a single term for each of the following.
   (i) Very fine dust brought by the winds and deposited in layers one over the other in Argentina.
   (ii) People of a mixed race of Europeans and American Indians who look after the cattle in a large pastoral farm.
3. Give a brief account of the pastoral farming of Argentina.
4. Give an account of the industries of Argentina and its major exports.

SKILLS IN GEOGRAPHY

6. On an outline map of Argentina mark the following and label them.
   (i) Wheat and maize producing areas
   (ii) Areas of cattle rearing and sheep rearing. Compare the two areas under each category. What conclusions would you draw?
7. Collect information about Falkland islands, especially with reference to the political dispute over the islands.

4
UNIT

AUSTRALIA

Australia is the smallest continent. It lies entirely in the Southern Hemisphere. Together with New Zealand and the nearby islands it is known as Australasia.

Australia has some unique vegetation and wildlife.

A large part of Australia is a rain-thirsty land. Only four per cent of its land is under cultivation. But people have managed their limited land and water resources very well. It is known for its pastoral industries, which are pursued on modern and scientific lines.

The average density of population in Australia is very low. Most of the population is concentrated in the eastern and south-eastern regions. Though it is mainly an agricultural and pastoral country, the percentage of the people living in urban areas is very high.

While going through the brief introduction, several queries might have come to your mind. For example, how are the natural vegetation and life in Australia different from other parts of the world? Why is Australia rain-thirsty? How have people managed their land and water resources? Why is the population concentrated only in a few areas? In the following pages you will find answers to such questions.

CHAPTER FOURTEEN

Australia — Land and Climate

TERMS THAT YOU KNOW

Inland drainage : A river system whose waters do not reach the ocean.

Monsoon winds : Winds changing their direction with the change in the seasons in a large part of Asia.

Australia is the only country in the world that covers the entire continent. It is also known as the 'Island Continent'. In area, it is slightly more than twice the size of India. It lies entirely south of the equator. Look at the globe and you will notice that Australia lies to the south-east of Asia. Name the oceans lying on the west, south and on the east of this continent. Note that the Tropic of Capricorn passes almost through the middle of the continent. Find the latitudes and longitudes between which the continent is situated. Name the big island that lies to the south-east of Australia. Australia together with New Zealand and other islands is known as Australasia.

Australia was discovered by Captain James Cook, an English seaman, in 1770. He landed near the site of the present Sydney Harbour. Since it had a favourable climate, he quickly realized that it was possible for his countrymen to settle in this new land.

The country is divided into six self-governing states and two centrally administered territories. Which is the largest state of Australia? Find out the names of the national capital city and the capital city of each state from the map.

THE LAND

Look at the map of Australia showing its major land forms or

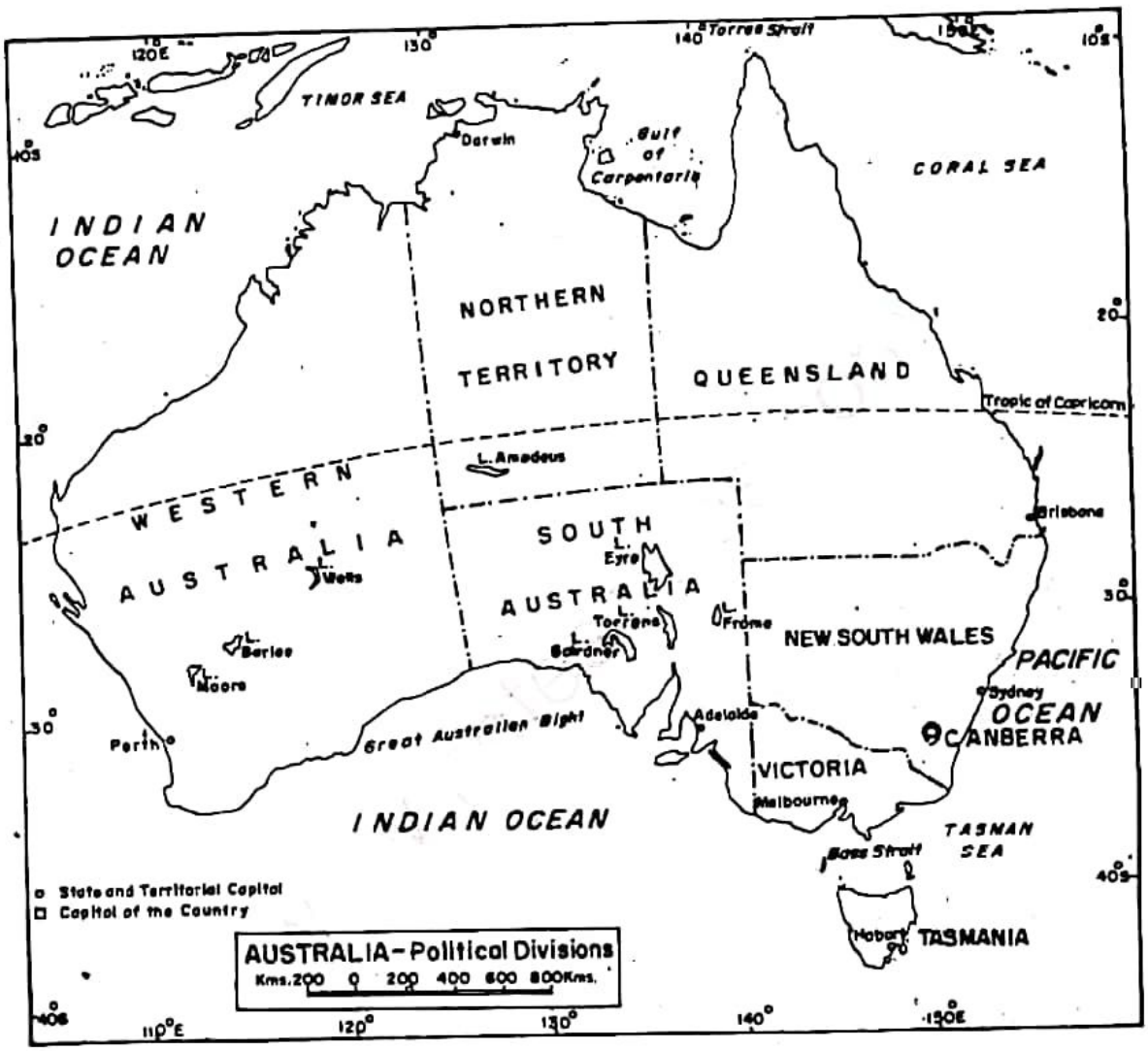


Fig. 15 Australia—political divisions

physical features. We can divide Australia into three major physical divisions. They are the Western Plateau, the Central Lowlands and the Eastern Highlands.

The Western Plateau

The western part of Australia is a vast plateau. It occupies nearly two-thirds of the continent. In places, isolated mountain ranges rise above the general level. Most of the plateau is a desert or a semi-desert. Mostly it is flat and covered with small shrubs.

The plateau is made up of old

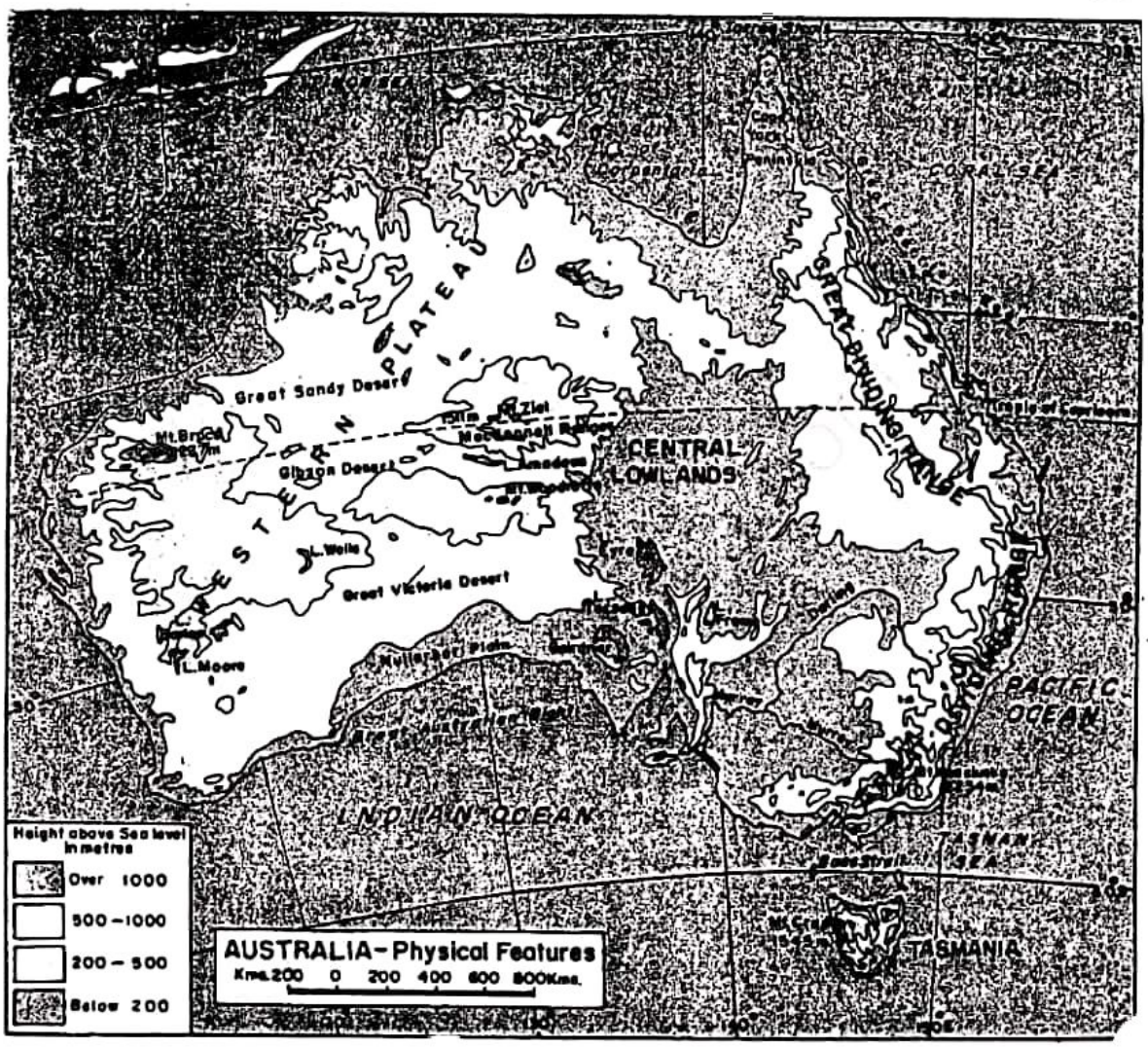


Fig. 46 Australia—physical features

rocks similar to the Deccan plateau in India. It is rich in minerals such as gold and iron-ore.

The Central Lowlands

In between the Western Plateau and the Eastern Highlands lies an extensive lowland. It extends from the Gulf of Carpentaria in the north, across the continent to the southern shores of Australia. The average elevation of the region is less than 150 metres. At Lake Eyre it is about 12 metres below sea level.

It consists of a few drainage basins. The Murray and the Darling are the

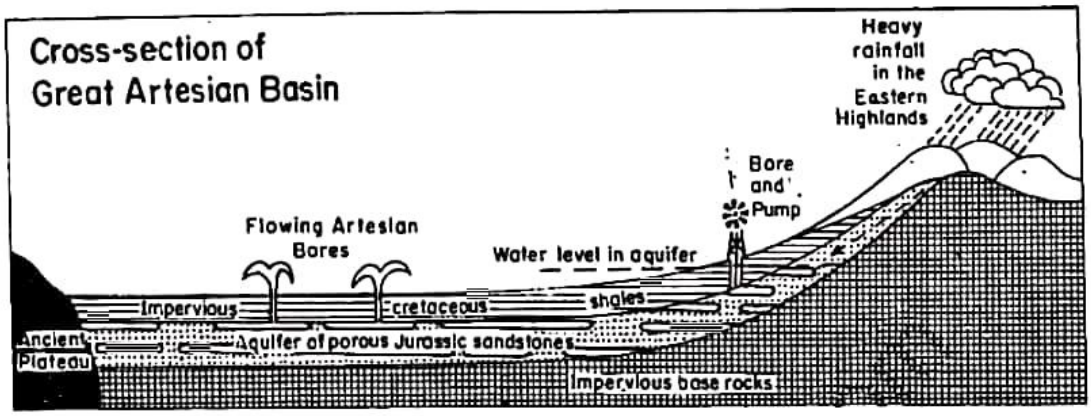


Fig. 47 Artesian wells

major rivers of Australia flowing through the Central Lowlands. They flow through the southern part of the Central Lowland. All the rivers flowing through this lowland are not able to reach the sea. Most of them fall into the inland lakes. Thus a great part of the Central Lowland around Lake Eyre is a region of INLAND DRAINAGE.

Owing to scanty rains much of the lowland is very dry. Fortunately, some water is obtained from the ARTESIAN WELLS. These wells are dug deep into the ground and the water flows out continuously and automatically.

The Eastern Highlands

The Eastern Highlands are found nearly parallel to the east coast of Australia. They extend from Cape York Peninsula in the north to Tasmania in the south. They form a long belt of elevated plateaus and are known as the Great Dividing Range. They are broad and low in the north whereas in the south they are narrow and high. Mt. Kosciusko with a height of 2,234 metres is the highest peak in Australia. Some of the peaks in this part are covered with snow in winter.

These highlands drop steeply in the east towards the Pacific Ocean and more gently in the west towards the Central Lowlands.

Most of the rivers of Australia rise in the Eastern Highlands. Those flowing towards the east are short and swift. Their valleys form useful routes to the interior. These valleys are used by the railways.

Off the north-east coast of Australia extends a very long ridge-like feature known as the Great Barrier Reef. This world famous reef is more than 1,900 kilometres in length and its distance from the coast varies from 30 to 240

Barrier Reef of Australia

A part of the Great Barrier Reef of Australia which is known for its curious and beautiful marine life. At low tides, when the sea draws back for a few hours, the colourful and fascinating coral reefs are exposed. Who are the people in the photograph and what are they doing?

kilometres. It has been formed as a result of the deposition of skeletons of corals. Corals are tiny sea animals that live close to the rocky sea floor in warm, clear, shallow waters in the tropical regions. When the corals die their hard skeletons remain fixed in place and new corals grow upon them. These large accumulations of skeletons of corals are known as CORAL REEFS.

CLIMATE

As Australia lies in the Southern Hemisphere, the seasons of Australia are opposite to those of the Northern Hemisphere. For example, when we have summer in India, it is winter in Australia.

Most of Australia is dry. The eastern, north-eastern and south-western parts of the country come in the way of winds blowing from the sea. These parts receive heavy rainfall.

The Eastern Highlands act as a great barrier to these rain-bearing winds. The rainfall, therefore, decreases considerably towards the west. Very large parts of central and western Australia have scanty or no rain at all. Thus a hot, desert type of climate is found in the vast interior of Australia.

The southern coast of Australia enjoys the mediterranean type of climate. What is the characteristic

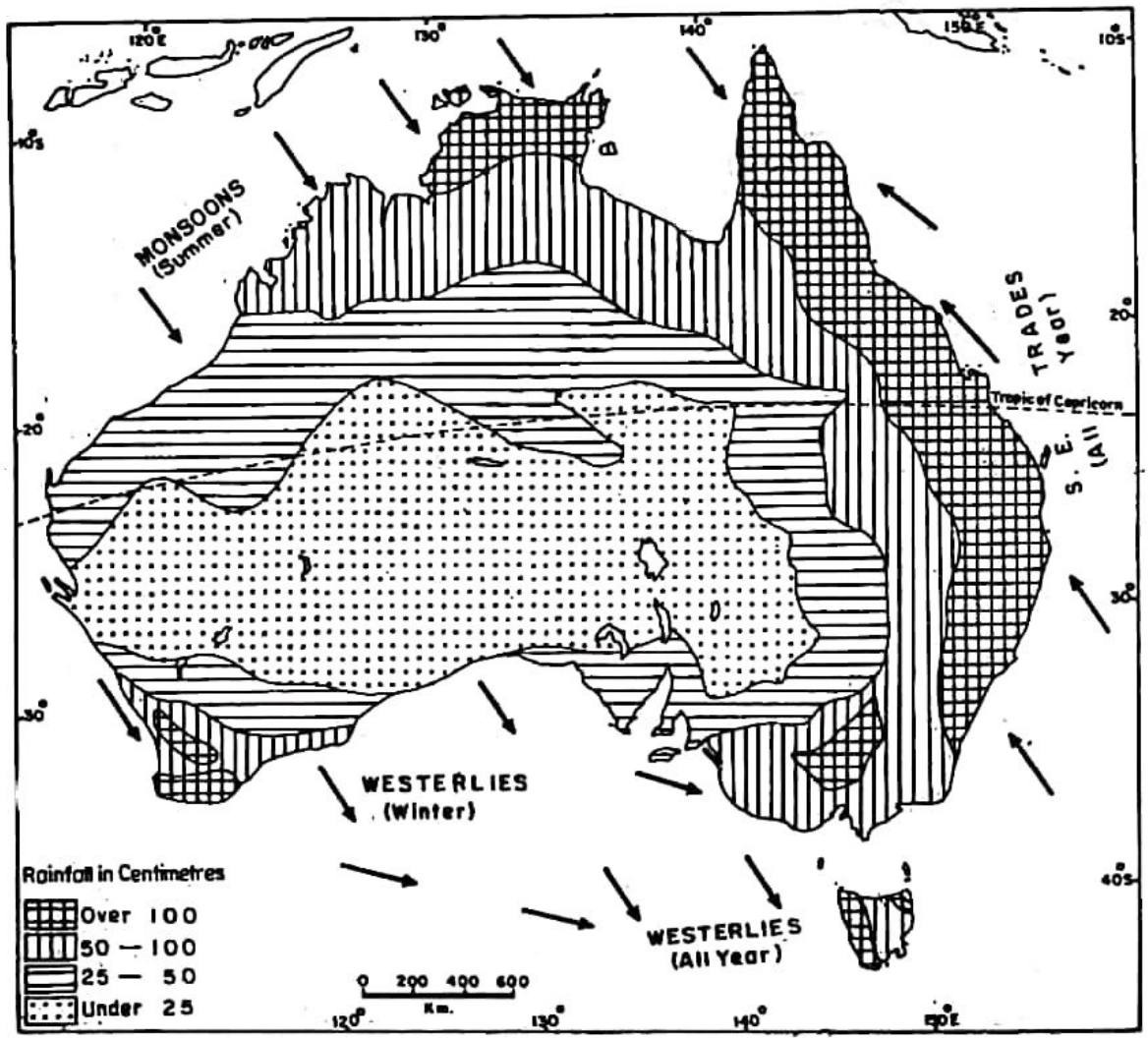


Fig. 48 Australia—annual rainfall

feature of this type of climate? The island of Tasmania receives plenty of rain from the winds blowing from the west throughout the year.

The northern part of Australia receives rains from the monsoon winds in summer. These are the winds that change their direction with the change in season. This region is cool and dry in winter and warm and wet in summer.

The land and climate of Australia have influenced the distribution of various natural resources. You will learn about them in the following lesson.

NEW TERMS YOU HAVE LEARNT

Artesian well A well in which water rises automatically to the ground surface, either through a natural or a man-made hole.

Corals A kind of sea animals that live close to the shallow ocean floor in the tropical belt. When they die, their skeletons form hard coral rocks.

Exercises

REVIEW QUESTIONS

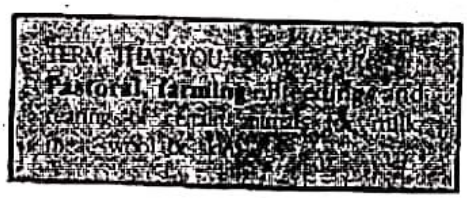
1. Answer the following questions.
   (i) Which are the three physical divisions of Australia?
   (ii) Which parts of Australia get plentiful rains?
   (iii) Name two important rivers of Australia.
   (iv) Which part of Australia has inland drainage?
   (v) Why are east-flowing rivers of Australia short and swift?
2. Give one term for each of the following.
   (i) A parallel of latitude drawn at an angular distance of 23½° from the equator to its south.
   (ii) Tiny sea animals that live in tropical seas close to the sea floor.
   (iii) A well which gives an automatic and continuous flow of water.
   (iv) Winds that change their direction with the change in season.
3. Describe the physical features of Australia giving a brief account of its plateau, lowlands and rivers.
4. Give a brief account of the Great Barrier Reef.

SKILLS IN GEOGRAPHY

5. In an outline map of Australia show the following.
   (i) The Tropic of Capricorn, the Murray and Darling rivers, Lake Eyre and the Great Dividing Range.
   (ii) Regions receiving winter rains and those getting monsoon rains.
   (iii) Area of artesian wells.

CHAPTER FIFTEEN

Australia—Resources and their Utilization



Australia is rich in several resources such as plants, wildlife and minerals. But it is deficient in water resources. Nevertheless, Australians have been able to utilize their resources to a great extent with the help of modern scientific methods. Australia is, therefore, considered one of the most industrialized countries of the world.

Forests and Grasslands

Australia remained isolated from the rest of the world for a very long time. As a result, some of the vegetation and animals of Australia are quite different from those found in other parts of the world.

Eucalyptus is the most common tree in Australia. They are evergreen trees and are known most commonly as the ' gum trees'. Some of them are very high (more than 90 metres), while some are no taller than four or five metres. Some of the varieties such as JARRAH and KARRI are valuable for their timber. Some eucalyptus trees yield oil Wattle is another common tree. It is tall and bears golden flowers in summer.

The distribution of natural vegetation is controlled by the amount of rainfall. Forests are found near the coast where rainfall is heavy. The grasslands and scrublands are found in the drier interior parts.

Look at the maps of Australia showing distribution of rainfall and natural vegetation. Trees like palm, bamboo birch and cedar grow in the

forests of the north-eastern coastal region. The forests of Tasmania, and the south-eastern and south-western parts of Australia are of the temperate type. They have mainly eucalyptus trees.

The grasslands of Australia are of two types—tropical and temperate. The tropical grasslands are found in the north. They are called savannas. The temperate grasslands found in the Murray-Darling basin are called DOWNS. These grasslands are known for pastoral farming.

The vegetation of semi-arid regions consists of salt-bush and mulger plants. Cactus and thorny grass plants are found in more arid parts.

Wildlife

Many of the animals of Australia are MARSUPIALS. These animals have a pouch-like fold of skin near the stomach in which they can carry their young ones. The kangaroo and wallby are well-known examples of marsupials. The kangaroo lives on grass and leaves. It has become symbolic of Australia. Koala is another marsupial of Australia. It resembles a teddy bear because of its flat, black nose. It lives on trees. It feeds on the leaves of the eucalyptus trees. It is active during the night and sleeps during the day.

Dingo is a wild dog. Platypus is a strange animal. It is an animal-bird that survives under water, walks on the

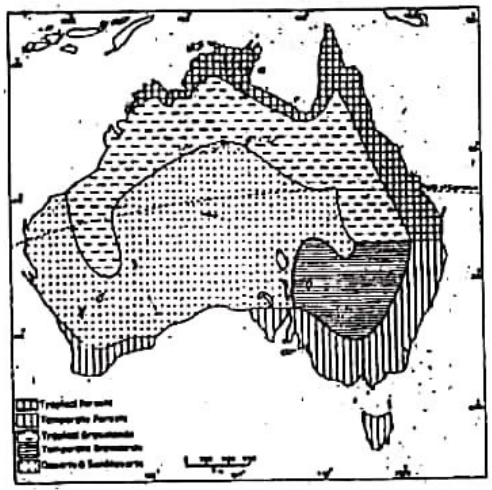


Fig. 49 Australia – natural vegetation

Fig. 50 Australia—wildlife

Kangaroos

Observe the kangaroos in the photograph. How curiously they are looking into the camera! Look at their legs and the way they stand.

A koala mother with her baby

A koala mother sitting with her baby. Koalas are marsupials. Young koalas live in their mothers' pouches until they are about six months old. They gradually start venturing out but not alone, until they are a year old.

ground and digs tunnels under the ground. It is a four-legged animal that lays eggs like a bird.

The emu, kookaburra and lyrebird are some of the birds of Australia. The emu is a large-sized bird which cannot fly but can run fast like the ostrich of Africa. The kookaburra is called the 'laughing jackass' because of its peculiar laugh-like call. The lyrebird is a very beautiful bird. It is a great mimic. It can imitate the songs of other birds, the bark of a dog, and the toot of a passing car.

Crops

Due to inadequate rainfall in most parts, only four per cent of land in Australia is under cultivation Agriculture is carried on in the south-

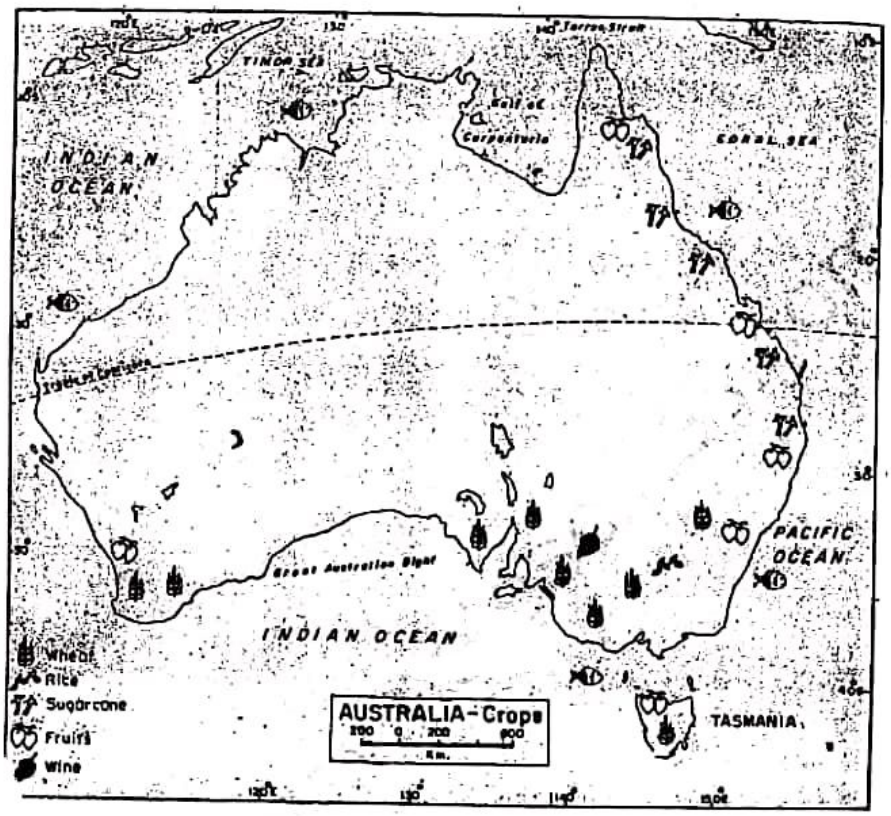
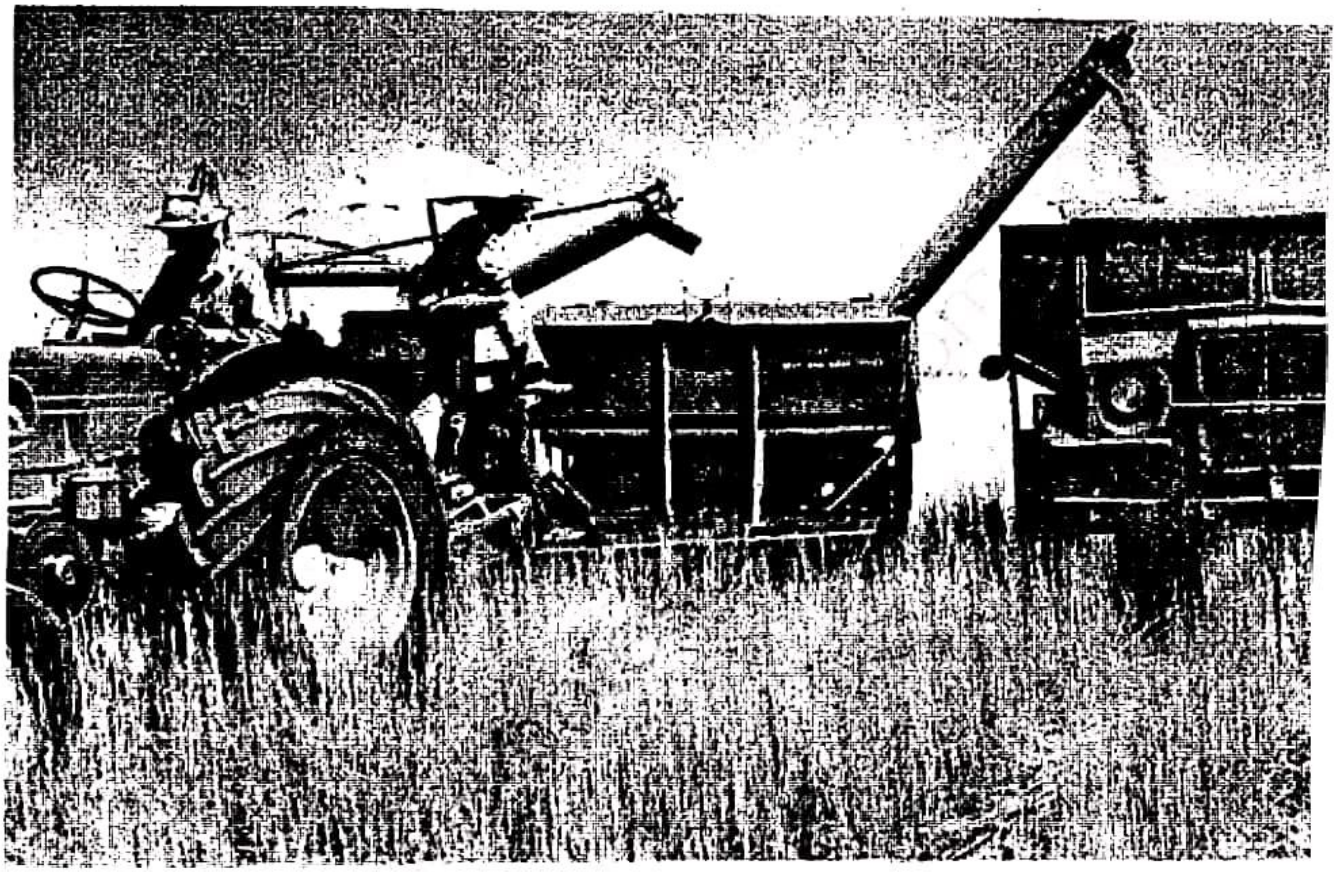


Fig. 51 Australia—crops

western and south-eastern parts and the eastern coastal areas where water supply is adequate. In some parts, where rainfall is not sufficient, farmers have to depend upon irrigation. A number of dams have been constructed across its big rivers. Water is diverted to the fields through canals.

Like India, Australia is mainly an agricultural country. The most modern and scientific methods of farming are used here. Land is mostly level and farms are of big sizes. This favours the use of machinery. Besides, the farmers have to depend on machinery for most of the work, because of the small population of the country.

Wheat is the most important food crop of Australia. New South Wales and Western Australia are the main wheat growing states. Wheat is also exported in large quantities. Barley, oats and maize are other food crops grown in Australia. Rice is cultivated in irrigated areas. Sugarcane, tobacco and cotton



Collection of wheat

Mechanized operation of wheat collection in an Australian farm. You will notice that several operations such as collection of wheat crops from the field, dehusking and loading them into trucks, are all being done simultaneously.

are important crops grown in Queensland. Australia grows a variety of fruits—both tropical and temperate. Pineapple, banana and papaya are grown in the tropical north whereas apples, oranges and grapes are grown in the temperate south

Sheep Rearing

Australia has the largest number of sheep in the world. Sheep are reared mainly for wool. They can survive on scanty grass and even on salt-bush. The best sheep lands are the lands between the rivers Murray and Darling. Merino

is the most important breed of sheep producing the best wool.

In Australia, sheep are reared on very large farms known as SHEEP STATIONS. They are run by a family with the help of a few labourers known as 'jackaroos'. They herd the flocks of sheep, attend to their injuries and mend fences to protect the sheep from wild animals such as the dingo.

pump water from the well. Besides, there are small houses for the workers.

The shearing season is the busiest season. At this time extra men are employed. Expert teams of shearers go from station to station. The wool is graded and pressed into bales. These bales are sent to markets for sale. From there they are taken to ports for export. More than 90 per cent wool is

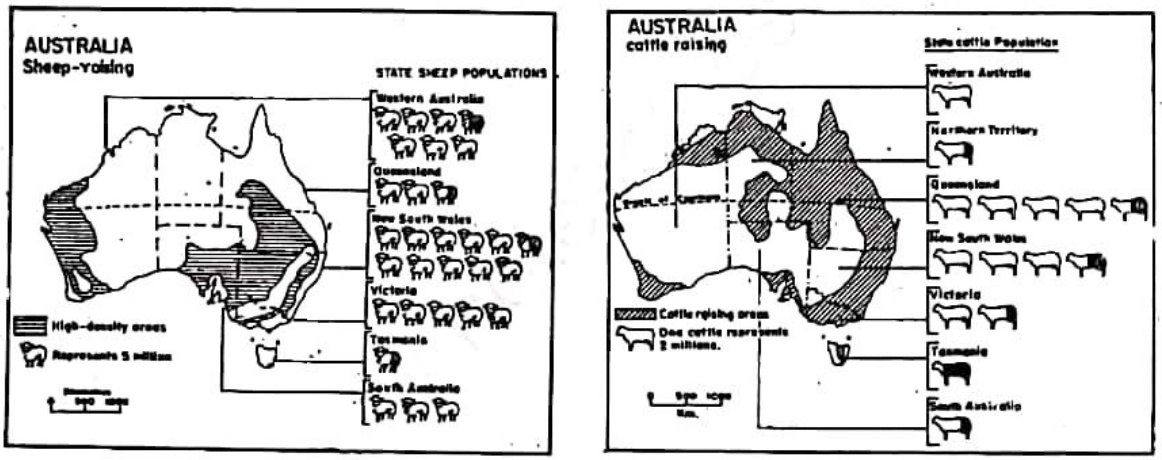


Fig. 52 Australia—distribution of sheep and cattle

A sheep station is generally spread over several square kilometres. It is divided into a number of open grasslands, each having about two to three thousand sheep. They are looked after by a shepherd or two. A flock of sheep is driven with the help of dogs from one paddock to another when grass and water become scarce.

Every sheep station is like a self-contained village. It has all the facilities of modern living. It has windmills to

exported.

Cattle Rearing

In Australia, cattle are reared partly for dairy products like milk, cheese and butter and partly for meat. The finest beef-producing cattle is reared on the grasslands of Queensland and the Northern territory.

The chief areas of dairy farming are in the east and south-eastern parts of Australia. These regions have a

Sheep rearing

Fenced enclosure in which sheep are being driven by a shepherd on horseback. You will notice similar fenced enclosures and the flock of sheep in the background. Look at the thick coats of wool on the sheep.

temperate climate. Rainfall is sufficient for the growth of grasses. Most of the milk is made into butter and cheese in cooperative factories.

Minerals and Industries

Australia has considerable mineral wealth. The discovery of gold in the last century brought the first great rush of settlers to this new land. Australia still produces a fairly good amount of gold.

Australia possesses large reserves of coal, iron-ore, bauxite, manganese and tin. It is the largest producer of bauxite in the world. But it ranks fifth in the export because a fairly good amount is used by its own industries. Australia produces as well as exports iron-ore, tin and manganese in large quantities. It also has some reserves of petroleum and natural gas.

Australia is one of the important industrialized countries of the world. It

Motor cars on an assembly line

See how cars stand and move in a line in an automobile factory near Sydney. Also note how different parts are being assembled into a car at different places along the assembly line.

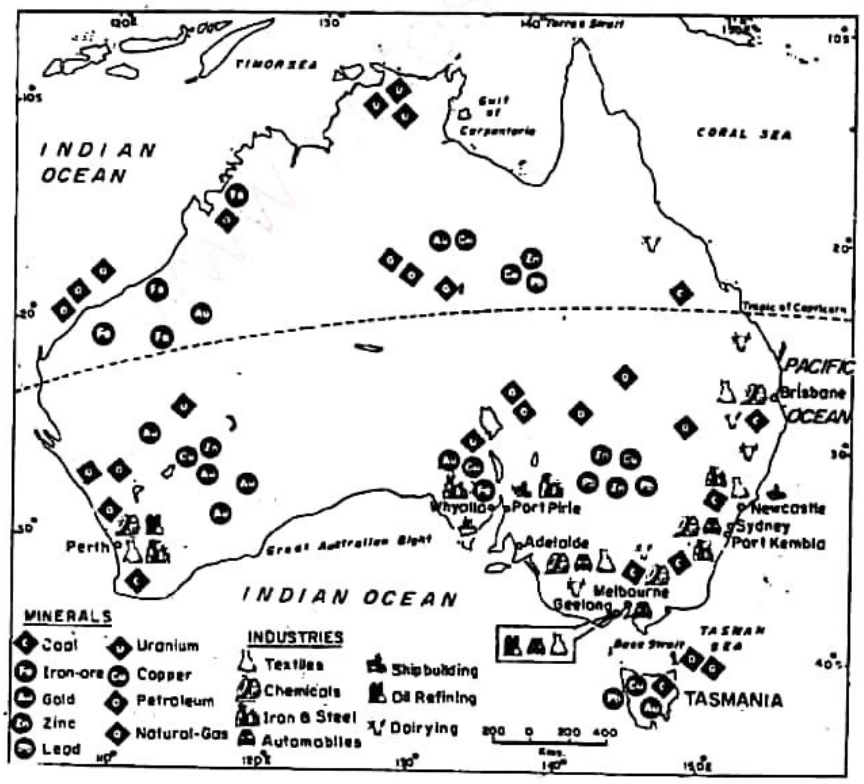


Fig. 53 Australia—minerals and industries

produces iron and steel, agricultural machinery, motor vehicles, electrical goods, chemicals, paper, ships, machine tools and refined oil. Australia makes several products from its agricultural and animal raw materials. They are cotton and woollen textiles, sugar, condensed and powdered milk, butter, cheese, tinned fruits and meat. Most of the manufacturing industries are located in Victoria and New South Wales. Find out from the map the important centres of industries.

THE PEOPLE

Though Australia is more than twice the size of India, its population is comparatively very small. Its total

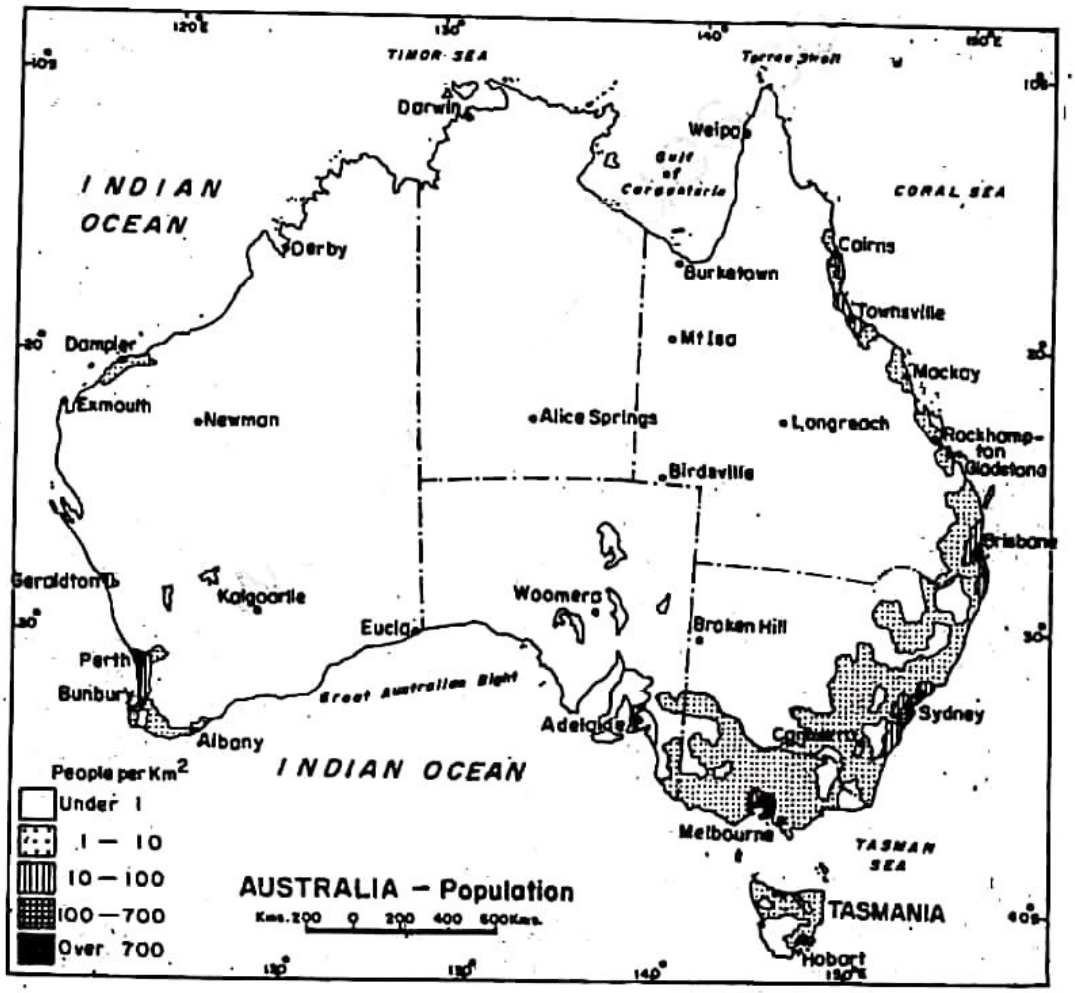


Fig. 54 Australia—distribution of population

population is about 18 million. Its density of population is about 2 persons per square kilometre.

Look at the population map of Australia. You will notice that the population is not evenly distributed. Much of the interior of Australia is very thinly populated. Can you give reasons for this? It is concentrated mostly in the eastern coastal lowlands and south-eastern parts of the continent.

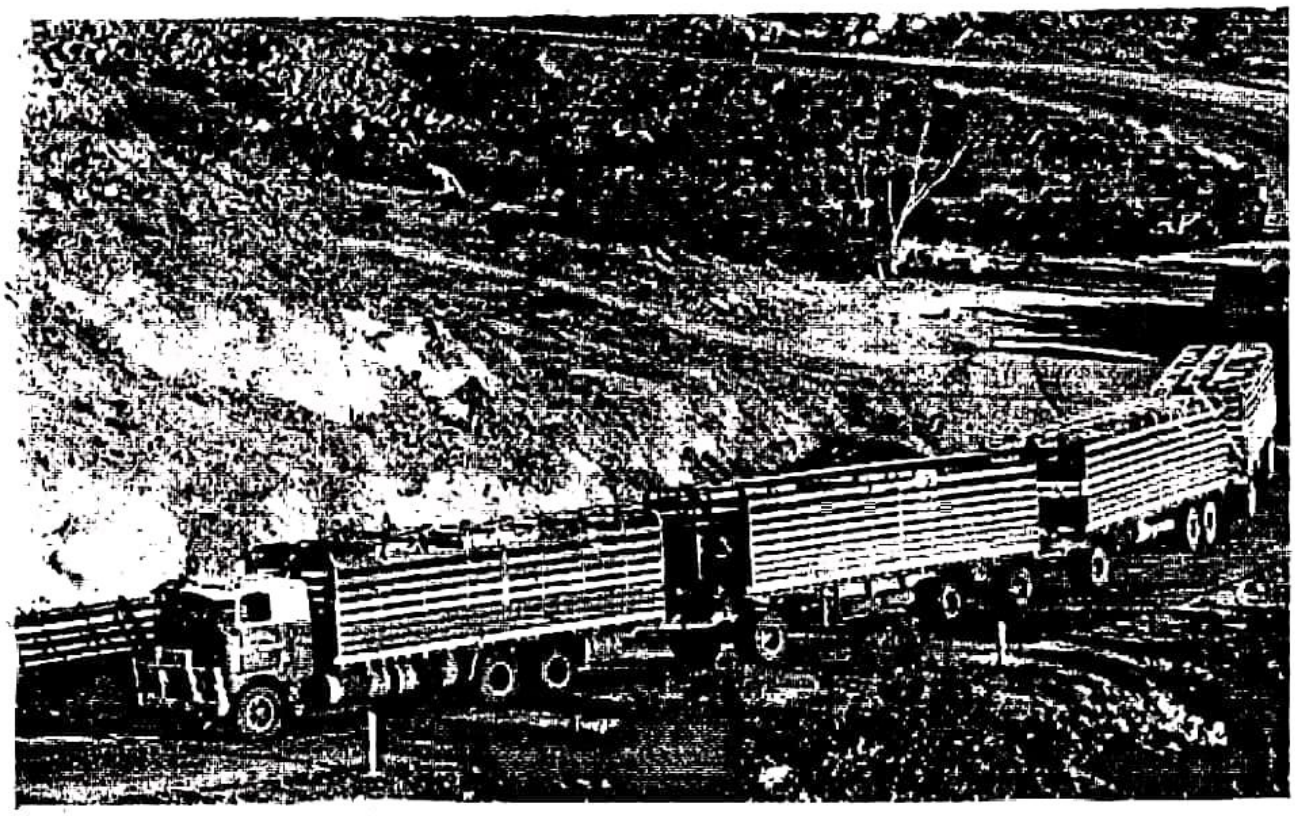
It is very interesting to note that though Australia is mainly an agricultural and pastoral country, most of the Australians live in towns. Nearly 85 per cent of its people live in the eight capital cities. Can you name these cities?

TRADE AND TRANSPORT

Note from the map that all the state capitals in Australia are port cities. The rapid growth of Sydney and Melbourne is related mainly to their importance in trade. Australia stands first in the export of wool. Its other main exports are wheat, dairy products, beef and mutton, machinery and minerals. Its main imports are machinery, transport equipments, textile goods, petroleum and petroleum products.

Road train

A big prime mover truck, dragging a road train of four wagons, known as 'dogs'. Each wagon is about 42 feet long. This road train is heading north from Alice Springs to pick up cattle.



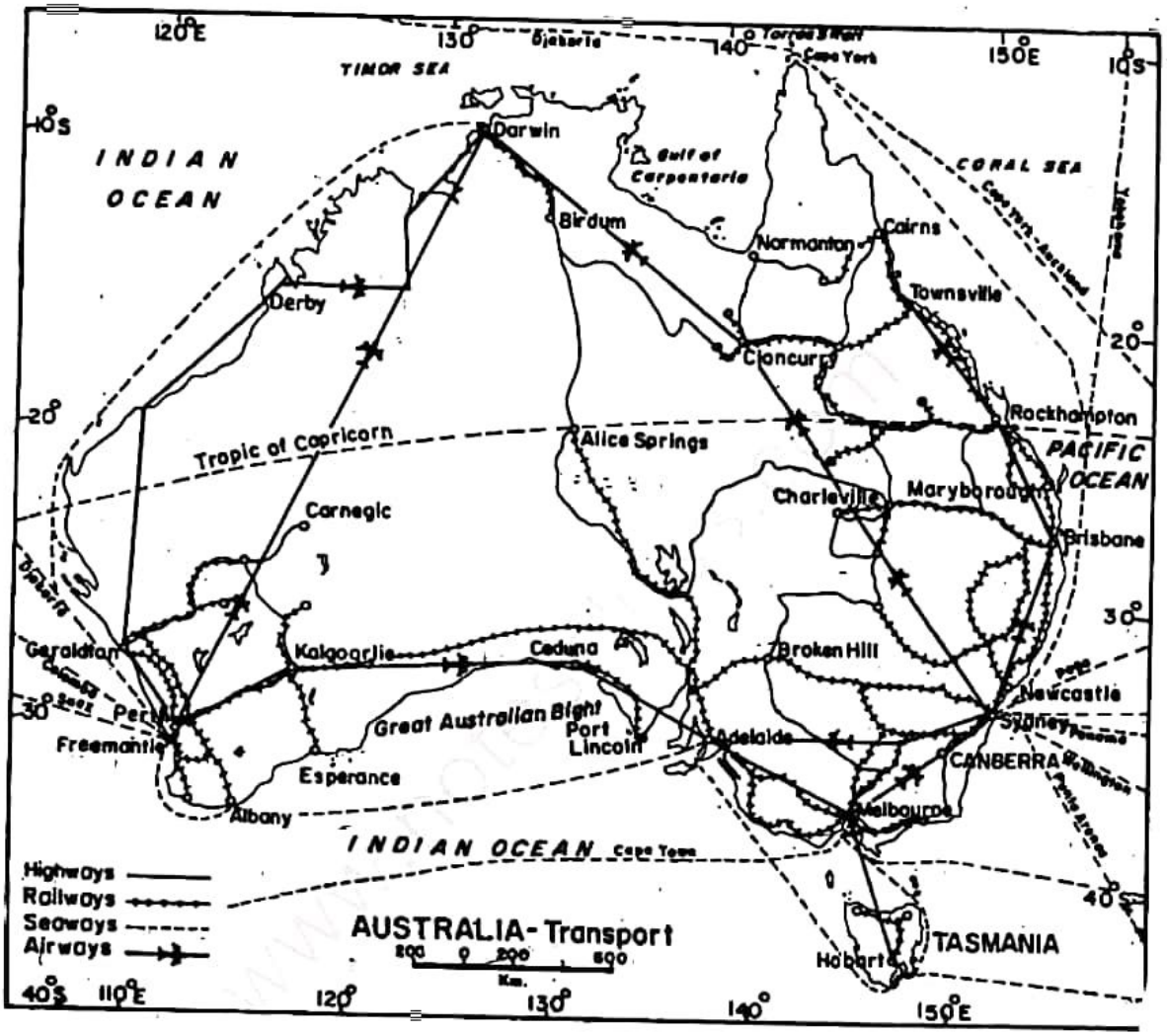


Fig. 55 Australia—transport lines and major cities

Railways are the most important means of transport in Australia. Study the railway lines of Australia from the map. What do you notice? The only transcontinental railway running from one end of the continent to the other is the Trans-Australian Railway. It runs between Sydney and Perth. Which other important cities lie on this route? The journey is of nearly 4,000 kilometres and takes several days to complete.

Good roads connect all the capital cities and important towns of Australia. The major roads in Australia are called 'commonwealth highways'. They are like the National Highways in India.

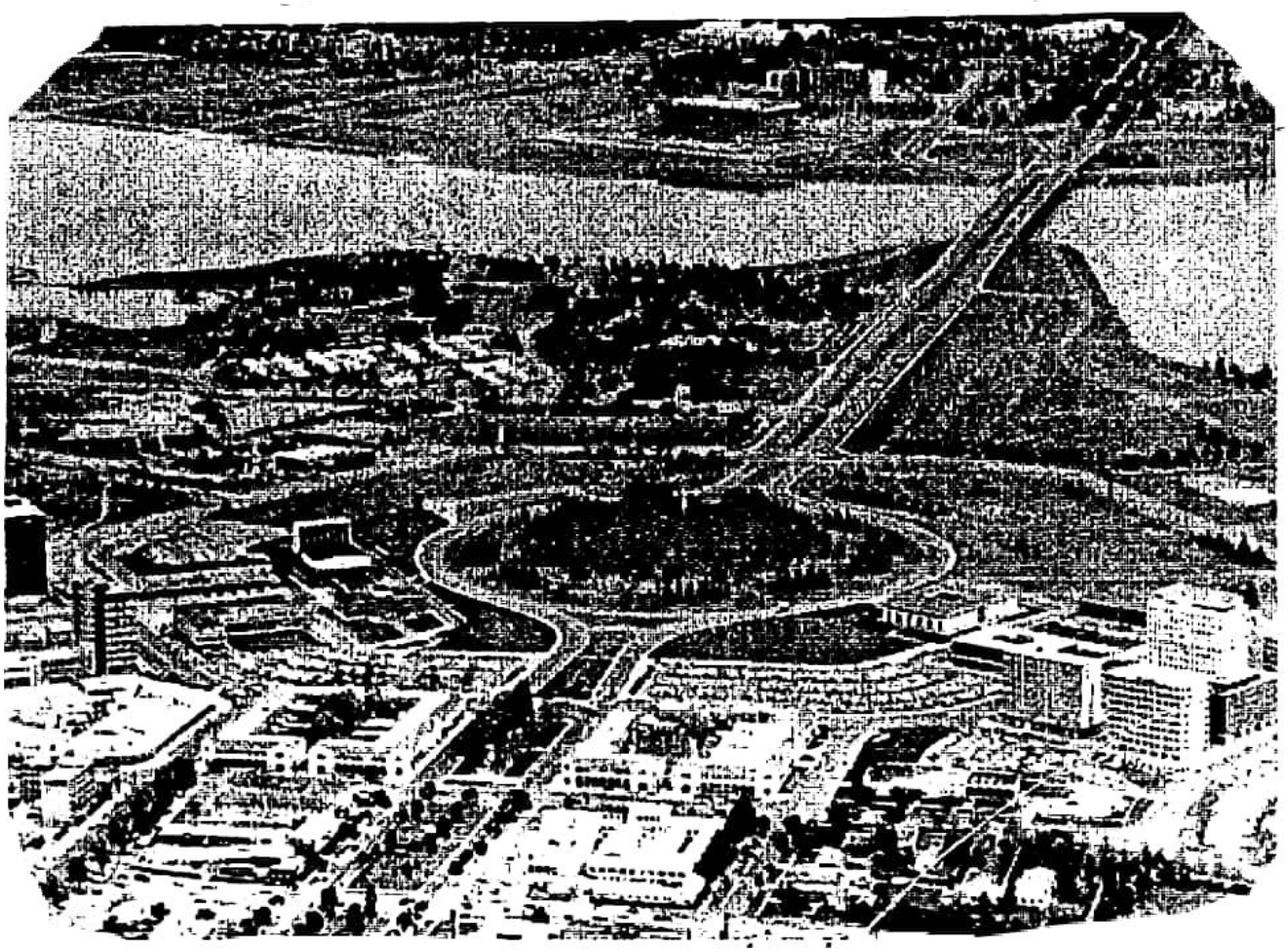
They run parallel to most of the important railways.

Australia is a continent of great distances. Air transport, therefore, has been of great importance for reaching the distant sheep farms and other farming settlements and scattered towns and cities. Aeroplanes are used very frequently for carrying both passengers and goods. There are also regular air services between Australia and important countries of the world.

One interesting feature of the air transport in Australia is the air ambulance system. It is not possible to maintain a separate doctor for each of the settlements, as they are scattered. There are air ambulance bases in each state from where doctors are flown to settlements where they are urgently

Canberra—the national capital

The beautifully laid out city of Canberra. Its plan was designed by Walter Burley Griffin, the Chicago architect, in 1911. The lake in the background is a man-made lake named after Burley Griffin. On the other side of the lake are located the Federal Parliament House and government offices buildings.



required. To make this service more useful the station homesteads are supplied with wireless receiving and transmitting sets.

All important ports of Australia are linked by sea-routes which connect them with important ports of other countries. Coastal shipping is also very important. There are regular steamer services between the important ports. Sydney is the largest city and important seaport of Australia. It is the capital of New South Wales and a major exporting port of the country. It is connected with all the important towns of Australia by rail and road. Melbourne and Perth are other important cities.

NEW TERMS YOU HAVE LEARNT

Sheep station : Very large farms where sheep are reared mainly for wool.

Transcontinental railways : Railways running from one end of the continent to the other.

Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) What types of trees are most common in Australia?
   (ii) Which animal is symbolic of Australia?
   (iii) Which parts of Australia have agricultural land?
   (iv) What factor favours the use of machinery in Australian farms?
   (v) What caused a great rush of settlers in Australia?
   (vi) Why is air transport of great importance in Australia?

2. Make out correct pairs from the following two columns.

(a) A tall tree of Australia bearing golden flowers in summer	(i) Platypus
(b) A beautiful mimic bird	(ii) Wattle
(c) An animal bird that has four legs but lays eggs	(iii) Lyrebird
(d) The largest city and the port of Australia	(iv) Kangaroo
(e) The state having a very large number of manufacturing industries	(v) Victoria
	(vi) Sydney

3. What factors were responsible for the development of sheep-rearing in Australia?

4. Which parts of Australia are very densely populated? Why are they so?

SKILLS IN GEOGRAPHY

5. On an outline map of Australia show the following.
   (i) The downs
   (ii) One important sheep rearing area
   (iii) Areas producing wheat and sugarcane
   (iv) State boundary of Victoria and its capital city
   (v) Transcontinental railway line from Perth to Sydney
   (vi) Darwin, Adelaid and Brisbane.

6. Collect information and photographs regarding the plant life and wildlife of Australia. How are these different from the rest of the world?

5
UNIT

ANTARCTICA

Antarctica is the fifth largest continent of the world. But it is the only continent which is devoid of permanently settled human population. Can you guess why?

It is called a 'white continent' because it is permanently under a thick cover of ice. It is extremely cold and windy. What kinds of vegetation and animal life would you expect in this part?

Since the beginning of this century, people from different parts of the world have started exploring this continent. Some countries have established permanent stations where a few people live throughout the year to conduct scientific studies. India has also established a base camp there. How do these people live in such a climate? What do they want to study? You will come to know about these in the following chapter.

CHAPTER SIXTEEN

The White Continent—Antarctica

Antarctica lies completely in the Southern Hemisphere with the South Pole almost in its centre. In size, it is the fifth largest continent. However, it is the only continent which is completely frozen. It is, therefore, known as the 'white continent'. It is the coldest and loneliest landmass on the earth. Human beings cannot live here permanently.

The mainland of this continent was first discovered in 1820, but real exploration began only in the twentieth century. It was, therefore, little known to the world for a very long time. However, in the past few decades hundreds of explorers and scientists from many different countries have gone to Antarctica. India has also sent a few teams of scientists to this continent for conducting scientific studies. It has established a permanent base camp at Dakshin Gangotri for this purpose. Several observation stations have been established by other countries to gain more knowledge about the earth and its atmosphere. Scientists feel that weather in this part may influence weather in other parts of the world.

LAND AND CLIMATE

About 99 per cent of the continent remains covered permanently with ice, the average thickness being

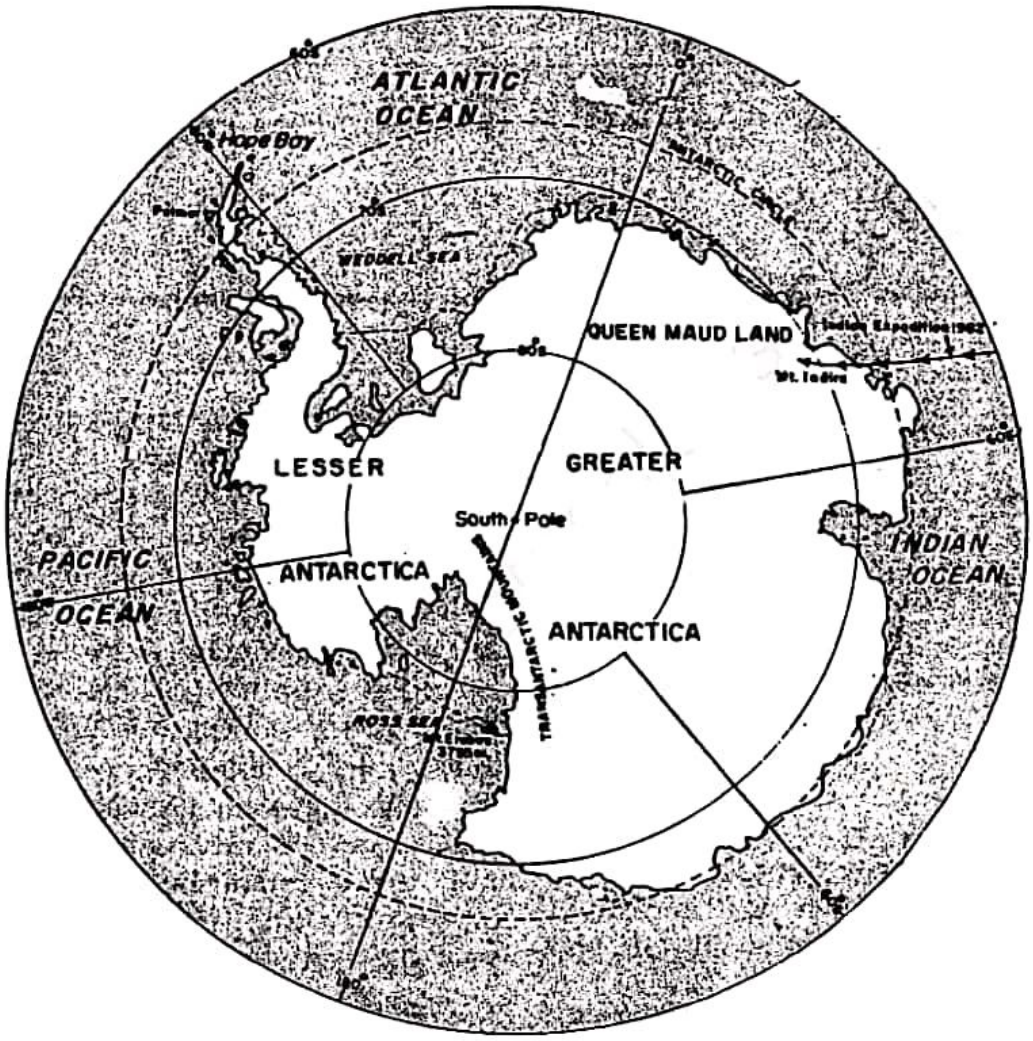


Fig. 56 Antarctica

approximately two to five kilometres. Much of Antarctica is rugged and mountainous. Shores are steep and there is no coastal plain worth the name. A few isolated valleys exposed to high velocity winds are bare. Queen Maud Range divides the continent almost into two equal parts. One of the most picturesque landmarks on the continent is Mount Erebus which is the only live volcano on it.

Though vegetation in this part is

comparatively more than in the other parts of the continent, it is very sparse. It consists of mostly lichens and mosses. Surrounding the icy continent is a vast expanse of sea called the Southern Ocean. It is a cold ocean, the surface temperature of water rarely rising above 4° celsius.

The climate is severe. At the South Pole, the lowest temperature has been recorded at —95° celsius during winter. Mid-summer temperature normally does not rise above 0°C. It is summer in Antarctica from November to February. The sun never sets during this period. On the other hand, during winter, i.e., in May, June, July and August, the sun never rises. Wind blows at high speed throughout the year. At the centre of the continent, the air is relatively calm.

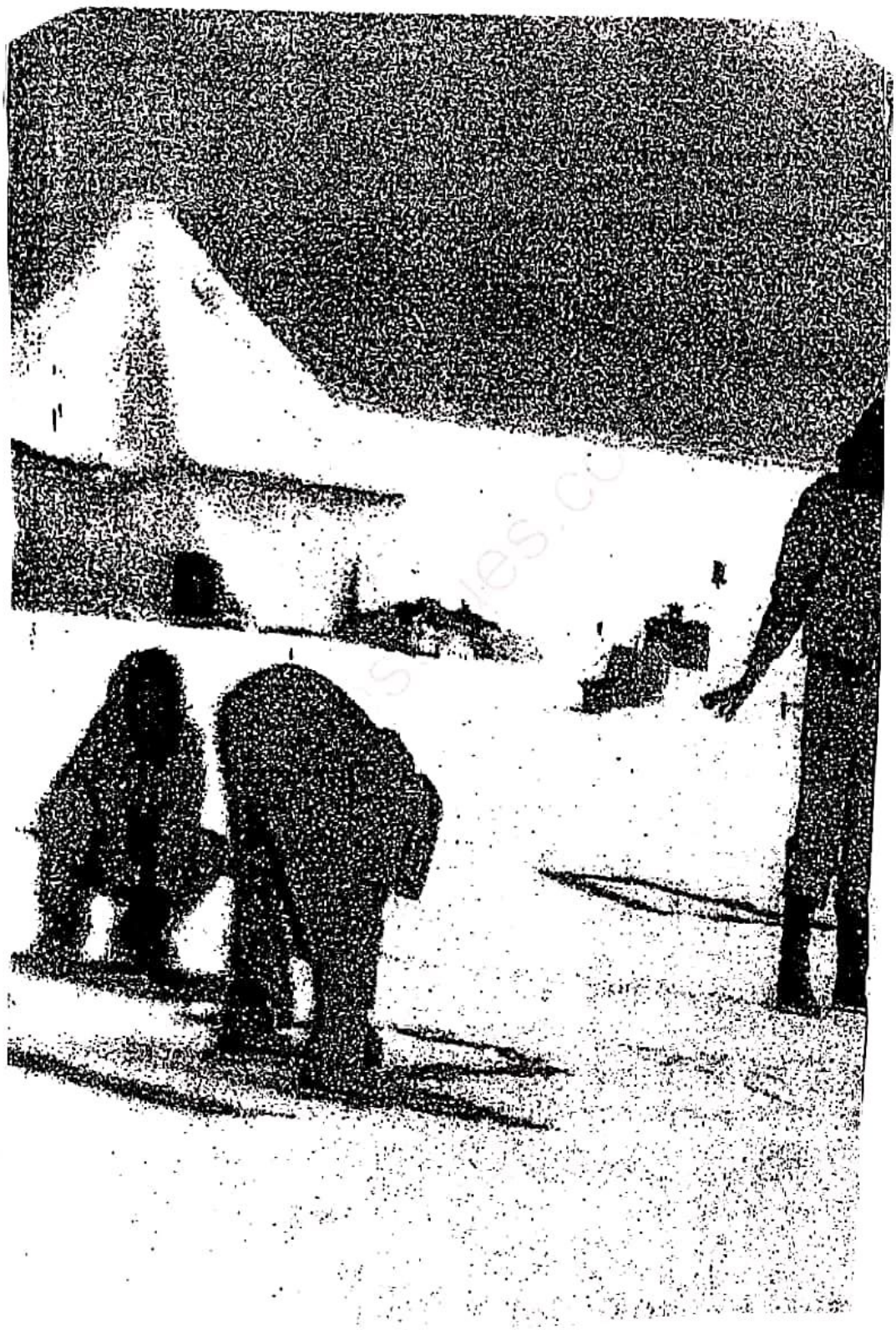
RESOURCES AND THEIR UTILIZATION

Many scientists believe that there may be valuable mineral deposits under the ground. But there are not enough evidences to support these views. It is because we still do not have any technology to explore under thick layers of ice. The scientists have to brave the icy and violent winds to carry out their studies in the open. Some amount of coal, iron and copper have been found. However, their utilization on a commercial basis has not yet started because of many difficulties.

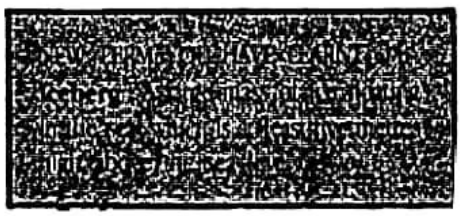
About 70 per cent of the world's supply of fresh water is stored in the ice caps and ice sheets of this continent. Huge masses of ice from these ice caps break away and float in the surrounding sea. These are called ICEBERGS. It is interesting to know that there has been thought of towing the icebergs to the desert lands of Arabia or western Australia for meeting their requirements of fresh water. Technically it is possible, but it would be very costly to do so.

The land surface is mostly barren and is a very cold desert. The scanty vegetation can support only little animal life. But the sea is bountiful. Penguins, sea birds and seals are abundant. Whales are also found in the surrounding sea. However, there is an international law restricting the killing of these sea animals on a large scale to preserve the environment. The only resource which has some potential of development is krill. Krills are very small fish (length upto six cm and weight, 1—105 grammes). They are found in swarms extending upto 100 metres or more. They can provide a variety of products such as fish-meat, krill-meat paste (used as breadspread) and krill-protein.

Despite its vast size, Antarctica has little to offer by way of material



resources. But it provides unique opportunities to scientists to learn more about the earth. This continent, therefore, is also called 'a continent for science'. People have created liveable environments within the stations established by them. There are special kinds of permanent structures which can withstand the harsh climate and high velocity winds. Electric generators supply electricity for lighting. Special clothing, deep-frozen foods, stoves and special vehicles have been flown in.



Exercises

REVIEW QUESTIONS

1. Answer the following questions.
   (i) Why is Antarctica called a 'white continent'?
   (ii) Name the ocean surrounding Antarctica.
   (iii) Why don't people live permanently in Antarctica?
   (iv) What types of mineral resources have been found in Antarctica?
   (v) Why are scientists from different parts of the world interested in Antarctica?
   (vi) Name the bird which is found only in Antarctica.
2. Distinguish between an ice cap and an iceberg.
3. Give a brief account of the sea-resources of Antarctica.
4. Discuss the problems in exploring or utilizing the resources of Antarctica.

SKILLS IN GEOGRAPHY

5. Study the photograph on pages 138-139 and answer the following.
   (i) What types of clothes are the people wearing and why?
   (ii) Do you see any signs of vegetation? If not, why?
   (iii) What kinds of buildings do you observe?
6. Collect information regarding India's Antarctica Expedition. Why do Indian teams leave our country in winter months knowing that Antarctica is a cold continent?