

# Human and Economic Geography

Goh Cheng Leong □ Gillian C. Morgan

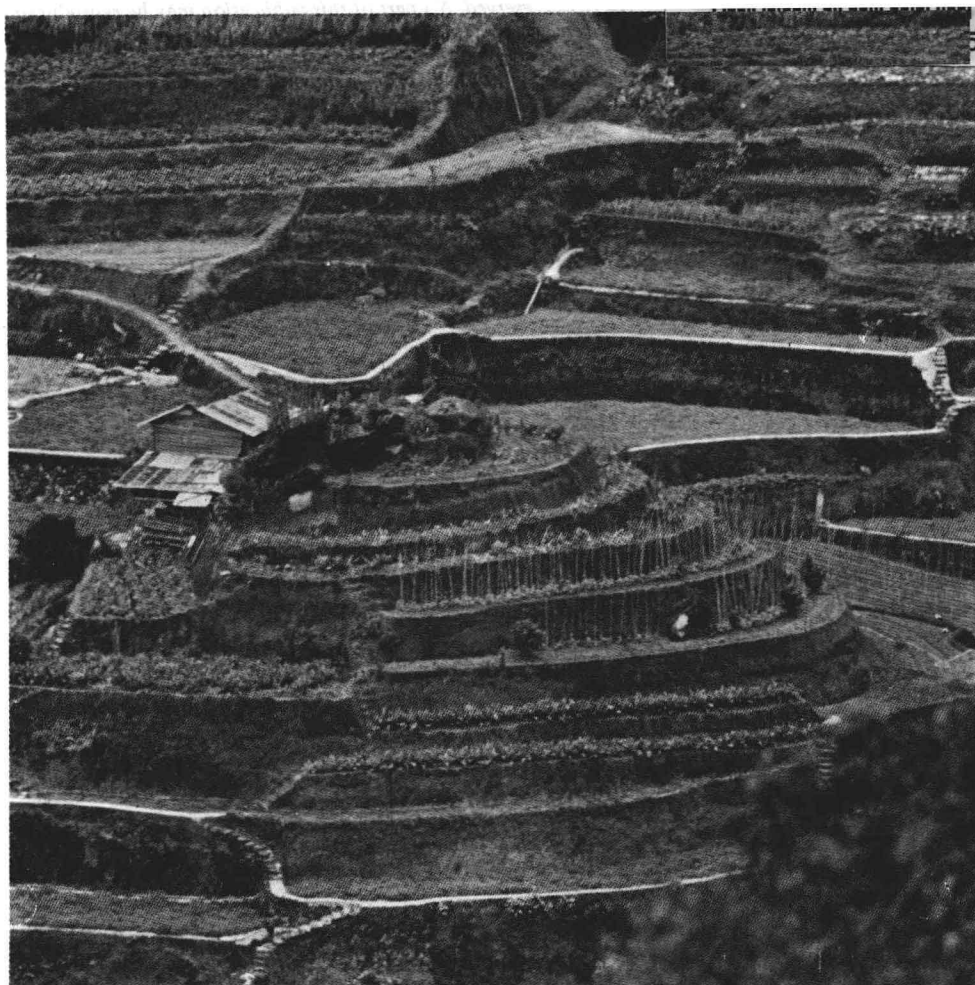


SECOND  
EDITION

# Human and Economic Geography

**SECOND EDITION**

GOH CHENG LEONG  
GILLIAN C. MORGAN



KUALA LUMPUR

**OXFORD UNIVERSITY PRESS**

SINGAPORE NAIROBI DELHI HONG KONG

*Oxford University Press*  
*Oxford London Glasgow*  
*New York Toronto Melbourne Auckland*  
*Kuala Lumpur Singapore Hong Kong Tokyo*  
*Delhi Bombay Calcutta Madras Karachi*  
*Nairobi Dar es Salaam Cape Town*  
*and associates in*  
*Beirut Berlin Ibadan Mexico City Nicosia*

©Oxford University Press 1973, 1982  
First published 1973  
Reprinted seven times  
Second edition 1982  
Second impression 1983

*All rights reserved. No part of this publication may be reproduced,  
stored in a retrieval system, or transmitted, in any form or by any means,  
electronic, mechanical, photocopying, recording or otherwise,  
without the prior permission of Oxford University Press*

ISBN 0 19 582816 X

*Printed in Malaysia by Mun Sun Press Sdn. Bhd., Shah Alam*  
*Published by Oxford University Press, 3, Jalan 13/3,*  
*Petaling Jaya, Selangor, Malaysia*



# Preface to First Edition

*Human and Economic Geography* has been written mainly to cater for students taking the H.S.C. and Advanced level G.C.E. examinations. It covers in detail the syllabus for H.S.C. Paper 3, though it is also intended for use as a general reference book on human and economic geography. Exercises and questions typical of those set in the examinations have been included to allow students to discover the extent of their knowledge and to practise assembling material which may be covered in several separate chapters of this book. Key words and phrases have been printed in bold type to assist the student further in quickly assimilating the information.

In writing this book we have had in mind the needs and interests of students in developing countries, since most of the textbooks already available are written mainly for British or American schools and colleges. Much emphasis has therefore been placed on conditions and problems in developing countries, especially in the **Discussion Points**, and wherever possible regional examples have been quoted to illustrate general points. We have, at the same time, maintained a world-wide coverage to assist comparison between developing and advanced countries.

The **Discussion Points** focus on points of topical interest or on particular problems. It is hoped that many of them may be used as the starting point for class discussion, and may stimulate the students' interest in current and future developments in economic geography. In contrast the **Special Topics** focus attention on the existing human, economic and natural factors influencing the patterns of distribution of various types of economic activities.

Most countries are now changing from the use of Imperial to Metric (S.I.) units of measurement and to avoid confusion both types of units have been included. A conversion table is provided to allow accurate conversion of any particular figure, and approximate conversions, which are often more easily remembered than exact figures, have been included in the text. The exception to this rule is in the use throughout of metric tonnes only, since the difference between metric and imperial tons is slight and the use of both figures would have been clumsy. In most cases, figures for production of various commodities have been quoted as a percentage of the world total. This is considered more useful than the use of absolute figures for any particular year, since absolute figures fluctuate more widely than percentages from year to year and in any case such figures of many millions of tonnes, for example, are less easily remembered for comparative purposes than simple percentages. Where actual figures are quoted, they are derived from the published figures of the United Nations, and refer to the year 1967 unless otherwise stated. More up-to-date figures have been included wherever possible.

Although we have covered most aspects of human and economic geography in this book, some students may wish to pursue certain aspects of the work further and for this reason we have included a list of books for further reading.

We wish to take this opportunity of thanking the editorial and production staff of O.U.P., Kuala Lumpur, and all those who have assisted us with information and advice in the production of this book. In particular we wish to acknowledge the assistance of Dr. R.P.C. Morgan, formerly of the University of Malaya, who read and commented on the original manuscript.

GOH CHENG LEONG,  
Malay College,  
Kuala Kangsar,  
Perak, Malaysia

GILLIAN C. MORGAN,  
Bedford,  
England

June 1972

# Preface to Second Edition

Nothing changes more rapidly in geography than economic statistics since they are affected by all kinds of economic, political, social, physical and human forces. New developments, new crops, new techniques, changing political groupings all affect the world's production and distribution of commodities and therefore help to change the human and economic geography of various countries. The last ten years have seen tremendous changes in the world economy. Oilfields have been developed in many new areas, new crops and industries have been adopted in both developed and developing countries, old industrial districts have declined and new ones been established.

It is hoped that the thorough revision of this book which we have undertaken has taken account of the most important of these changes. Existing information has been checked, alterations made where necessary and much new material has been added. As far as possible the statistics in the book have been updated to a standard date of 1977, based on United Nations published sources. The use of both metric and imperial units has been retained. Chinese names are now written in the Pinyin transliteration used by the mainland Chinese themselves, since this is now gaining wide acceptance. The older form of spelling is however retained for clarity since Pinyin is still little used in some countries. 'Kampuchea' is used throughout instead of 'Cambodia'.

More case studies have been included, especially in the chapters on agriculture and industry; the coverage of urban geography and of transport networks has been expanded and the chapters on oil and gas, electricity and fishing have been amended to contain much new material. More than eighty diagrams and maps have been redrawn or produced especially for the second edition.

Our aim has been to maintain our thorough coverage of human and economic geography while bringing out particularly those aspects of the subject which receive frequent mention in examination papers. Each chapter ends with a list of examination questions related to the material covered in the chapter. We hope that the book will continue to meet the needs of students in many countries.

GOH CHENG LEONG  
Sekolah Tunku Abdul Rahman,  
Ipoh,  
Perak,  
Malaysia

GILLIAN C. MORGAN  
Bedford,  
England

February 1982

# Acknowledgements

The authors and publishers deeply acknowledge the debt they owe to the numerous Commercial Agencies, and Government and United Nations Agencies, who have kindly supplied photographs and material for figures and diagrams included in this book. They have been acknowledged individually beneath their respective contributions. The bottom photograph on the cover was supplied by Dr. Yap Tuan Ngan. The photographs bearing no acknowledgements have been supplied either by the authors or the publishers.

# Conversion Table

## Imperial units to metric S.I. units

<i>Quantity</i>	<i>Imperial unit</i>	<i>Metric equivalent</i>
Length	inch	0.0254 m
	foot	0.3048 m
	yard	0.9144 m
	mile	1.6093 km
	nautical mile	1.8532 km
Area	square inch	645.16 sq.mm
	square foot	0.0929 sq. m
	square yard	0.8361 sq. m
	square mile	2.5899 sq. km
	acre	0.4047 hectares (4047 sq. m)
Volume	cubic inch	16.3871 cu. cm
	cubic foot	0.0283 cu. m
	U.K. gallon	4.5 litres
	1000 U.K. gallons	4.5 cu. m
	U.S. gallon	3.785 litres
Weight	ounce	28 g (0.028 kg)
	pound	0.4536 kg
	U.K. ton	1.016 metric tonne (1016.05 kg)
Pressure	pound per sq. inch	6894.8 Newtons per sq. m
Yield	bushel (60 lb) per acre	67.253 kg per ha
Temperature	degree Fahrenheit (°F)	0.555 degree Celsius (°C) $t^{\circ}\text{F.} = 5/9(t-32)^{\circ}\text{C}$

## Metric S.I. units to imperial units

<i>Quantity</i>	<i>Metric unit</i>	<i>Imperial equivalent</i>
Length	centimetre	0.394 inches
	metre	3.281 feet (1.094 yards)
	kilometre	0.621 miles



## CONVERSION TABLE

<i>Quantity</i>	<i>Metric unit</i>	<i>Imperial equivalent</i>
Area	square metre	10.764 sq. ft
	hectare (10 000 sq. m)	2.471 acres
	square kilometre	0.386 sq. miles
Volume	cubic metre	35.315 cu. ft
	litre (1 000 litres =	0.22 U.K. gallons
	1 cu. m)	0.264 U.S. gallons
Weight	gramme	0.035 oz
	kilogram	2.205 lb
	metric tonne (1 000 kg)	0.9842 U.K. tons
Pressure	Newtons per sq. metre	$1.4504 \times 10^4$ lb per sq. in
Yield	100 kg per hectare	1.4869 bushels per acre
Temperature	degree Celsius (°C.)	1.8° Fahrenheit (°F.) $t^{\circ}\text{C.} = 9/5t + 32^{\circ}\text{F.}$

**Currencies<sup>1</sup>**

1 Malaysian ringgit = 1.09 Singapore dollars

1 Malaysian ringgit = 0.44 U.S. dollars = £0.23 Sterling

1 U.S. dollar = £0.52 Sterling = 2.25 Malaysian dollars

£1 Sterling = 1.91 U.S. dollars = 4.30 Malaysian dollars

<sup>1</sup> Correct at the time of writing.

# Introduction

HUMAN geography covers a very wide field. It embraces the study of the human race, the growth of human numbers, the movements of population, physical and cultural differences between human groups, and economic activities. It also covers the relationship between Man and his natural environment, and the way in which men and their activities are distributed, e.g. in the study of settlement size, shape and distribution, or the distribution of economic activities.

Economic geography, with which much of this book is concerned, is a branch of human geography. It deals with the distribution of natural resources and their use by Man. It therefore covers the exploitation of the various climatic and geological phenomena, the use of plants and animals for food and industrial raw materials, the use of seas and forests, and of mineral resources. It also covers other kinds of economic activities such as industry and trade, which have grown up as a result of technological development in the uses of natural resources. Such activities as farming, manufacturing and trade no longer depend on a simple relationship between Man and his environment but must take into account the political and economic interaction between different regions. Finally the study of economic geography includes the distribution of the various kinds of economic activities around the world.

In studying the various economic activities of mankind in detail, several aspects must be covered. Firstly, the methods and means of production must be analysed; the way in which crops are grown or trees extracted from forests, or minerals mined or manufactured goods such as steel or textiles are processed, must be known in order to understand the relationship of such methods to both physical and human factors. Methods of production can vary not only with climate, soils or availability of raw materials, but also according to the numbers, stage of development, technological achievements, and the cultural and social characteristics of the people who carry them out.

Secondly, the distribution of economic activities must be studied. There are many factors to be taken into consideration in the location of agricultural or industrial activities. Distribution may be affected by

the techniques employed, and may change with time as these methods and techniques are improved. The distribution of a crop, or of activities such as lumbering, may depend largely on the availability of suitable climatic, soil or vegetation factors, but it may also depend on economic factors such as comparative costs of production, availability of markets for the goods produced, availability of transportation to take goods from areas of production to markets, world economic and political conditions, market fluctuations and government economic policies.

Because population and natural resources are so diverse and so unevenly distributed over the face of the earth, different regions have different agricultural and industrial activities. Such regional specialization leads to trade between different regions and countries. Thus international trade and the modes of transport by which goods are carried are also studied in economic geography.

Finally, it is important to discuss the future trends in both techniques and distribution of economic activities. What will be the effect of farm mechanization in underdeveloped countries, or the effect of producing large quantities of synthetic products to replace traditional raw materials? What will be the effect of improved transport and communications, and how will the industrialization of underdeveloped countries affect world trade? How will the growth of population and the expansion of cities affect economic activities and their distribution around the world?

## Why do we study human and economic geography?

The value of studies in human and economic geography is very great. In the first place, by understanding the cultural and social differences between human groups, and their relationship not only with the part of the earth in which they live but also with their economic activities, we can gain a knowledge and sympathy with their problems which we could acquire in no other way. An understanding of the geographical

background will enable us to interpret their economic and political activities and attitudes, even though these may be entirely different from our own. Such an understanding will lead to less distrust and greater unity among different human groups, to greater co-operation and to more peaceful co-existence.

Another valuable aspect of economic and human geography is that it shows us how every part of the world is interdependent and cannot prosper in isolation. Physical factors as well as economic considerations have led to much specialization in economic production, so that no country is truly self-sufficient. Industrial countries depend for their imports of raw materials and for their export markets on the basically agricultural countries. On the other hand such agricultural countries depend on the industrial countries to absorb their surplus production. The tropics depend on temperate foodstuffs such as temperate fruits and dairy products, while the temperate countries depend on tropical crops for beverages, fruits or oilseeds. So great is the interdependence of the various regions of

the world that a natural disaster, or a war, in one region may affect trade throughout the world. Similarly, changing techniques in some areas make it necessary to introduce new methods elsewhere for the sake of competitiveness. A realization of the interdependence of economies in different parts of the world will also promote a world-wide outlook rather than a narrow local or regional one.

Finally a knowledge of the earth's resources and their exploitation by Man can have very great importance for future generations. The mistaken or wanton destruction of soil, forests, fishes, whales, minerals and other natural resources, or the spoilation of the natural environment by urban sprawl, dereliction and pollution, may serve as lessons for the future, so that mistakes made in one part of the world need not be repeated in another. With the increasing development of hitherto underdeveloped countries, it is of great importance that the mistakes made by the industrial countries should be avoided.

# Contents

<i>Preface</i>	iii
<i>Acknowledgement</i>	vi
<i>Discussion Points</i>	xii
<i>Special Topics</i>	xiii
<i>Tables</i>	xiv
<i>Figures</i>	xv
<i>Illustrations</i>	xxi
<i>Conversion Table</i>	xxiii
<i>Introduction</i>	xxv

## Chapter 1 POPULATION AND HUMAN DIVERSITY 1

Population growth, 1; *Malthus and overpopulation*, 1; World Distribution of Population, 3; Factors discouraging settlement, 5; Factors encouraging settlement, 6; Moderately populated areas, 7; Densely populated areas, 9; Population distribution in selected countries, 10; Population structure, 15; Optimum populations, 19; Population problems of underdeveloped countries, 19; Problems of overpopulation, 20; Problems of underpopulation, 20; Population problems of advanced countries, 21; Human Diversity, 22; Race, 22; Societies and ways of life, 23; Language, 27; Religion, 27; Political divisions, 28; Human Diversity in South-East Asia, 28; Its effect on economic development, 31; *Reasons for migration*, 32; Migration and overpopulation, 36; Migration and transport, 37; Colonialism, 38; Questions and Exercises, 40; H.S.C.-type Questions, 40; Past Cambridge H.S.C. Examination Questions, 41.

## Chapter 2 SETTLEMENT 43

Introduction, 43; Rural Settlement, 47; Siting factors of rural settlements, 47; Rural settlement patterns, 50; Nucleated rural settlements, 51; Dispersed settlements, 53; Functions of rural settlements, 56; Evolution of rural settlements, 56; *Rural resettlement*, 57; Urban Settlement, 60; Town sites, 61; Town situations, 65; Functions of towns, 74; Urban morphology, 82; Town planning, 82; Zoning, 84; Hinterlands and urban fields, 89; Urban problems, 93; Problems of urban growth, 96; Solutions of urban problems, 99; Questions and Exercises, 100; H.S.C.-type Questions, 101; Past Cambridge H.S.C. Examination Questions, 101.

## Chapter 3 AGRICULTURE 103

The Origin of Agriculture, 103; Geographical Factors Influencing Agriculture, 103; Location of agricultural activities, 110; World Agricultural Types, 112; *Farm mechanization*, 115; Case studies in agricultural change, 128; Farming Organization, 130; *Agricultural indebtedness*, 131; Agriculture and the Soil,

137; Soil erosion and impoverishment, 137; Soil conservation and sound methods of farming, 139; Regional Planning and Large-Scale Rehabilitation Work, 144; Tennessee Valley Authority, 145; The Volta River project (Ghana), 146; Questions and Exercises, 147; H.S.C.-type Questions, 148; Past Cambridge H.S.C. Examination Questions, 148.

#### Chapter 4 CEREALS, VEGETABLES AND FRUITS

150

Rice, 150; The origin of rice, 150; Rice and the oriental diet, 151; Padi cultivation, 151; Padi harvesting and processing, 152; Multiple cropping and mechanization, 153; World production and trade in rice, 154; *The Green Revolution*, 159; Wheat, 161; *Geographical requirements for wheat cultivation*, 162; The wheat plant, 164; Types of wheat and their uses, 165; Wheat cultivation and harvesting, 166; World production and trade in wheat, 167; Wheat cultivation in the U.S.A., 168; Wheat farming in Canada, 169; Wheatlands of the Southern Continents, 170; Wheat cultivation in Europe, 171; Wheat production in Asia, 173; Maize, 173; Types of maize, 174; The uses of maize, 174; Geographical requirements for maize cultivation, 175; World production and trade in maize, 176; Maize cultivation in the U.S. Corn Belt, 176; Barley, 177; Uses of barley, 177; World production and trade in barley, 177; Oats, 178; Uses of oats, 179; World production and trade in oats, 180; Rye, 180; Uses of rye, 181; World production and trade in rye, 181; Millet and Sorghum, 181; Vegetables, 182; Fruits, 184; Spices, 188; Questions and Exercises, 189; H.S.C.-type Questions, 189; Past Cambridge H.S.C. Examination Questions, 190.

#### Chapter 5 BEVERAGES AND SUGAR

191

Beverages, 191; Tea, 191; World production and trade in tea, 193; Coffee, 196; World production and trade in coffee, 198; *Geographical requirements for tea cultivation*, 202; Cocoa (cacao), 206; World production and trade in cocoa, 207; Wine, 210; Vine cultivation (viticulture), 211; The wine-making industry, 212; World production and trade in wine, 213; Sugar, 216; Sugar-cane, 216; Sugar-cane cultivation and processing, 216; World production and trade in cane sugar, 217; Sugar-beet, 220; World production and trade in beet sugar, 220; *Commodity prices*, 221; Questions and Exercises, 223; H.S.C.-type Questions, 224; Past Cambridge H.S.C. Examination Questions, 224.

#### Chapter 6 INDUSTRIAL CROPS

225

Rubber, 225; The Brazilian rubber boom, 226; Development of plantations in South-East Asia, 226; Geographical requirements for rubber cultivation, 227; Rubber cultivation, 228; Rubber processing, 229; World production and trade in natural rubber, 230; *Synthetic rubber*, 233; Industrial uses of rubber, 235; *Estate and smallholding production of commodities*, 237; Vegetable Oils, 239; Oil Palm, 240; Oil palm processing, 240; Uses of palm oil and palm kernel oil, 241; World production and trade in palm oil, 241; Coconuts, 244; Uses and by-products of the coconut, 245; World production and trade in copra, 245; Groundnuts, 246; Uses and by-products of groundnuts, 246; World production and trade in groundnuts, 246; Soya Beans, 247; Uses and by-products of soya beans, 247; World production and trade in soya beans,

248; Olives, 249; Uses of the olive, 249; World production and trade in olives, 249; Cottonseed, 249; Linseed Oil, 250; The Future of Vegetable Oils, 250; Tobacco, 250; Uses of tobacco, 252; World production and trade in tobacco, 252; Future of tobacco, 252; Questions and Exercises, 253; H.S.C.-type Questions, 253; Past Cambridge H.S.C. Examination Questions, 254.

## Chapter 7 FIBRES

255

Introduction, 255; Animal Fibres: Wool, 256; Sheep farming for wool, 257; Wool processing, 258; World production and trade in wool, 259; Silk, 263; Sericulture, 263; Geographical requirements for silk production, 264; World production of silk, 265; Vegetable Fibres: Cotton, 266; The cotton plant, 266; *Geographical requirements for wool production*, 267; Cotton growing, 286; Cotton processing, 269; World production and trade in cotton, 270; Cotton textile manufacturers, 275; Flax, 276; Geographical requirements for flax fibre production, 277; Flax processing, 278; World production and trade in flax, 278; Jute, 279; Geographical requirements for jute production, 279; Jute growing and processing, 279; World production and trade in jute, 280; Other vegetable fibres, 280; Synthetic Fibres, 281; Man-made fibre production, 281; World production of man-made fibres, 282; *The future of natural fibres*, 283; Questions and Exercises, 285; H.S.C.-type Questions, 285; Past Cambridge H.S.C. Examination Questions, 285.

## Chapter 8 LIVESTOCK

286

The Domestication of Animals, 286; The Role of Animals in the Economy, 287; Cattle, 288; Beef cattle rearing, 288; Beef cattle breeds, 289; World distribution of beef cattle, 289; *Problems of cattle rearing in the tropics*, 293; Dairy farming, 295; Dairy cattle breeds, 296; World distribution of dairy farming, 296; *Zoning of livestock farming and other agricultural activities*, 300; Sheep, 302; Sheep breeds, 303; World distribution of sheep, 303; Goats, 306; Pigs, 306; World distribution of pigs, 307; Poultry, 308; Hides, Skins and Furs, 310; Other animal products, 311; Questions and Exercises, 311; H.S.C.-type Questions, 312; Past Cambridge H.S.C. Examination Questions, 312.

## Chapter 9 FISHING

313

The Value of Fish, 313; World Consumption of Fish, 314; *Location of major fishing grounds*, 314; Fish Species, 316; Fishing Methods, 318; Types of Fishing, 320; Other Marine Harvests (Sea Hunting), 322; Fish Conservation, 324; *Who owns the oceans?*, 325; Major Fishing Grounds of the World, 328; North-east Atlantic, 328; North-west Atlantic, 332; The north-east Pacific, 333; The north-west Pacific, 334; Fishing in the rest of the world, 337; Questions and Exercises, 337; H.S.C.-type Questions, 338; Past Cambridge H.S.C. Examination Questions, 338.

## Chapter 10 FORESTRY AND FOREST INDUSTRIES

339

The World's Forests, 339; Lumbering, 342; Silviculture, 344; Factors Affecting Lumbering, 344; Tropical lumbering, 344; Temperate lumbering, 346; Forest problems, 348; Forest Conservation and Management, 350; *The economic*



*value of forests*, 353; Forest Products Other Than Timber, 355; Uses of Timber, 357; *Location factors of the pulp and paper industry*, 360; World Production and Trade in Timber and Timber Products, 361; North America, 365; The U.S.S.R., 369; Europe, 371; Asia, 373; Australia and New Zealand, 374; Latin America, 374; Africa, 374; Questions and Exercises, 375; H.S.C.-type Questions, 375; Past Cambridge H.S.C. Examination Questions, 376.

## **Chapter 11 COAL**

377

Fuel and Power, 377; Composition of coal, 378; Classification of carbonaceous rocks, 379; Coal Mining, 380; Surface mining, 380; Underground mining, 381; Uses of Coal, 383; *The decline of coal in world fuel supplies*, 384; World Production and Trade in Coal, 386; Principal Coalfields of the World, 388; The U.S.A., 388; The U.S.S.R., 390; China, 392; Great Britain, 392; *The role of coalfields in industrial location*, 394; Europe, 397; Canada, 398; Asia, 399; The Southern Continents, 399; Questions and Exercises, 400; H.S.C.-type Questions, 401; Past Cambridge H.S.C. Examination Questions, 401.

## **Chapter 12 PETROLEUM**

402

Properties and Nature of Petroleum, 402; The Origin and Occurrence of Oil, 403; Oil Prospecting and Drilling, 404; Oil Transportation and Storage, 408; Oil Refining, 411; Location of oil refineries, 412; Petrochemicals industry locations, 414; The Uses of Oil, 415; Natural Gas, 416; Other Sources of Mineral Oil, 417; *Petroleum reserves and the future of the oil industry*, 418; *The energy crisis of the 1970s*, 420; World Production and Trade in Petroleum and Natural Gas, 422; North America, 422; The Caribbean Countries, 426; The Middle East, 427; The U.S.S.R., 429; Africa, 430; Asia, 431; Australasia, 432; South America, 433; Europe, 433; Questions and Exercises, 434; H.S.C.-type Questions, 434; Past Cambridge H.S.C. Examination Questions, 435.

## **Chapter 13 ELECTRICITY**

436

Advantages and Disadvantages of Electricity, 436; Hydro-Electric Power, 437; Water power, 438; *Factors affecting the development of H.E.P.*, 438; World distribution of H.E.P. development, 441; North America, 442; Europe, 444; Asia, 446; The Southern Continents, 446; Thermal Electricity, 449; Factors affecting the location of thermal electricity generating plants, 449; World distribution of thermal electricity generation, 450; Comparison of thermal electricity and H.E.P. generation, 450; Other sources of electric power, 453; *Nuclear power*, 454; Questions and Exercises, 457; H.S.C.-type Questions, 458; Past Cambridge H.S.C. Examination Questions, 458.

## **Chapter 14 METALS AND MINERALS**

459

Introduction, 459; Mining—a robber industry, 459; The Occurrence of Minerals, 459; *Factors affecting the exploitation of mineral resources*, 460; Methods of Mining, 462; The Effects of Mining on the National Economy, 464; *Mining and dereliction*, 469; Ore Concentration and Smelting, 472; Use of scrap metal, 473; Identification and Classification of Minerals, 473; Classes of minerals, 474; Iron, 475; World distribution of iron ores, 476; The Major Non-Ferrous Metals, 478; Copper, 478; Copper mining, concentration, smelting and refining,

479; Properties and uses of copper, 479; World distribution and trade in copper, 480; Tin, 481; Properties and uses of tin, 482; World distribution and trade in tin, 483; The future of tin, 484; Aluminium, 484; Bauxite mining, concentration and smelting, 485; Properties and uses of aluminium, 486; World distribution and trade in bauxite, 486; Lead, 488; Lead ores and mining, 488; Properties and uses of lead, 488; World production and trade in lead, 490; Zinc, 490; Zinc ores and processing, 490; Properties and uses of zinc, 490; World production and trade in zinc, 491; Uranium, 491; The Ferro-Alloys, 492; Precious Metals and Gems, 498; Other Industrial Minerals, 502; Questions and Exercises, 505; H.S.C.-type Questions, 506; Past Cambridge H.S.C. Examination Questions, 507.

## **Chapter 15 MANUFACTURING INDUSTRY** 508

History of Industrial Development, 508; *The industrialization of under-developed countries*, 509; Classification of Industries, 513; The Iron and Steel Industry, 513; Iron smelting and steel making, 514; *Changing location of the iron and steel industry*, 518; Metallurgical Industries, 522; Engineering, 522; The Chemicals Industry, 528; The Textiles Industries, 530; The Food-Processing Industries, 531; Other Industries, 532; Factors Influencing the Location of Industries, 533; Raw materials, 534; Fuel and power, 536; Human resources, 537; Transport, 538; Markets, 540; Capital, 541; Government policies, 541; Industrial inertia, 542; Other factors, 543; Summing up, 544; The Major Industrial Regions of the World, 544; Europe, 544; North America, 553; U.S.S.R., 558; Asia, 559; The Southern Continents, 568; Questions and Exercises, 569; H.S.C.-type Questions, 570; Past Cambridge H.S.C. Examination Questions, 570.

## **Chapter 16 TRANSPORT AND COMMUNICATIONS** 572

Introduction, 572; Land Transport, 573; Roads, 575; Railways, 578; Railway patterns of the world, 581; Pipelines, 584; Water Transport, 585; Inland waterways, 586; Inland waterways of Europe and North America, 587; Ocean transport, 591; Air Transport, 597; Factors affecting air transport, 599; World air routes, 600; Other forms of transport, 603; *Transport networks*, 603; *The tourist industry*, 607; Communications, 610; Telecommunications, 611; Questions and Exercises, 612; H.S.C.-type Questions, 612; Past Cambridge H.S.C. Examination Questions, 613.

## **Chapter 17 INTERNATIONAL TRADE** 614

Introduction, 614; Factors Affecting International Trade, 615; Differences in natural resources, 615; Population factors, 616; Stage of economic development, 617; Extent of foreign investment, 618; Transport, 619; *Balance of payments*, 620; Government policies and trading restrictions, 622; *Trading blocs*, 624; The Pattern of World Trade, 627; The world's major trading zones, 627; Employment in Tertiary Industries, 634; Evolution of the employment structure, 634; Questions and Exercises, 636; H.S.C.-type Questions, 637; Past Cambridge H.S.C. Examination Questions, 637.

## **SUGGESTED BOOKS FOR FURTHER READING** 638

## **INDEX** 639

# Discussion Points

1	Malthus and overpopulation	1
2	Rural resettlement	57
3	Agricultural indebtedness	131
4	The Green Revolution	159
5	Commodity prices	221
6	Estate and smallholding production of commodities	237
7	The future of natural fibres	283
8	Problems of cattle rearing in the tropics	293
9	Who owns the oceans?	325
10	The economic value of forests	353
11	The decline of coal in world fuels supplies	384
12	Petroleum reserves and the future of the oil industry	418
13	Nuclear power	454
14	Mining and dereliction	469
15	The industrialization of underdeveloped countries	509
16	The tourist industry	607
17	Trading blocs	624