

The New Encyclopædia Britannica

Volume 29

MACROPÆDIA

Knowledge in Depth

FOUNDED 1768

15 TH EDITION



Encyclopædia Britannica, Inc.

Robert P. Gwinn, Chairman, Board of Directors

Peter B. Norton, President

Robert McHenry, General Editor

Chicago

Auckland/Geneva/London/Madrid/Manila/Paris

Rome/Seoul/Sydney/Tokyo/Toronto



THE UNIVERSITY OF CHICAGO

“Let knowledge grow from more to more
and thus be human life enriched.”

The *Encyclopædia Britannica* is published with the editorial advice
of the faculties of the University of Chicago.

Additional advice is given by committees of members drawn from
the faculties of the Australian National University, the universities
of Adelaide (Australia), British Columbia (Can.), Cambridge (Eng.),
Copenhagen (Den.), Edinburgh (Scot.), Florence (Italy), London
(Eng.), Marburg (Ger.), Melbourne (Australia), Oxford (Eng.),
Queensland (Australia), the Ruhr (Ger.), Sussex (Eng.), Sydney
(Australia), Toronto (Can.), Victoria (Can.), Waterloo (Can.), and
Western Australia; the Complutensian University of Madrid (Spain);
the Institute of Public Affairs (Australia); the Max Planck Institute
for Biophysical Chemistry (Ger.); the New University of Lisbon
(Port.); the School of Higher Studies in Social Sciences (Fr.); Simon
Fraser University (Can.); and the State University of Leiden (Neth.).

First Edition	1768–1771
Second Edition	1777–1784
Third Edition	1788–1797
Supplement	1801
Fourth Edition	1801–1809
Fifth Edition	1815
Sixth Edition	1820–1823
Supplement	1815–1824
Seventh Edition	1830–1842
Eighth Edition	1852–1860
Ninth Edition	1875–1889
Tenth Edition	1902–1903

Eleventh Edition
© 1911
By Encyclopædia Britannica, Inc.

Twelfth Edition
© 1922
By Encyclopædia Britannica, Inc.

Thirteenth Edition
© 1926
By Encyclopædia Britannica, Inc.

Fourteenth Edition
© 1929, 1930, 1932, 1933, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943,
1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954,
1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964,
1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973
By Encyclopædia Britannica, Inc.

Fifteenth Edition
© 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985,
1986, 1987, 1988, 1989, 1990, 1991, 1992
By Encyclopædia Britannica, Inc.

© 1992
By Encyclopædia Britannica, Inc.

Copyright under International Copyright Union
All rights reserved under Pan American and
Universal Copyright Conventions
by Encyclopædia Britannica, Inc.

No part of this work may be reproduced or utilized
in any form or by any means, electronic or mechanical,
including photocopying, recording, or by any
information storage and retrieval system, without
permission in writing from the publisher.

Printed in U.S.A.

Library of Congress Catalog Card Number: 90-84190
International Standard Book Number: 0-85229-553-7

CONTENTS

1	UNITED KINGDOM
140	UNITED NATIONS
149	UNITED STATES OF AMERICA
458	URUGUAY
465	VELÁZQUEZ
468	VENEZUELA
480	VENICE
488	VICTORIA and the Victorian Age
493	VIENNA
499	VIRGIL
502	VIRUSES
512	VOLCANISM
524	VOLTAIRE
529	The Technology of WAR
628	The Theory and Conduct of WAR
696	WARSAW
699	George WASHINGTON
707	WASHINGTON, D.C.
718	WELLINGTON
721	The WEST INDIES
790	WESTERN AFRICA
916	WORK AND EMPLOYMENT
961	The WORLD WARS
1025	WRITING
1077	YIDDISH LITERATURE
1083	YUGOSLAV LITERATURE
1086	YUGOSLAVIA
1116	ZOROASTRIANISM AND PARSIISM

United Kingdom

The United Kingdom (in full United Kingdom of Great Britain and Northern Ireland) is located off the northwestern coast of mainland Europe and consists of four geographic and historical parts—England, Scotland, Wales, and Northern Ireland. The United Kingdom makes up most of the British Isles—the geographic term for the group of islands that also includes the republic of Ireland. Together, England, Wales, and Scotland constitute the larger of the two principal islands, while Northern Ireland and the republic of Ireland constitute the second largest. To the southwest of England are the Isles of Scilly, and to the south is the Isle of Wight. The Orkney and Shetland islands lie to the north of Scotland, and the Hebrides lie to the west. Off northwestern Wales is the island of Anglesey.

Apart from the land border with the Irish republic, the United Kingdom is surrounded by sea. To the south of England, and between the United Kingdom and France, is the English Channel. The North Sea lies to the east. To the west of Wales and northern England is the Irish Sea, while western Scotland and the northwestern coast of Northern Ireland face the Atlantic Ocean.

The area of the United Kingdom is 94,251 square miles (244,110 square kilometres). At its widest the United Kingdom is 300 miles across. From the top of Scotland to the southern coast of England it is about 600 miles. No part is more than 75 miles from the sea. The national capital is London, situated on the River Thames in the southeastern corner of England.

The names United Kingdom, Great Britain, and England are often confused, even by U.K. inhabitants. England is just one country within the kingdom. Great Britain comprises England, Wales, and Scotland, while the United Kingdom also includes Northern Ireland (although the name Britain is sometimes used to refer to the United Kingdom as a whole). Wales and England were unified politically, administratively, and legally by the acts of union of 1536 and 1542. In 1707 Scotland joined England and Wales in forming a single parliament for Great Britain, although the three countries had previously shared a monarch.

The United Kingdom is characterized by a long history and by political and cultural links with other areas of the world, the latter mostly a legacy of its large former empire. In modern times the United Kingdom is perhaps best seen as a middle-sized, middle-ranking industrial country.

The political system of the United Kingdom has provided stability and consistency since the 19th century, albeit through a structure that has evolved rather than been designed. It is a unitary system centred on London, with some responsibilities devolved to local governments. The national government is a parliamentary democracy dominated by the monarchy, which links the executive, legislature, judiciary, armed forces, and Church of En-

gland. Although in practice almost all responsibilities are deferred, the monarch and the royal family are a source of unity and national spirit. In Parliament the House of Lords still consists mainly of hereditary or appointed peers, while members of the House of Commons are elected by a simple "first-past-the-post" system.

This stability of institutions contrasts with and complements the striking heterogeneous social character of the United Kingdom. There is a vocal nationalist spirit in both Wales and Scotland, while Northern Ireland is plagued by division between the Protestant and Roman Catholic communities. Northern Ireland's troubles have led to terrorist actions, most notably by the Provisional Irish Republican Army (IRA).

On the world stage, the United Kingdom is part of the European Communities, while retaining links with parts of its former empire through the Commonwealth. It also benefits from historical and cultural links with the United States and is a member of the North Atlantic Treaty Organization (NATO). This diversity of interests, together with a network of international relations, means that the United Kingdom is not easily identified as belonging to a specific geographic block among the Western industrialized nations.

Economically the United Kingdom has benefited since the 1970s from production of oil from deposits in the North Sea. London has become a leading world financial centre, the time zone allowing it to bridge the gap between trading in Tokyo and New York City. The United Kingdom's traditional strength in manufacturing, however, has been eroded, with employment in manufacturing falling in absolute terms. This has undoubtedly contributed to the stark differences in the social and economic composition of the industrialized north and the more service-oriented, prosperous south, creating a north-south divide.

Socially the United Kingdom suffers pockets of poverty, with some inner-city areas among the worst in Europe. The growth in ethnic minorities from former colonies has added to social tensions, occasionally fueling violence. In contrast, home ownership is widespread and, while the state supports an educational system, public schools—which despite their title are part of the private sector—thrive. With some exceptions, notably curbs on public servants, freedom of expression is not restricted, and the United Kingdom is renowned for the strength of its arts.

(R.C.A.)

This article begins with a discussion of the physical and human geography of the United Kingdom, followed by a history of England and Great Britain from prehistoric to present times. The final section of the article discusses the physical and human geography of England, Scotland, Wales, and Northern Ireland, the last three accompanied by histories.

The article is divided into the following sections:

Physical and human geography 2

The land 2

Relief

Drainage

Soils

Climate

Plant and animal life

Settlement patterns

The people 12

Ethnic composition

Linguistic composition

Religions

Demographic trends

The economy 14

Resources

Agriculture, forestry, and fishing

Industry

Finance

Trade

Transportation

Administration and social conditions 16

Government

Politics

Justice

Police services

The armed forces

Education

Health and welfare

Cultural life 20

General considerations

Mass media

History of England and Great Britain 21

Ancient Britain 21

Pre-Roman Britain

Roman Britain	
Anglo-Saxon England	25
The invaders and their early settlements	
The heptarchy	
The period of the Scandinavian invasions	
The achievement of political unity	
The Anglo-Danish state	
The Normans (1066–1154)	31
William I (1066–87)	
The sons of William I	
The period of anarchy (1135–54)	
England in the Norman period	
The early Plantagenets	33
Henry II (1154–89)	
Richard I (1189–99)	
John (1199–1216)	
The 13th century	35
Henry III (1216–72)	
Edward I (1272–1307)	
Social, economic, and cultural change	
The 14th century	38
Edward II (1307–27)	
Edward III (1327–77)	
Richard II (1377–99)	
Economic crisis and cultural change	
Lancaster and York	41
Henry IV (1399–1413)	
Henry V (1413–22)	
Henry VI (1422–61 and 1470–71)	
Edward IV (1461–70 and 1471–83)	
Richard III (1483–85)	
England in the 15th century	
England under the Tudors	44
Henry VII (1485–1509)	
Henry VIII (1509–47)	
Edward VI (1547–53)	
Mary I (1553–58)	
Elizabeth I (1558–1603)	
The early Stuarts and the Commonwealth	53
England in 1603	
James I (1603–25)	
Charles I (1625–49)	
The later Stuarts	61
Charles II (1660–85)	
James II (1685–88)	
William III (1689–1702) and Mary II (1689–94)	
Anne (1702–14)	
18th-century Britain, 1714–1815	65
The state of Britain in 1714	
Britain from 1715 to 1742	
Britain from 1742 to 1754	
British society by the mid-18th century	
Britain from 1754 to 1783	
Britain from 1783 to 1815	
Great Britain, 1815–1914	76
Britain after the Napoleonic Wars	
The politics of reform	
Social cleavage and social control in the early Victorian years	

Mid-Victorian society and culture	
Mid-Victorian politics	
Gladstone and Disraeli	
Late Victorian politics	
Edwardian and prewar Britain	
Britain from 1914 to the present	88
World War I	
Between the wars	
World War II	
Britain since 1945	
England	95
Physical and human geography	95
The land	
The people	
The economy	
Administration and social conditions	
Cultural life	
History	102
Scotland	103
Physical and human geography	103
The land	
The people	
The economy	
Administration and social conditions	
Cultural life	
History	108
Ancient times	
The unification of the kingdom	
The wars of independence	
Scotland in the 15th century	
Scotland in the 16th and early 17th centuries	
The age of revolution (1625–89)	
The era of Union	
19th-century Scotland	
Modern Scotland	
Wales	118
Physical and human geography	118
The land	
The people	
The economy	
Administration and social conditions	
Cultural life	
History	122
Wales before the Norman Conquest	
Wales in the Middle Ages	
Wales from the 16th to 20th century	
Northern Ireland	128
Physical and human geography	128
The land	
The people	
The economy	
Administration and social conditions	
Cultural life	
History	132
Early Ulster	
Early modern Ulster	
The 18th and 19th centuries	
Northern Ireland since 1922	
Bibliography	135

PHYSICAL AND HUMAN GEOGRAPHY

The land

Great Britain, the island comprising England, Scotland, and Wales, forms, together with numerous smaller islands, an archipelago that is as irregular in shape as it is diverse in its natural heritage. This latter circumstance stems largely from the nature and disposition of the underlying rocks, which are westward extensions of European structures, with the shallow waters of the Strait of Dover and the North Sea concealing former land links. Northern Ireland—which politically completes the United Kingdom—is a westward extension of the rock structures of Scotland. These common rock structures are breached by the narrow North Channel.

On a global scale, this natural endowment covers a small area—approximating that of Oregon, in the United States, or the African nation of Guinea—and its internal diversity, accompanied by rapid changes of often beautiful scenery, may perhaps convey to visitors from larger countries a striking sense of compactness and consolida-

tion. The peoples who, over the centuries, have made their way to, and hewed an existence from, this Atlantic extremity of Eurasia have put their own imprint on the environment, with the ancient and distinctive palimpsest of their field patterns and settlements complementing the natural diversity.

RELIEF

The traditional division of Great Britain is into a Highland and Lowland zone. A line running from the mouth of the River Exe, in the southwest, to that of the Tees, in the northeast, is a crude expression of this division. The course of the 700-foot (213-metre) contour, or of the boundary separating the older rocks of the north and west from the younger southeastern strata, provides more appropriate indications of the extent of the Highlands.

The Highland zone. The creation of the Highlands was a long process, yet altitudes, compared with European equivalents, are low, with the highest summit, Ben Nevis, only 4,406 feet (1,343 metres) above sea level. In addition,

The
Tees–Exe
Line

the really mountainous areas above 2,000 feet often lie in smooth profiles against the changing skies, reminders of the effects of former periods of erosion.

Scotland's three main topographic regions follow the northeast-to-southwest trend of the ancient underlying rocks. The northern Highlands and the Southern Uplands are separated by the intervening rift valley, or subsided structural block, of the Central Lowlands. The core of the Highlands is the elevated, worn-down surface of the Grampian Mountains, 1,000–3,500 feet above sea level, with the Cairngorm Mountains rising to over 4,000 feet. This majestic mountain landscape is furrowed by numerous wide valleys, or straths, and occasional large areas of lowland, often fringed with long lines of sand dunes, add variety to the east. The Buchan peninsula, the Moray Firth estuarine flats, and the plain of Caithness—all low-lying areas—contrast sharply with the mountain scenery and show more mellow outlines than do the glacier-scoured landscapes of the west, where northeasterly-facing hollows, or corries, separated by knife-edge ridges and deep glens, sculpt the surfaces left by erosion. The many freshwater lochs further enhance a landscape of wild beauty. The linear Glen Mor, where the Caledonian Canal now threads a chain of lakes, is the result of a vast structural sideways tear in the whole mass of the North West Highlands. To the northwest of Glen Mor stretches most of the land given over to agricultural small holdings, or crofts; settlement is intermittent and mostly coastal, a pattern clearly reflecting the pronounced dissection of a highland massif that has been scored and plucked by the Ice Age glaciers. Many sea-drowned, glacier-widened river valleys (fjords) penetrate deeply into the mountains, the outliers of which rise from the sea in stately, elongated peninsulas or emerge in hundreds of offshore islands.

Landscapes
of the
Scottish
Highlands

In comparison with the northern Highlands of Scotland, the Southern Uplands present a more subdued relief, the land nowhere rising above 2,800 feet. The main hill masses are the Cheviots, which rise to 2,676 feet, while Mount Merrick and Broad Law reach just above the 2,700-foot contour line. Broad plateau surfaces, separated by numerous dales, are again characteristic of these uplands, and in the west most of the rivers flow across the prevailing northeast-southwest trend, following the general slope of the plateau, toward the Solway Firth. Bold masses of granite and the rugged imprint of former glaciers occasionally impart a mountainous quality to the scenery. In the east the valley network of the Tweed and its many tributaries forms a broad lowland expanse between the Lammermuir and Cheviot hills.

The Central Lowlands are bounded by great regular structural faults. The northern boundary with the Highlands is a wall-like feature, but the boundary with the Southern Uplands exhibits a linear topographic form only near the coast. This vast trench is by no means a continuous plain, for high ground—often formed of sturdy, resistant masses of volcanic rock—meets the eye in all directions, rising above the low-lying areas that flank the rivers and the deeply penetrating estuaries of the Firth of Clyde and the Firth of Forth.

Northern
Ireland's
extensions
of the
Scottish
Highlands

In Northern Ireland, structural extensions of Scottish Highland geomorphology reappear in the generally rugged mountain scenery and in the peat-covered summits of the 2,241-foot Sperrin Mountains. The uplands in Northern Ireland (the former counties Down and Armagh) are the western continuation of the Southern Uplands but rise over 500 feet only in limited areas; the one important exception is the Mourne Mountains, a lovely cluster of granite summits the loftiest of which, Slieve Donard, rises to 2,789 feet within two miles of the sea. Compared with that of the Scottish Central Lowlands, Northern Ireland's structure has been complicated by the outpouring of basaltic lavas to form a huge plateau, much of which is occupied by the shallow Lough Neagh, the largest freshwater lake in the British Isles.

The Highland zone of England and of Wales consists, from north to south, of four broad upland masses: the Pennines, the Cumbrian Mountains, the Cambrian Mountains, and the South West peninsula. The Pennines are usually considered to end in the north along the River

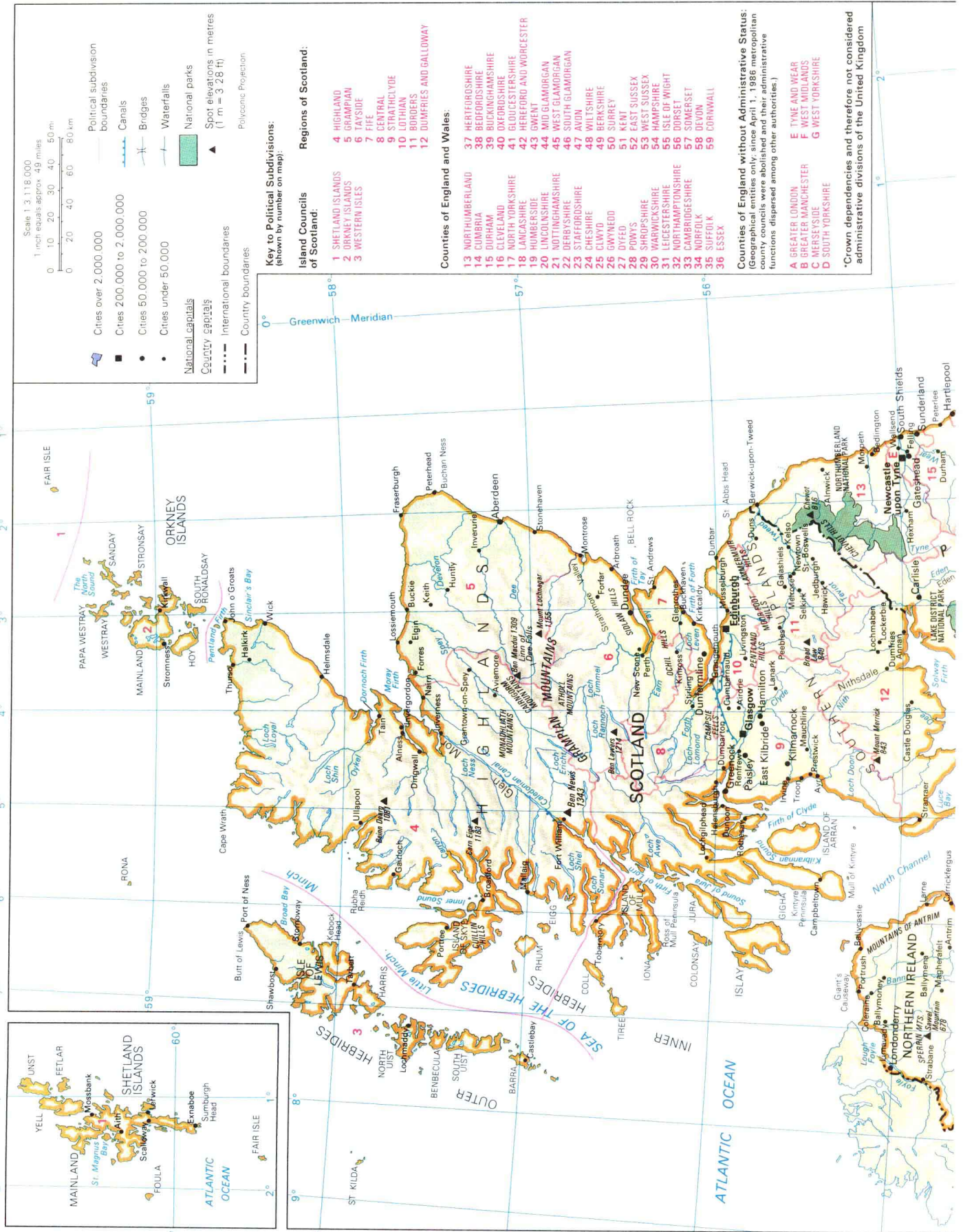
Tyne gap, but the surface features of several hills in Northumberland are in many ways similar to those of the northern Pennines. The general surface of the asymmetrically arched backbone (anticline) of the Pennines is remarkably smooth, because many of the valleys, though deep, occupy such a small portion within the total area that the windswept moorland between them appears almost featureless. This is particularly true of the landscape around Alston, in Cumberland, which—cut off by faults on its north, west, and south sides—stands out as an almost rectangular block of high moorland plateau with isolated peaks (known to geographers as monadnocks) rising up above it. Farther south the Pennine plateau is cut into by deep and scenic dales, their craggy sides formed of Millstone Grit, beneath which flow streams stepped by waterfalls. The most southerly part of the Pennines is a grassy upland, in places over 2,000 feet above sea level, but it is characterized by the dry valleys, steep-sided gorges, and underground streams and caverns of a limestone-drainage system rather than the bleak moorland that might be expected at this altitude. At lower levels the larger dales are more richly wooded, the trees standing out against a background of rugged cliffs of white-gray rocks. On both Pennine flanks, older rocks disappear beneath younger layers, and the uplands merge into flanking coastal lowlands.

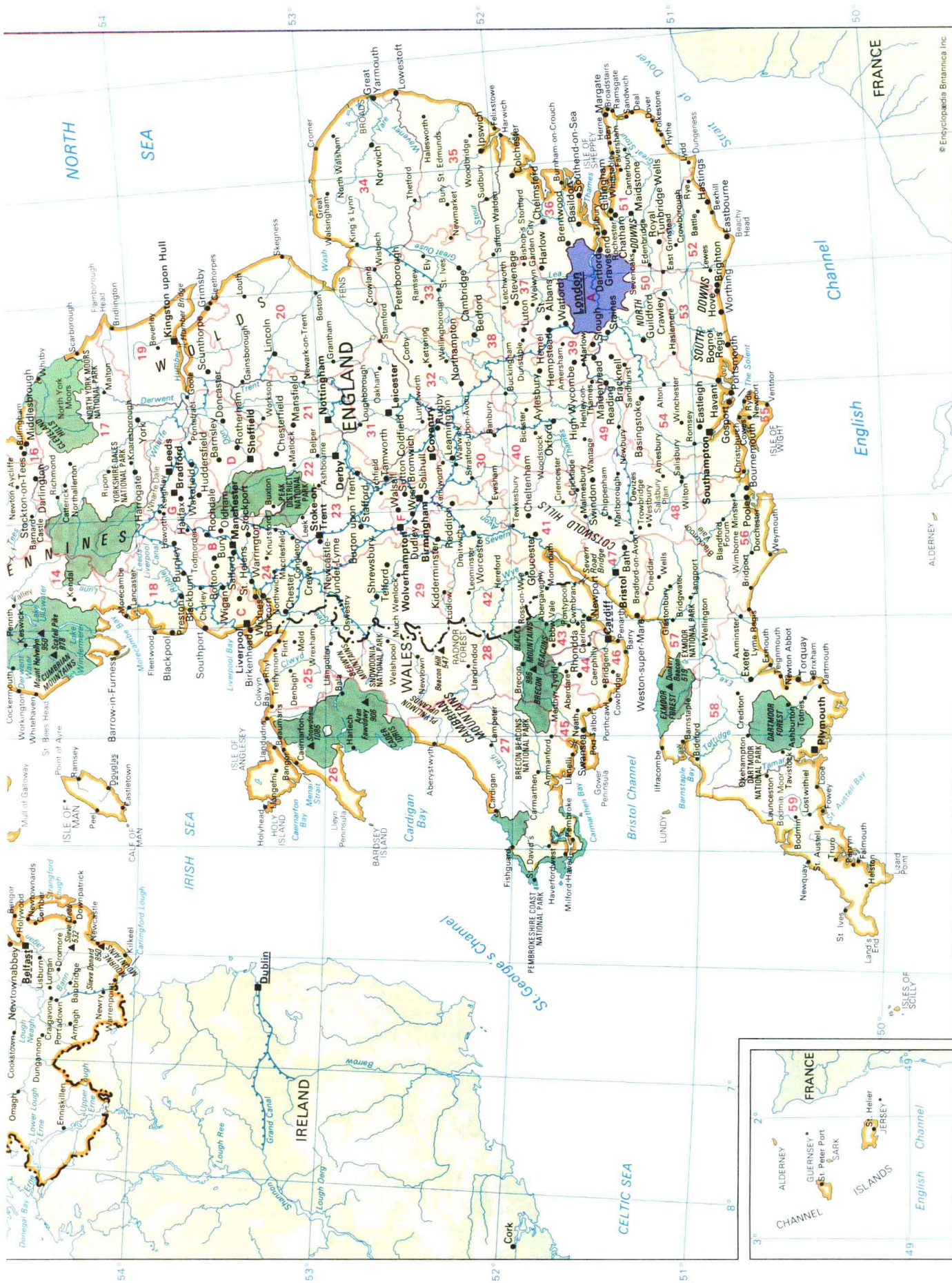
The Cumbrian Mountains, which include the famous Lake District celebrated in poetry by William Wordsworth and the other "Lake poets," constitute an isolated, compact mountain group to the west of the Pennines. The tough slate rocks of the northern portion have been cut into many deep gorges, separated by narrow ridges and sharp peaks. Greater expanses of level upland, formed from thick beds of lava and the ash thrown out by ancient volcanoes, are found to the south. Although Scafell Pike, at 3,210 feet, and Helvellyn, at 3,116 feet, are high for Britain, the volcanic belt is largely an irregular upland traversed by deep, narrow valleys. Nine rivers flowing out in all directions from the centre of this uplifted dome form a classic radial drainage pattern. The valleys, often occupied by long, narrow lakes, have been widened to a U shape by glacial action, which has also etched corries from the mountainsides and deposited the debris in moraines. Glacial action also created a number of "hanging valleys" by truncating former tributary valleys.

The Cambrian Mountains, which form the core of the principality of Wales, are clearly defined by the sea except on the eastern side, where a sharp break of slope often marks the transition to the English plain. Cycles of erosion have several times worn down the ancient and austere surfaces; many topographic features may be attributed to glacial processes. Some of the most striking scenery owes much to former volcanism. The mountain areas above 2,000 feet are most extensive in North Wales, in Snowdonia and its southward extensions, Cader Idris and the Berwyn mass. With the exception of Plynlimon and the Radnor Forest, central Wales lacks similar high areas, but the monadnocks of South Wales—notably the Black Mountains and the Brecon (Brecknock) Beacons—again stand out in solitary splendour above the upland surfaces. Three of these are distinguishable: a high plateau of 1,700 to 1,800 feet; a middle peneplain, or worn-down surface, of 1,200 to 1,600 feet; and a low peneplain of 700 to 1,100 feet. These smooth, rounded, grass-covered moorlands present a remarkably even skyline. Below 700 feet lies a further series of former wave-cut surfaces. Several valleys radiate from the highland core to the coastal regions. In the west these lowlands have provided a haven for traditional Welsh culture, but the deeply penetrating eastern valleys have channeled Anglicizing influences into the highland. A more extensive lowland—physically and structurally an extension of the English plain—borders the Bristol Channel in the southeast. The irregularities of the 600-mile Welsh coast exhibit differing adjustments to the pounding attack of the sea.

The South West—England's largest peninsula—has six locally conspicuous uplands: Exmoor, where Dunkery Beacon reaches 1,704 feet; the wild, granite uplands of Dartmoor (High Willhays; 2,038 feet); Bodmin Moor; St.

The South
West
peninsula





MAP INDEX

Political subdivisions

Avon	.51 26 N 2 30 W
Bedfordshire	.52 08 N 0 27 W
Berkshire	.51 30 N 1 15 W
Borders	.55 25 N 2 40 W
Buckinghamshire	.51 45 N 0 45 W
Cambridgeshire	.52 12 N 0 07 E
Central	.56 05 N 4 07 W
Cheshire	.53 15 N 2 30 W
Cleveland	.54 30 N 1 13 W
Clwyd	.53 05 N 3 30 W
Cornwall	.50 25 N 4 40 W
Cumbria	.54 37 N 3 00 W
Derbyshire	.53 05 N 1 35 W
Devon	.50 45 N 3 45 W
Dorset	.50 45 N 2 25 W
Dumfries and Galloway	.55 05 N 3 40 W
Durham	.54 40 N 1 45 W
Dyfed	.51 55 N 4 10 W
East Sussex	.50 55 N 0 15 E
Essex	.51 45 N 0 30 E
Fife	.56 10 N 3 05 W
Gloucestershire	.51 50 N 2 15 W
Grampian	.57 16 N 2 50 W
Gwent	.51 40 N 3 00 W
Gwynedd	.52 53 N 3 48 W
Hampshire	.51 00 N 1 15 W
Hereford and Worcester	.52 09 N 2 30 W
Hertfordshire	.51 50 N 0 15 W
Highland	.57 35 N 5 00 W
Humblyside	.53 45 N 0 25 W
Isle of Wight	.50 40 N 1 15 W
Kent	.51 15 N 0 45 E
Lancashire	.53 55 N 2 35 W
Leicestershire	.52 40 N 1 10 W
Lincolnshire	.53 10 N 0 20 W
Lothian	.55 53 N 3 10 W
Mid Glamorgan	.51 40 N 3 40 W
Norfolk	.52 40 N 1 00 E
North Yorkshire	.54 13 N 1 25 W
Northamptonshire	.52 20 N 0 55 W
Northumberland	.55 15 N 2 00 W
Nottinghamshire	.53 05 N 1 00 W
Orkney Islands	.59 00 N 3 00 W
Oxfordshire	.51 45 N 1 10 W
Powys	.52 07 N 3 25 W
Shetland Islands	.60 30 N 1 00 W
Shropshire	.52 40 N 2 35 W
Somerset	.51 05 N 3 00 W
South Glamorgan	.51 25 N 3 20 W
Staffordshire	.52 50 N 2 00 W
Strathclyde	.56 00 N 5 10 W
Suffolk	.52 15 N 1 00 E
Surrey	.51 15 N 0 20 W
Tayside	.56 30 N 3 30 W
Warwickshire	.52 20 N 1 30 W
West Glamorgan	.51 35 N 3 45 W
West Sussex	.50 55 N 0 30 W
Western Isles	.57 45 N 7 00 W
Wiltshire	.51 20 N 1 55 W

Cities and towns

Aberdare (Aberdâr)	.51 43 N 3 27 W
Aberdeen	.57 09 N 2 08 W
Abergavenny	.51 49 N 3 01 W
Aberystwyth	.52 25 N 4 05 W
Airdrie	.55 52 N 3 59 W
Aith	.60 17 N 1 23 W
Alness	.57 42 N 4 15 W
Alnwick	.55 25 N 1 43 W
Alton	.51 09 N 0 59 W
Amersham	.51 41 N 0 36 W
Amesbury	.51 10 N 1 47 W
Ammanford	.51 48 N 4 00 W
Annan	.54 59 N 3 16 W
Antrim	.54 42 N 6 12 W
Arbroath	.56 34 N 2 35 W
Armagh	.54 21 N 6 40 W
Ashbourne	.53 01 N 1 44 W
Ashburton	.50 31 N 3 45 W
Aviemore	.57 11 N 3 50 W
Axminster	.50 47 N 3 00 W
Aylesbury	.51 49 N 0 49 W
Ayr	.55 28 N 4 37 W
Bae Colwyn, see Colwyn Bay	
Bala	.52 55 N 3 36 W
Ballycastle	.55 13 N 6 14 W
Ballymena	.54 52 N 6 16 W

Ballymoney	.55 05 N 6 31 W
Banbridge	.54 21 N 6 17 W
Banbury	.52 04 N 1 20 W
Bangor	.53 13 N 4 08 W
Bangor	.54 39 N 5 42 W
Barnard Castle	.54 33 N 1 55 W
Barnsley	.53 33 N 1 29 W
Barnstaple	.51 05 N 4 03 W
Barrow-in-Furness	.54 07 N 3 14 W
Barry	.51 25 N 3 16 W
Basildon	.51 35 N 0 28 W
Basingstoke	.51 16 N 1 05 W
Bath	.51 23 N 2 22 W
Battle	.50 55 N 0 29 E
Beaumaris	.53 16 N 4 06 W
Bedford	.52 08 N 0 28 W
Bedlington	.55 08 N 1 35 W
Belfast	.54 35 N 5 56 W
Belper	.53 01 N 1 28 W
Berwick-upon-Tweed	.55 46 N 2 01 W
Beverley	.53 51 N 0 25 W
Bexhill	.50 51 N 0 28 E
Bicester	.51 54 N 1 09 W
Bideford	.51 01 N 4 12 W
Billingham	.54 36 N 1 17 W
Birkenhead	.53 23 N 3 01 W
Birmingham	.52 29 N 1 51 W
Bishop's Cleeve	.51 52 N 0 10 E
Blackburn	.53 45 N 2 29 W
Blackpool	.53 49 N 3 03 W
Blandford	
Forum	.50 51 N 2 10 W
Bodmin	.50 29 N 4 44 W
Bognor Regis	.50 47 N 0 41 W
Bolton	.53 34 N 2 26 W
Boston	.52 59 N 0 01 W
Bournemouth	.50 43 N 1 53 W
Bracknell	.51 25 N 0 45 W
Bradford	.53 47 N 1 45 W
Bradford-on-Avon	.51 21 N 2 15 W
Brecon	.51 57 N 3 23 W
Brentwood	.51 37 N 0 19 E
Bridgend (Pen-y-bont Ar Ogwr)	.51 31 N 3 35 W
Bridgwater	.51 08 N 3 00 W
Bridlington	.54 05 N 0 11 W
Bridport	.50 44 N 2 46 W
Brighton	.50 51 N 0 08 W
Bristol	.51 26 N 2 35 W
Brixham	.50 23 N 3 31 W
Broadford	.57 15 N 5 54 W
Broadstairs	.51 21 N 1 26 E
Buckhaven	.56 11 N 3 02 W
Buckie	.57 41 N 2 59 W
Buckingham	.52 00 N 0 59 W
Burnham-on-Crouch	.51 38 N 0 50 E
Burnley	.53 47 N 2 15 W
Burton upon Trent	.52 48 N 1 38 W
Bury	.53 35 N 2 19 W
Bury St. Edmunds	.52 15 N 0 43 E
Buxton	.53 16 N 1 54 W
Caerleon	.51 37 N 2 58 W
Caernarfon	.53 08 N 4 16 W
Caerphilly	.51 34 N 3 13 W
Cambridge	.52 12 N 0 09 E
Campbeltown	.55 26 N 5 37 W
Canterbury	.51 17 N 1 05 E
Cardiff	.51 29 N 3 11 W
Cardigan	.52 05 N 4 40 W
Carlisle	.54 53 N 2 57 W
Carmarthen	.51 52 N 4 18 W
Carrickfergus	.54 43 N 5 44 W
Castell Nedd, see Neath	
Castle Douglas	.54 57 N 3 56 W
Castlebay	.56 57 N 7 29 W
Castletown	.54 04 N 4 39 W
Catterick	.54 22 N 1 37 W
Chatham	.51 22 N 0 32 E
Cheddar	.51 17 N 2 47 W
Chelmsford	.51 44 N 0 28 E
Cheltenham	.51 54 N 2 05 W
Chester	.53 12 N 2 54 W
Chesterfield	.53 14 N 1 25 W
Chippenhams	.51 28 N 2 07 W
Chorley	.53 39 N 2 38 W
Christchurch	.50 44 N 1 47 W
Cirencester	.51 43 N 1 58 W

Cleethorpes	.53 33 N 0 02 W
Cockermouth	.54 40 N 3 21 W
Colchester	.51 54 N 0 54 E
Coleraine	.55 08 N 6 40 W
Colwyn Bay (Bae Colwyn)	.53 17 N 3 42 W
Comber	.54 33 N 5 42 W
Congleton	.53 10 N 2 12 W
Cookstown	.54 39 N 6 45 W
Corby	.52 30 N 0 42 W
Coventry	.52 24 N 1 31 W
Cowbridge (Y Bont Faen)	.51 28 N 3 27 W
Cowes	.50 45 N 1 18 W
Craigavon	.54 28 N 6 25 W
Crawley	.51 07 N 0 11 W
Credition	.50 48 N 3 39 W
Crewe	.53 06 N 2 27 W
Cricklade	.51 38 N 1 52 W
Cromer	.52 56 N 1 18 E
Crowborough	.51 03 N 0 10 E
Crowland	.52 41 N 0 10 W
Cumbernauld	.55 57 N 3 59 W
Cwmbran	.51 39 N 3 01 W
Darlington	.54 32 N 1 34 W
Dartford	.51 26 N 0 12 E
Dartmouth	.50 21 N 3 35 W
Deal	.51 13 N 1 24 E
Denbigh (Dinbych)	.53 11 N 3 25 W
Derby	.52 55 N 1 28 W
Dezives	.51 21 N 2 00 W
Dingwall	.57 36 N 4 26 W
Doncaster	.53 31 N 1 08 W
Dorchester	.50 43 N 2 27 W
Douglas	.54 09 N 4 28 W
Dover	.51 08 N 1 19 E
Downpatrick	.54 19 N 5 42 W
Droitwich	.52 16 N 2 09 W
Dromore	.54 25 N 6 09 W
Dudley	.52 31 N 2 06 W
Dumbarton	.55 57 N 4 35 W
Dumfries	.55 04 N 3 36 W
Dunbar	.56 00 N 2 31 W
Dundee	.56 29 N 3 02 W
Dunfermline	.56 04 N 3 26 W
Dungannon	.54 31 N 6 45 W
Dunoon	.55 57 N 4 55 W
Duns	.55 46 N 2 21 W
Dunstable	.51 53 N 0 32 W
Durham	.54 47 N 1 34 W
East Grinstead	.51 08 N 0 00 W
East Kilbride	.55 46 N 4 11 W
Eastbourne	.50 47 N 0 16 E
Eastleigh	.50 58 N 1 21 W
Ebbw Vale	.51 47 N 3 13 W
Edenbridge	.51 12 N 0 04 W
Edinburgh	.55 57 N 3 10 W
Elgin	.57 39 N 3 19 W
Ely	.52 24 N 0 16 E
Enniskillen	.54 22 N 7 38 W
Evesham	.52 05 N 1 57 W
Exeter	.50 43 N 3 31 W
Exmouth	.50 37 N 3 24 W
Exnaboe	.59 54 N 1 18 W
Falmouth	.50 09 N 5 04 W
Faversham	.51 19 N 0 54 E
Felixstowe	.51 58 N 1 21 E
Felling	.54 57 N 1 33 W
Fishguard	.52 00 N 4 59 W
Fleetwood	.53 55 N 3 02 W
Flint	.53 15 N 3 08 W
Folkestone	.51 05 N 1 10 E
Forfar	.56 39 N 2 53 W
Forres	.57 36 N 3 37 W
Fort William	.56 49 N 5 06 W
Fowey	.50 20 N 4 38 W
Fraserburgh	.57 42 N 2 01 W
Gainsborough	.53 24 N 0 47 W
Gairloch	.57 44 N 5 41 W
Galashiels	.55 37 N 2 48 W
Gateshead	.54 56 N 1 37 W
Gillingham	.51 23 N 0 33 E
Glasgow	.55 52 N 4 15 W
Glastonbury	.51 09 N 2 43 W
Glenrothes	.56 12 N 3 10 W
Gloucester	.51 52 N 2 14 W
Goole	.53 42 N 0 52 W
Gosport	.50 48 N 1 09 W
Grangemouth	.56 01 N 3 43 W
Grantham	.52 55 N 0 38 W
Grantown-on-Spey	.57 20 N 3 36 W
Gravesend	.51 27 N 0 23 E

Great Walsingham	.52 54 N 0 54 E
Great Yarmouth	.52 36 N 1 44 E
Greenock	.55 57 N 4 46 W
Grimsby	.53 34 N 0 05 W
Guildford	.51 14 N 0 35 W
Halesworth	.52 21 N 1 30 E
Halifax	.53 44 N 1 51 W
Halkirk	.58 31 N 3 29 W
Hamilton	.55 47 N 4 02 W
Harlech	.52 52 N 4 06 W
Harlow	.51 46 N 0 07 E
Harrogate	.54 00 N 1 32 W
Hartlepool	.54 41 N 1 13 W
Harwich	.51 56 N 1 16 E
Haslemere	.51 05 N 0 43 W
Hastings	.50 52 N 0 35 E
Havant	.50 51 N 0 59 W
Haverfordwest	.51 48 N 4 58 W
Hawick	.55 26 N 2 47 W
Haworth	.53 50 N 1 57 W
Helensburgh	.56 00 N 4 44 W
Helmsdale	.53 07 N 3 39 W
Helston	.50 06 N 5 16 W
Hemel Hempstead	.51 45 N 0 28 W
Henley-on-Thames	.51 32 N 0 54 W
Hereford	.52 04 N 2 43 W
Herne Bay	.51 22 N 1 07 E
Hexham	.54 58 N 2 06 W
High Wycombe	.51 38 N 0 45 W
Holyhead	.53 19 N 4 38 W
Holywell, see Treffynnon	
Holywood	.54 38 N 5 49 W
Hove	.50 50 N 0 11 W
Huddersfield	.53 39 N 1 47 W
Huntly	.57 27 N 2 48 W
Hythe	.51 04 N 1 05 E
Ilfracombe	.51 21 N 4 08 W
Invergordon	.57 41 N 4 09 W
Inverness	.57 29 N 4 14 W
Inverurie	.57 17 N 2 22 W
Ipswich	.52 03 N 1 09 E
Irvine	.55 37 N 4 40 W
Jedburgh	.55 28 N 2 33 W
John o'Groats	.58 38 N 3 04 W
Keighley	.53 52 N 1 54 W
Keith	.57 32 N 2 58 W
Kelso	.55 36 N 2 26 W
Kendal	.54 19 N 2 45 W
Kenilworth	.52 20 N 1 34 W
Keswick	.54 36 N 3 08 W
Kettering	.52 24 N 0 43 W
Kidderminster	.52 23 N 2 16 W
Kilkeel	.54 04 N 6 01 W
Kilmarnock	.55 36 N 4 30 W
King's Lynn	.52 45 N 0 24 E
Kingston upon Hull	.53 45 N 0 20 W
Kinross	.56 12 N 3 25 W
Kirkcaldy	.56 07 N 3 10 W
Kirkwall	.58 59 N 2 57 W
Knaresborough	.54 01 N 1 28 W
Knutsford	.53 18 N 2 22 W
Lampeter	.52 07 N 4 05 W
Lanark	.55 40 N 3 46 W
Lancaster	.54 03 N 2 48 W
Langport	.51 02 N 2 49 W
Larne	.54 51 N 5 49 W
Launceston	.50 38 N 4 21 W
Leamington	.52 15 N 1 33 W
Leeds	.53 48 N 1 32 W
Leek	.53 06 N 2 01 W
Leicester	.52 38 N 1 08 W
Leominster	.52 14 N 2 44 W
Lerwick	.60 09 N 1 09 W
Letchworth	.51 58 N 0 13 W
Lewes	.50 52 N 0 01 W
Lichfield	.52 41 N 1 50 W
Limavady	.55 03 N 6 58 W
Lincoln	.53 14 N 0 32 W
Lisburn	.54 31 N 6 04 W
Liverpool	.53 25 N 2 57 W
Livingston	.55 54 N 3 30 W
Llandrindod (Llandrindod Wells)	.52 15 N 3 23 W
Llandudno	.53 19 N 3 50 W
Llanelli	.51 41 N 4 10 W
Llanellwly, see St. Asaph	
Llangefni	.53 15 N 4 18 W
Llangollen	.52 58 N 3 10 W

Lochgilthead	.56 03 N 5 26 W	Pontypool	.51 42 N 3 02 W	Tobermory	.56 38 N 6 04 W	Brecon Beacons	
Lochmaben	.55 08 N 3 26 W	Poole	.50 43 N 1 59 W	Todmorden	.53 43 N 2 05 W	<i>mountains</i>	.51 53 N 3 26 W
Lochmaddy	.57 36 N 7 10 W	Port of Ness	.58 29 N 6 14 W	Torquay	.50 29 N 3 32 W	Brecon Beacons	
Lockerbie	.55 07 N 3 22 W	Port Talbot	.51 35 N 3 48 W	Totnes	.50 26 N 3 41 W	National Park	.51 53 N 3 24 W
London	.51 30 N 0 07 W	Portadown	.54 26 N 6 27 W	Treffynnon		Bristol Channel	.51 32 N 4 12 W
Londonderry	.55 00 N 7 20 W	Porthcawl	.51 29 N 3 42 W	(Holywell)	.53 16 N 3 13 W	Broad Bay (Loch	
Looe	.50 21 N 4 27 W	Portree	.57 25 N 6 11 W	Troon	.55 32 N 4 39 W	a Tuath)	.58 15 N 6 16 W
Lossiemoth	.57 43 N 3 17 W	Portrush	.55 13 N 6 39 W	Trowbridge	.51 19 N 2 13 W	Broad Law,	
Lostwithiel	.50 24 N 4 40 W	Portsmouth	.50 49 N 1 04 W	Truro	.50 16 N 5 03 W	<i>mountain</i>	.55 30 N 3 21 W
Loughborough	.54 46 N 1 13 W	Preston	.53 46 N 2 42 W	Ullapool	.57 54 N 5 10 W	Broads, <i>region</i>	.52 40 N 1 30 E
Louth	.53 22 N 0 00 E	Prestwick	.55 30 N 4 37 W	Ventnor	.50 36 N 1 12 W	Buchan Ness,	
Lowestoft	.52 28 N 1 45 E	Ramsey	.52 27 N 0 07 W	Wakefield	.53 41 N 1 30 W	<i>point</i>	.57 28 N 1 45 W
Ludlow	.52 22 N 2 43 W	Ramsey	.54 19 N 4 23 W	Wallsend	.55 00 N 1 32 W	Butt of Lewis,	
Lurgan	.54 28 N 6 20 W	Ramsgate	.51 20 N 1 25 E	Walsall	.52 35 N 1 59 W	<i>cape</i>	.58 31 N 6 16 W
Luton	.51 53 N 0 25 W	Reading	.51 27 N 0 58 W	Wantage	.51 35 N 1 25 W	Cader Idris,	
Lutterworth	.52 27 N 1 12 W	Redditch	.52 18 N 1 56 W	Warrenpoint	.54 09 N 6 16 W	<i>mountains</i>	.52 42 N 3 54 W
Lydd	.50 57 N 0 55 E	Renfrew	.55 52 N 4 24 W	Warrington	.53 24 N 2 36 W	Caernarfon Bay	.53 04 N 4 22 W
Lyne Regis	.50 44 N 2 56 W	Rhondda	.51 39 N 3 29 W	Warwick	.52 17 N 1 35 W	Cairngorm	
Macclesfield	.53 16 N 2 08 W	Rhyl	.53 19 N 3 29 W	Watford	.51 40 N 0 24 W	Mountains	.57 06 N 3 40 W
Magherafelt	.54 46 N 6 36 W	Richmond	.54 25 N 1 44 W	Wellborough	.52 18 N 0 41 W	Calais,	
Maidenhead	.51 32 N 0 44 W	Ripon	.54 08 N 1 31 W	Wellington	.50 59 N 3 13 W	Pas de, see Dover,	
Maidstone	.51 16 N 0 32 E	Rochdale	.53 37 N 2 10 W	Wells	.51 12 N 2 39 W	Strait of	
Mallaig	.57 00 N 5 50 W	Rochester	.51 23 N 0 29 E	Welshpool		Caledonian Canal	.56 53 N 5 02 W
Malmesbury	.51 35 N 2 06 W	Romsey	.51 00 N 1 30 W	(Y Trallwng)	.52 40 N 3 09 W	Calf of Man,	
Malton	.54 08 N 0 48 W	Ross-on-Wye	.51 55 N 2 35 W	Welwyn Garden		<i>island</i>	.54 03 N 4 49 W
Manchester	.53 29 N 2 15 W	Rotherham	.53 26 N 1 21 W	City	.51 48 N 0 12 W	Cambrian	
Mansfield	.53 09 N 1 12 W	Rothsay	.55 50 N 5 03 W	West Bromwich	.52 32 N 2 01 W	Mountains	.52 25 N 3 30 W
Margate	.51 23 N 1 23 E	Royal Tunbridge		Westbury	.51 15 N 2 12 W	Campsie Fells,	
Marlborough	.51 25 N 1 44 W	Wells	.51 08 N 0 16 E	Weston-super-		<i>hills</i>	.56 01 N 4 18 W
Marlow	.51 34 N 0 46 W	Rugby	.52 23 N 1 16 W	Mare	.51 21 N 2 58 W	Cardigan Bay	.52 30 N 4 25 W
Matlock	.53 08 N 1 34 W	Runcorn	.53 19 N 2 44 W	Weymouth	.50 37 N 2 28 W	Carlingford	
Mauchline	.55 31 N 4 23 W	Ryde	.50 44 N 1 10 W	Whitby	.54 29 N 0 37 W	Lough, <i>bay</i>	.54 03 N 6 12 W
Melrose	.55 36 N 2 43 W	Rye	.50 57 N 0 44 E	Whitehaven	.54 33 N 3 35 W	Carmarthen Bay	.51 38 N 4 33 W
Merthyr Tydfil	.51 45 N 3 22 W	Saffron Walden	.52 01 N 0 15 E	Whitstable	.51 22 N 1 02 E	Carron, <i>river</i>	.57 22 N 5 31 W
Middlesbrough	.54 34 N 1 12 W	St. Albans	.51 45 N 0 20 W	Wick	.58 26 N 3 06 W	Celtic Sea	.51 00 N 8 00 W
Milford Haven	.51 43 N 5 02 W	St. Andrews	.56 20 N 2 47 W	Widnes	.53 22 N 2 44 W	Channel Islands	.49 30 N 2 30 W
Mold	.53 10 N 3 09 W	St. Asaph		Wigan	.53 33 N 2 38 W	Cheviot, <i>peak</i>	.55 29 N 2 09 W
Monmouth	.51 49 N 2 43 W	(Llanelwy)	.53 16 N 3 27 W	Wilton	.51 05 N 1 52 W	Cheviot Hills	.55 23 N 2 20 W
Montrose	.56 43 N 2 28 W	St. Austell	.50 20 N 4 47 W	Wimborne		Cleveland Hills	.54 26 N 1 04 W
Morecambe	.54 04 N 2 52 W	St. David's	.51 53 N 5 16 W	Minster	.50 48 N 1 59 W	Clwyd, <i>river</i>	.53 12 N 3 21 W
Morpeth	.55 10 N 1 41 W	St. Helens	.53 27 N 2 45 W	Winchester	.51 04 N 1 19 W	Clyde, <i>river</i>	.55 51 N 4 15 W
Mossbank	.60 28 N 1 12 W	St. Helier	.49 11 N 2 06 W	Wisbech	.52 40 N 0 10 E	Clyde, Firth of	.55 38 N 5 01 W
Much Wenlock	.52 36 N 2 33 W	St. Ives	.50 13 N 5 29 W	Wolverhampton	.52 35 N 2 08 W	Coll, <i>island</i>	.56 37 N 6 34 W
Musselburgh	.55 57 N 3 02 W	St. Ives	.52 20 N 0 05 W	Wolverbridge	.52 06 N 1 18 E	Colonsay, <i>island</i>	.56 04 N 6 13 W
Nairn	.57 35 N 3 52 W	St. Peter Port	.49 27 N 2 32 W	Woodstock	.51 51 N 1 21 W	Cotswold Hills	.51 40 N 2 10 W
Neath (Castell		Salford	.53 29 N 2 18 W	Worcester	.52 12 N 2 13 W	Croob, Slieve,	
Nedd)	.51 40 N 3 49 W	Salisbury	.51 04 N 1 48 W	Worthington	.54 38 N 3 34 W	<i>mountain</i>	.54 20 N 5 58 W
New Scone	.56 25 N 3 24 W	Sandhurst	.51 21 N 0 48 W	Workop	.53 19 N 1 07 W	Cuillin Hills	.57 13 N 6 14 W
Newark-on-Trent	.53 04 N 0 49 W	Sandwich	.51 17 N 1 21 E	Worthing	.50 49 N 0 23 W	Cumbrian	
Newbury	.51 24 N 1 19 W	Scalloway	.60 08 N 1 16 W	Wrexham	.53 03 N 3 00 W	Mountains	.54 31 N 5 08 W
Newcastle	.54 12 N 5 53 W	Scarborough	.54 17 N 0 25 W	Y Bont Faen,		Dartmoor Forest,	
Newcastle-under-		Scunthorpe	.53 35 N 0 39 W	see Cowbridge		<i>upland</i>	.50 37 N 3 57 W
Lyme	.53 01 N 2 13 W	Selkirk	.55 33 N 2 50 W	Y Trallwng,		Dartmoor	
Newcastle upon		Sevenoaks	.51 17 N 0 11 E	see Welshpool		National Park	.50 35 N 3 55 W
Tyne	.54 58 N 1 36 W	Shawbost	.58 19 N 6 40 W	York	.53 57 N 1 06 W	Dearg', Beinn,	
Newmarket	.52 15 N 0 25 E	Sheffield	.53 23 N 1 28 W			<i>mountain</i>	.57 47 N 4 56 W
Newport	.50 42 N 1 18 W	Shrewsbury	.52 42 N 2 45 W			Dee, <i>river</i>	.53 19 N 3 11 W
Newport	.51 35 N 2 59 W	Skegness	.53 09 N 0 20 E			Dee, <i>river</i>	.54 54 N 4 00 W
Newquay	.50 25 N 5 05 W	Slough	.51 30 N 0 34 W			Dee, <i>river</i>	.57 06 N 2 13 W
Newry	.54 11 N 6 20 W	Solihull	.52 25 N 1 46 W			Derwent, <i>river</i>	.53 45 N 0 57 W
Newton Abbot	.50 32 N 3 36 W	South Shields	.54 59 N 1 26 W			Derwent Water,	
Newton Aycliffe	.54 37 N 1 35 W	Southampton	.50 55 N 1 24 W			<i>lake</i>	.54 35 N 3 09 W
Newtown	.52 31 N 3 18 W	Southend-on-Sea	.51 33 N 0 42 E			Deveron, <i>river</i>	.57 31 N 2 36 W
Newtown St.		Southport	.53 39 N 3 00 W			Don, <i>river</i>	.53 28 N 1 18 W
Boswells	.55 34 N 2 41 W	Stafford	.52 49 N 2 07 W			Donard, Slieve,	
Newtownabbey	.54 40 N 5 57 W	Staines	.51 26 N 0 30 W			<i>peak</i>	.54 11 N 5 55 W
Newtownards	.54 35 N 5 40 W	Stamford	.52 39 N 0 29 W			Doon, Loch	.55 15 N 4 22 W
North Walsham	.52 49 N 1 24 E	Stevenage	.51 54 N 0 12 W			Dornoch Firth	.57 52 N 3 55 W
Northallerton	.54 21 N 1 25 W	Stirling	.56 07 N 3 56 W			Dover (Pas de	
Northampton	.52 15 N 0 54 W	Stockport	.53 25 N 2 10 W			Calais), Strait of	.51 00 N 1 30 E
Northwich	.53 15 N 2 31 W	Stockton-on-Tees	.54 35 N 1 20 W			Dungeness, <i>cape</i>	.50 55 N 0 59 E
Nottingham	.52 38 N 1 18 E	Stoke-on-Trent	.53 01 N 2 11 W			Dunkery Beacon,	
Norwich	.52 58 N 1 10 W	Stonehaven	.56 58 N 2 12 W			<i>peak</i>	.51 10 N 3 35 W
Oakham	.52 41 N 0 44 W	Stornoway	.58 12 N 6 23 W			Earn, <i>river</i>	.56 20 N 3 36 W
Okehampton	.50 45 N 4 00 W	Strabane	.54 48 N 7 28 W			Eden, <i>river</i>	.54 55 N 2 59 W
Oldham	.53 32 N 2 07 W	Stranraer	.54 54 N 5 02 W			Eden Valley	.54 42 N 2 40 W
Omagh	.54 36 N 7 18 W	Stratford-upon-				Eige, Carn, <i>peak</i>	.57 17 N 5 07 W
Oswestry	.52 52 N 3 03 W	Avon	.52 12 N 1 43 W			Eigg, <i>island</i>	.56 54 N 6 10 W
Oxford	.51 45 N 1 15 W	Stromness	.58 58 N 3 18 W			English Channel	
Paisley	.55 50 N 4 25 W	Sudbury	.52 02 N 0 44 E			(La Manche)	.50 00 N 1 00 W
Peebles	.55 39 N 3 11 W	Sunderland	.54 55 N 1 23 W			Erich, Loch	.56 51 N 4 21 W
Peel	.54 14 N 4 42 W	Sutton Coldfield	.52 33 N 1 48 W			Erne, <i>river</i>	.54 30 N 8 16 W
Pembroke	.51 40 N 4 55 W	Swansea	.51 38 N 3 58 W			Exe, <i>river</i>	.50 48 N 3 31 W
Pen-y-bont Ar Ogwr,		Swindon	.51 34 N 1 46 W			Exmoor Forest,	
see Bridgend		Tain	.57 48 N 4 03 W			<i>upland</i>	.51 08 N 3 43 W
Penarth	.51 26 N 3 10 W	Tamworth	.52 38 N 1 40 W			Exmoor National	
Penrith	.54 40 N 2 45 W	Tarbert	.57 54 N 6 48 W			Park	.51 10 N 3 45 W
Penryn	.50 10 N 5 06 W	Tavistock	.50 33 N 4 08 W			Fair Isle	.59 32 N 1 36 W
Perth	.56 24 N 3 25 W	Teignmouth	.50 33 N 3 29 W			Fens, <i>region</i>	.52 46 N 0 03 W
Peterborough	.52 35 N 0 14 W	Telford	.52 41 N 2 28 W			Fetlar, <i>island</i>	.60 36 N 0 52 W
Peterhead	.57 31 N 1 47 W	Tewkesbury	.51 59 N 2 09 W			Flamborough	
Peterlee	.54 45 N 1 20 W	Thetford	.52 25 N 0 45 E			Head, <i>cape</i>	.54 07 N 0 05 W
Plymouth	.50 23 N 4 09 W	Thurso	.58 36 N 3 31 W			Forth, <i>river</i>	.56 05 N 3 46 W
Pontefract	.53 41 N 1 19 W	Tilbury	.51 28 N 0 22 E			Forth, Firth of	.56 06 N 2 41 W

Foula, <i>island</i> . . . . .	.60 08 N 2 05 W	Lewis, Isle of . . . . .	.58 20 N 6 35 W	Oykel, <i>river</i> . . . . .	.57 58 N 4 43 W	Solway Firth . . . . .	.54 44 N 3 35 W
Foyle, <i>river</i> . . . . .	.54 59 N 7 18 W	Linn of Dee Falls . . . . .	.56 59 N 3 32 W	Papa Westray, <i>island</i> . . . . .	.59 21 N 2 53 W	South Downs, <i>hills</i> . . . . .	.50 55 N 0 44 W
Foyle, Lough, <i>bay</i> . . . . .	.55 06 N 7 08 W	Little Minch, <i>strait</i> . . . . .	.57 37 N 6 44 W	Peak District National Park . . . . .	.53 21 N 1 50 W	South Ronaldsay, <i>island</i> . . . . .	.58 47 N 2 58 W
Galloway, Mull of, <i>cape</i> . . . . .	.54 38 N 4 53 W	Liverpool Bay . . . . .	.53 27 N 3 09 W	Pembrokeshire Coast National Park . . . . .	.51 50 N 5 05 W	South Uist, <i>island</i> . . . . .	.57 17 N 7 19 W
Giant's Causeway, <i>cape</i> . . . . .	.55 15 N 6 30 W	Lizard Point . . . . .	.49 58 N 5 13 W	Pennines, <i>uplands</i> . . . . .	.54 10 N 2 10 W	Southern Uplands, <i>region</i> . . . . .	.55 30 N 3 30 W
Gigha, <i>island</i> . . . . .	.55 41 N 5 45 W	Lleyn Peninsula . . . . .	.52 55 N 4 28 W	Pentland Firth . . . . .	.58 43 N 3 07 W	Sperrin Mountains . . . . .	.54 48 N 7 05 W
Gower Peninsula . . . . .	.51 36 N 4 08 W	Loch a Tuath, see Broad Bay		Pentland Hills . . . . .	.55 48 N 3 26 W	Spey, <i>river</i> . . . . .	.57 40 N 3 06 W
Grampian Mountains . . . . .	.56 48 N 4 21 W	Lochnagar, Mount . . . . .	.56 57 N 3 14 W	Plynlimon (Pumlumon Fawr) Uplands . . . . .	.52 28 N 3 47 W	Stour, <i>river</i> . . . . .	.51 57 N 1 12 E
Great Ouse, <i>river</i> . . . . .	.52 21 N 0 03 E	Lomond, Loch . . . . .	.56 05 N 4 36 W	Pomona, see Mainland		Strangford Lough . . . . .	.54 30 N 5 36 W
Great Stour, <i>river</i> . . . . .	.51 19 N 1 12 E	Lorn, Firth of . . . . .	.56 18 N 5 46 W	Radnor Forest, <i>region</i> . . . . .	.52 16 N 3 11 W	Strathmore Valley . . . . .	.56 39 N 3 00 W
Greenwich Meridian	0	Lower Lough Erne . . . . .	.54 30 N 7 50 W	Rannoch, Loch, <i>reservoir</i> . . . . .	.56 41 N 4 18 W	Stronsay, <i>island</i> . . . . .	.59 06 N 2 35 W
Guernsey, <i>island</i> . . . . .	.49 27 N 2 36 W	Loyal, Loch . . . . .	.58 24 N 4 21 W	Reidh, Rubha, <i>point</i> . . . . .	.57 51 N 5 49 W	Sumburgh Head, <i>cape</i> . . . . .	.59 51 N 1 17 W
Harris, <i>island</i> . . . . .	.57 57 N 6 50 N	Luce Bay . . . . .	.54 45 N 4 50 W	Rhum, <i>island</i> . . . . .	.57 00 N 6 20 W	Sunart, Loch . . . . .	.56 41 N 5 43 W
Hebrides, Sea of the . . . . .	.57 07 N 6 55 W	Lundy, <i>island</i> . . . . .	.51 11 N 4 40 W	Ribble, <i>river</i> . . . . .	.53 45 N 2 43 W	Tamar, <i>river</i> . . . . .	.50 29 N 4 13 W
Helvellyn, Mount . . . . .	.54 32 N 3 01 W	Lune, <i>river</i> . . . . .	.54 03 N 2 50 W	Rona, <i>island</i> . . . . .	.59 07 N 5 49 W	Taw, <i>river</i> . . . . .	.51 00 N 3 59 W
Highlands, <i>region</i> . . . . .	.57 30 N 4 30 W	Macdui, Ben, <i>peak</i> . . . . .	.57 05 N 3 40 W	Ross of Mull Peninsula . . . . .	.56 18 N 6 14 W	Tay, <i>river</i> . . . . .	.56 23 N 3 22 W
Hirta, see St. Kilda		Mainland, <i>island</i> . . . . .	.60 16 N 1 16 W	St. Abb's Head, <i>cape</i> . . . . .	.55 55 N 2 08 W	Tay, Firth of . . . . .	.56 27 N 2 59 W
Holy Island (Ynys Gybi) . . . . .	.53 17 N 4 37 W	Mainland (Pomona), <i>island</i> . . . . .	.59 00 N 3 15 W	St. Austell Bay . . . . .	.50 19 N 4 43 W	Tees, <i>river</i> . . . . .	.54 30 N 1 27 W
Hoy, <i>island</i> . . . . .	.58 53 N 3 19 W	Man, Isle of . . . . .	.54 14 N 4 32 W	St. Bees Head, <i>cape</i> . . . . .	.54 30 N 3 38 W	Teifi, <i>river</i> . . . . .	.52 05 N 4 40 W
Humber, <i>river</i> . . . . .	.53 37 N 0 07 E	Menai Strait . . . . .	.53 13 N 4 12 W	St. George's Channel . . . . .	.52 30 N 5 30 W	Teviot, <i>river</i> . . . . .	.55 31 N 2 30 W
Humber Bridge . . . . .	.53 42 N 0 27 W	Merrick, Mount . . . . .	.55 08 N 4 29 W	St. Kilda (Hirta), <i>island</i> . . . . .	.57 49 N 8 35 W	Thames, <i>river</i> . . . . .	.51 39 N 0 14 E
Inchcape, see Bell Rock		Minch, <i>strait</i> . . . . .	.57 45 N 6 30 W	St. Magnus Bay . . . . .	.60 24 N 1 32 W	Tiree, <i>island</i> . . . . .	.56 30 N 6 53 W
Inner Hebrides, <i>islands</i> . . . . .	.56 35 N 6 40 W	Monadhliath Mountains . . . . .	.57 10 N 4 13 W	Salisbury Plain . . . . .	.51 13 N 1 55 W	Torridge, <i>river</i> . . . . .	.51 01 N 4 12 W
Inner Sound . . . . .	.57 24 N 5 55 W	Moor Foot Hills . . . . .	.55 45 N 3 05 W	Sanday, <i>island</i> . . . . .	.59 15 N 2 35 W	Trent, <i>river</i> . . . . .	.53 41 N 0 42 W
Iona, <i>island</i> . . . . .	.56 20 N 6 25 W	Mor (Albyn), Glen . . . . .	.57 14 N 4 30 W	Sark, <i>island</i> . . . . .	.49 27 N 2 22 W	Tummel, Loch . . . . .	.56 43 N 3 56 W
Irish Sea . . . . .	.53 40 N 5 00 W	Moray Firth . . . . .	.57 37 N 4 01 W	Sawel Mountain . . . . .	.54 49 N 7 02 W	Tweed, <i>river</i> . . . . .	.55 45 N 2 03 W
Islay, <i>island</i> . . . . .	.55 46 N 6 09 W	Morecambe Bay . . . . .	.54 07 N 3 00 W	Scafell Pike, <i>mountain</i> . . . . .	.54 27 N 3 13 W	Tyne, <i>river</i> . . . . .	.54 59 N 1 46 W
Jersey, <i>island</i> . . . . .	.49 13 N 2 07 W	Mourne Mountains . . . . .	.54 05 N 6 05 W	Scilly, Isles of . . . . .	.49 55 N 6 18 W	Ullswater, Lake . . . . .	.54 35 N 2 52 W
Jura, <i>island</i> . . . . .	.55 59 N 5 54 W	Mull, Island of . . . . .	.56 27 N 5 59 W	Severn, <i>river</i> . . . . .	.51 48 N 2 23 W	Unst, <i>island</i> . . . . .	.60 45 N 0 53 W
Jura, Sound of . . . . .	.55 59 N 5 45 W	Neagh, Lough . . . . .	.54 37 N 6 25 W	Severn Road Bridge . . . . .	.51 37 N 2 39 W	Upper Lough Erne . . . . .	.54 15 N 7 35 W
Kebock Head, <i>cape</i> . . . . .	.58 03 N 6 22 W	Ness, Loch . . . . .	.57 17 N 4 29 W	Sheppey, Isle of . . . . .	.51 23 N 0 49 E	Wash, <i>bay</i> . . . . .	.52 55 N 0 15 E
Kilbrannan Sound . . . . .	.55 37 N 5 26 W	Nevis, Ben, <i>mount</i> . . . . .	.56 48 N 5 00 W	Shetland Islands . . . . .	.60 23 N 1 15 W	Waveney, <i>river</i> . . . . .	.52 28 N 1 37 E
Kintyre, Mull of, <i>cape</i> . . . . .	.55 18 N 5 47 W	Nith, <i>river</i> . . . . .	.54 57 N 3 33 W	Shiel, Loch . . . . .	.56 49 N 5 32 W	Wear, <i>river</i> . . . . .	.54 51 N 1 33 W
Kintyre Peninsula . . . . .	.55 36 N 5 37 W	Nithsdale, <i>valley</i> . . . . .	.55 11 N 3 44 W	Shin, Loch . . . . .	.58 06 N 4 32 W	Westray, <i>island</i> . . . . .	.59 18 N 2 59 W
La Manche, see English Channel		North Channel, <i>strait</i> . . . . .	.55 15 N 6 00 W	Sidlaw Hills . . . . .	.56 31 N 3 11 W	Wharfe, <i>river</i> . . . . .	.53 53 N 1 16 W
Lagan, <i>river</i> . . . . .	.54 37 N 5 54 W	North Downs, <i>hills</i> . . . . .	.51 13 N 0 54 W	Sinclair's Bay . . . . .	.58 30 N 3 05 W	Wharfe Dale . . . . .	.53 54 N 1 27 W
Lake District National Park . . . . .	.54 30 N 3 10 W	North Sea . . . . .	.55 20 N 2 00 E	Skye, Island of . . . . .	.57 18 N 6 15 W	Wight, Isle of . . . . .	.50 41 N 1 18 W
Lammermuir Hills . . . . .	.55 50 N 2 44 W	North Sound . . . . .	.59 18 N 2 46 W	Snowdonia, <i>peak</i> . . . . .	.53 04 N 4 05 W	Windermere, Lake . . . . .	.54 21 N 2 57 W
Land's End, <i>cape</i> . . . . .	.50 04 N 5 43 W	North Uist, <i>island</i> . . . . .	.57 36 N 7 18 W	Snowdonia National Park . . . . .	.52 50 N 3 50 W	Wolds, <i>upland</i> . . . . .	.53 34 N 0 21 W
Lawers, Ben, <i>mountain</i> . . . . .	.56 32 N 4 13 W	North York Moors National Park . . . . .	.54 20 N 0 45 W	Solent, <i>channel</i> . . . . .	.50 47 N 1 17 W	Wrath, Cape . . . . .	.58 37 N 5 00 W
Lea (Lee), <i>river</i> . . . . .	.51 34 N 0 04 W	Northumberland National Park . . . . .	.55 17 N 2 15 W			Wye, <i>river</i> . . . . .	.51 37 N 2 39 W
Leeds-Liverpool Canal . . . . .	.53 59 N 2 10 W	Ochil Hills . . . . .	.56 16 N 3 33 W			Yare, <i>river</i> . . . . .	.52 35 N 1 29 E
Leven, Loch . . . . .	.56 12 N 3 23 W	Orkney Islands . . . . .	.59 01 N 3 06 W			Yell, <i>island</i> . . . . .	.60 36 N 1 07 W
		Outer Hebrides, <i>islands</i> . . . . .	.57 44 N 7 13 W			Ynys Enlli, see Bardsey Island	
						Ynys Gybi, see Holy Island	
						Ynys Môn, see Anglesey	
						Yorkshire Dales National Park . . . . .	.54 16 N 2 05 W

Austell (Hensbarrow); Carn Brea; and the spectacular extremity of Land's End. Granite reappears above the sea in the Isles of Scilly, 28 miles further southwest. Despite this variation in general elevation, the landscape, like that of so many other parts of the United Kingdom, has a quite marked uniformity of summit heights, with a high series occurring between 1,000 and 1,400 feet, a middle group between 700 and 1,000 feet, and coastal plateaus ranging between 200 and 400 feet. A network of deep, narrow valleys alternates with flat-topped, steplike areas rising inland. The South West derives much of its renowned physical attraction from its peninsular nature, for, in addition to magnificent drowned estuaries created by sea-level changes, the coastline is unsurpassed for its diversity.

The Lowland zone. Gauged by the 700-foot contour, the Lowland zone starts around the Solway Firth in the northwest, with a strip of low-lying ground extending up the fault-directed Eden Valley. Southward, the narrow coastal plain bordering the Lake District broadens into the flat, glacial-drift-covered Lancashire Plain, with its slow-flowing rivers. East of the Pennine ridge the lowlands are continuous, except for the limestone plateau north of the River Tees and, to the south, the North York Moors, with large, exposed tracts over 1,400 feet. West of the North York Moors lies the wide Vale of York, which the broad lower Trent valley links to the younger rocks of the Midland Plain, terminating against the Welsh Massif

on the west. The lowland continues southward along the flat landscapes bordering the lower River Severn, becomes constricted by the complex Bristol-Mendip upland, and opens out once more into the extensive and flat plain of Somerset. The eastern horizon of much of the Midland Plain is the scarp face of the Cotswolds, part of the discontinuous outcrop of limestones and sandstones that arcs from the Dorset coast in southern England, continuing in the Cleveland Hills as far as the coast of North Yorkshire. The more massive limestones and sandstones give rise to noble 1,000-foot-high escarpments, yet the dip slope is frequently of such a low angle that the countryside resembles a dissected plateau, passing gradually on to the clay vales of Oxford, White Horse, Lincoln, and Pickering. The flat, often reclaimed landscapes of the Fens are also underlain by these clays, and the next scarp, the western-facing chalk outcrop (cuesta), undergoes several marked directional changes in the vicinity of the Wash, a shallow arm of the North Sea.

The chalk outcrop is a more conspicuous and continuous feature than its sandstone and limestone predecessor: it begins in the north with the open rolling country known as the Yorkshire Wolds, where heights of 750 feet occur, is breached by the River Humber, and then continues in the Lincolnshire Wolds. East of the Fens the outcrop is very low, barely attaining 150 feet, but it then rises gradually to the 807-foot Ivinghoe Beacon in the attractive Chiltern

Eastern chalklands and vales

Hills. The outcrop is interrupted by several wind gaps, or former river courses, and the Thames actually cuts through it, in the Goring Gap. Where the dip slope of the chalk is almost horizontal, as is the case in the open Salisbury Plain, the landscape is that of a large dissected plateau of 350 to 500 feet. Only the main valleys contain rivers, while the other valleys remain dry.

The chalk outcrop continues into Dorset, but in the south the chalk has been folded along west-to-east lines. Downfolds, subsequently filled in by geologically recent sands and clays, now floor the London and Hampshire basins. The former, an asymmetrical synclinal (or structurally downwarped) lowland rimmed by chalk, is occupied mainly by gravel terraces and valley-side benches and has relatively little floodplain; the latter is similarly cradled by a girdle of chalk, but the southern rim, or monocline, has been cut by the sea in two places to form the scenic Isle of Wight.

Between these two synclinal areas rises the anticlinal, or structurally upwarped, dome of the Weald region of Kent and East Sussex. The arch of this vast geologic upfold has long since been eroded away, and the bounding chalk escarpments of the North and South Downs (uplands so named because of their open, rolling, treeless grassland) are therefore inward-facing and enclose a concentric series of exposed clay vales and sandstone ridges. On the coast the upfold has been eaten into by the waters of the English Channel to produce a dazzling succession of chalk cliffs facing the European mainland, 21 miles distant at the narrowest point.

DRAINAGE

The main watershed in Great Britain runs from north to south, keeping well to the west until the basin of the River Severn. Westward-flowing streams empty into the Atlantic in relatively short distances; and the Clyde in Scotland, the Eden and Mersey in northwestern England, and the Dee, Teifi, and Tywi in Wales are the only significant rivers. The drainage complex that debouches into the Severn estuary covers a large part of Wales and southwestern England. Thereafter, the Avon, flowing through Bristol, and the Parret watershed lie somewhat to the east, but subsequently, with the exception of the Taw-Torridge valleys, they run very close to the western coast in Devon and Cornwall.

The rivers draining east from the main watershed are longer, several coalescing into wide estuaries. The fast-flowing Spey, Don, Tay, Forth, and Tweed of eastern Scotland run generally across impermeable rocks, and their discharges increase rapidly after rain. From the northern Pennines the Tyne, Wear, and Tees flow independently to the North Sea, but thereafter significant estuary groupings occur. A number of rivers, including the Trent, drain into the Humber after they leave the Pennines. To the south another group of rivers enters the Wash after sluggishly draining a large, flat countryside. The large drainage complex of the Thames dominates southeastern England; its source is in the Cotswolds, and, after being joined by many tributaries as it flows over the Oxford Clay, the main-stream breaches the chalk escarpment in the Goring Gap. A number of tributaries add their discharges farther downstream, and the total drainage converging on the Thames estuary is nearly 4,000 square miles. The important rivers flowing into the English Channel are the Tamar, Exe, Fowey, Avon, Test, Arun, and Ouse. The major rivers in Northern Ireland are the Erne, Foyle, and Bann.

SOILS

The regional pattern of soil formation can be correlated usefully with local variations of relief and climate. Although changes are gradual and can be complicated by local factors, a division of Britain into four climatic regimes (see below *Climate*) goes far to explain the distribution of soils.

At the higher altitudes of the Highland zone, particularly in Scotland, the weather is characterized by a cold, wet regime of more than 40 inches (1,000 millimetres) rainfall and less than 47° F (8° C) mean temperature annually; there are found blanket peat and peaty podzol soils, with

their organic surface layer resting on a gray, leached base. A similarly wet regime, but with a mean annual temperature exceeding 47° F, obtains over most of the remainder of the Highland zone, particularly on the lower parts of the Southern Uplands, the Solway Firth-Lake District area, the peripheral plateaus of Wales, and most of southwestern England. These areas are covered by acid brown soils and weakly podzolized associates. On the lower-lying areas within the Highland zone, more particularly in eastern Scotland and the eastern flanks of the Pennines, a relatively cold, dry regime gives rise to soils intermediate between the richer brown earths and the podzols.

Over the whole of the Lowland zone, which also has a mean annual temperature above 47° F but less than 40 inches of rainfall, leached brown soils are characteristic. Calcareous, and thus alkaline, parent materials are widespread, particularly in the southeast, and so acid soils and podzols are confined to the most quartz-laden parent materials. In Northern Ireland at elevations of about 460 feet, brown earths are replaced by semipodzols, and these grade upslope into more intensively leached podzols. This is particularly the case in the Sperrins and the Mourne, but, between them in the Lough Neagh lowland, rich brown earth soils are extensively developed.

CLIMATE

The climate of the United Kingdom is broadly determined by its setting within the pattern of the atmosphere's general circulation and its position in relation to the form and distribution of land and sea. Regional diversity does exist, but the boundaries of major world climatic systems do not pass through the country. Britain's marginal position between the European landmass to the east and the ever-present, relatively warm Atlantic waters to the west ensures the modification of both the thermal and moisture characteristics of the principal types of air reaching the country's shores. These, according to their source regions, are Arctic, polar, and tropical; by their route of travel, the polar and tropical may in each case be maritime or continental. For much of the year the weather is dominated by the sequence of disturbances within the midlatitude westerlies that bring in mostly polar maritime and, occasionally, tropical maritime air. In winter, occasional high-pressure areas to the east allow biting Arctic and polar continental air to sweep over Britain. All of these atmospheric systems tend to fluctuate rapidly in their paths and to vary both in frequency and intensity throughout the seasons of the year and also from year to year for any given season. Variability contributes much to the character of British weather, and extreme conditions, though rare, can be very important for the life of the country.

The polar maritime winds that reach the country in winter create a temperature distribution that does not reflect latitudinal differences. Thus the north-to-south run of the 40° F (4° C) January isotherm, or line of equal temperature, from the coast in northwestern Scotland south to the Isle of Wight betrays the moderating influence of the winds blowing off the Atlantic Ocean. In summer, polar maritime air is less common, and a 9° difference of latitude and distance from the sea assume more importance, with temperatures increasing from north to south and from the coast inland. Above-average temperatures are usually associated with tropical continental air, particularly in anticyclonic, or high-pressure, conditions. On rare occasions these southerly or southeasterly airstreams can bring to southern England heat waves with temperatures of 90° F (32° C). The mean annual temperature ranges from 46° F (8° C) in the Hebrides to 52° F (11° C) in southwestern England. In spring and autumn a variety of airstreams and temperature conditions may be experienced.

Rain-producing atmospheric systems arrive from a westerly direction, and some of the bleak summits of the highest peaks of the Highland zone can receive as much as 200 inches (5,100 millimetres) of rainfall a year. Norfolk, Suffolk, and the Thames estuary, in contrast, can expect as little as 20 inches (500 millimetres). Rain is fairly well distributed throughout the year: June, on the whole, is the driest month throughout Britain; May is the next driest in the eastern and central parts of England, but April is

Air-mass characteristics

Rainfall patterns

Severn estuary

drier in parts of the west and north. The wettest months are usually October, December, and August, but in any particular year almost any month can prove to be the wettest, and the association of Britain with seemingly perpetual rainfall (a concept popularly held among foreigners) is based on a germ of truth. Some precipitation falls as snow, which increases with altitude and from southwest to northeast. The average number of days with snow falling can vary from as many as 30 in blizzard-prone northeastern Scotland to as few as five in southwestern England. Average daily hours of sunshine vary from less than three in the extreme northeast to about 4½ along the southeastern coast.

PLANT AND ANIMAL LIFE

Except for northern Scotland, the highest hills of the north and west, the saturated fens and marshes, and the seacoast fringes, the natural vegetation of the British Isles is deciduous summer forest dominated by oak. With human encroachment, only scattered woodlands and areas of wild or seminatural vegetation lie outside the enclosed cultivated fields. Few of these fine moorlands and heathlands, wild though they may appear, can lay claim to any truly natural plant communities: nearly all show varying degrees of adjustment to grazing, swaling (controlled burning), or other activities. Woodland now covers less than 10 percent of the country, and, although the Forestry Commission has been active since its creation in 1919, nearly two-thirds of this woodland remains in private hands. The largest areas of woodland are now to be found in northeastern Scotland, Kielder and other forests in Northumberland, Ashdown Forest in East Sussex, Gwynedd in Wales, and Breckland in Norfolk.

© Hans Hoefler from TSW—CLICK/Chicago



A moorland in bloom with purple heather and other flowers at Land's End, Cornwall, Eng.

Flora of the moorlands and heathlands

The moorlands and heathlands occupy about a fourth of the total area of the United Kingdom. They consist of the possibly true Arctic-Alpine vegetation on some mountain summits in Scotland and the much more extensive peat moss, heather, bilberry, and thin *Molinia* and *Nardus* grass moors of the Highland zone. A similar vegetation exists on high ground in eastern Northern Ireland and on the Mourne, with considerable areas of peat moss vegetation on the Mountains of Antrim. In the Lowland zone, where light sandy soils are found, the vegetation is dominated typically by the common heather—the deep purple of which adds a splash of colour to the autumn countryside—but sometimes by bilberry or bell heather. A

strip of land immediately bordering the coastline has also largely escaped the attention of humans and domesticated animals, so that patches of maritime vegetation can frequently be found in approximately their natural state.

The survival of the wild mammals, amphibians, and reptiles of the United Kingdom depends on their ability to come to terms with the changing environment and to protect themselves from attacks by their enemies—the most dangerous being human. British mammals survive in a greater range of habitats than do amphibians and reptiles. Most of the formerly abundant larger mammals—such as boars, reindeer, and wolves—have become extinct, but red deer survive in the Scottish Highlands and in Exmoor Forest, and roe deer in the wooded areas of Scotland and southern England. The carnivores (badgers, otters, foxes, stoats, and weasels) thrive in most rural areas; also widely distributed are the rodents (rats, squirrels, mice) and insectivores (hedgehogs, moles, shrews). Rabbits are widespread, and their numbers are increasing. The other nocturnal vegetarian, the brown hare, is found in open lowland country, while the mountain hare is native to Scotland. Amphibians are represented by three species of newt and five species of frogs and toads, while reptiles consist of three species of snakes, of which only the adder is venomous, and three species of lizard. There are no snakes in Northern Ireland.

In many respects the British Isles are an ornithologist's paradise. The islands lie at the focal point of a migratory network, and the coastal, farmland, and urban habitats for birds are diverse. Some 200 species of birds are found in the United Kingdom, of which more than one-half are migratory. Many species are sufficiently versatile to adapt to changing conditions, and it is estimated that suburban gardens have a higher bird density than any kind of woodland. The most common game birds are the wild pigeon, pheasant, and grouse. Most numerous are the sparrow, blackbird, chaffinch, and starling.

Marshland reclamation has resulted in movement of waterfowl to various bird sanctuaries. A continuous effort on the part of ornithological organizations promotes and encourages research and conservation. As a result, many bird refuges, sanctuaries, and reserves have been created. These developments, along with a more sympathetic and enlightened attitude, may help to redress some of the worst effects of environmental changes on birdlife.

Many of the British rivers, once renowned for their salmon, trout, roach, perch, pike, and grayling, have become polluted, which has led to a decline in inland fisheries. Freshwater fishing is now largely for recreation and sport. The Dogger Bank in the North Sea, one of the richest fishing grounds in the world, has provided excellent fishing for centuries. Other good waters for fishing are those of the Irish Sea and those off the western coast of Scotland. Chief offshore species are cod, haddock, whiting, mackerel, coalfish, turbot, herring, and plaice.

SETTLEMENT PATTERNS

When a long view is taken of the slow possession of Britain by its peoples, it seems an inescapable conclusion that the man-land relationship probably reached its greatest intimacy late in the 18th century: communications at that time were good enough to bind the community into a unity but were not yet so good as to destroy the sense of belonging to a specific locality, as well as to a particular nation—Scotland, England, Wales, or Ireland. Generations of toiling hands had won the necessities of life from the landscape, and generations of tongues had shaped the national languages and dialects for the expression of local things. The regional character of British life is still recognizable, but its heyday has passed. Yet the consciousness of being a Northern Irishman, a Scot, a Welshman, or a Cornishman—to say nothing of the rivalry between a North and South Walian, or a Highland and Lowland Scot—is as marked as is the obvious geographic identity of these parts of the Highland zone.

Rural settlement. The forms and patterns of settlement are remarkably varied in the United Kingdom and reflect not only the physical variety of the landscape but also the successive movements of peoples arriving as settlers,

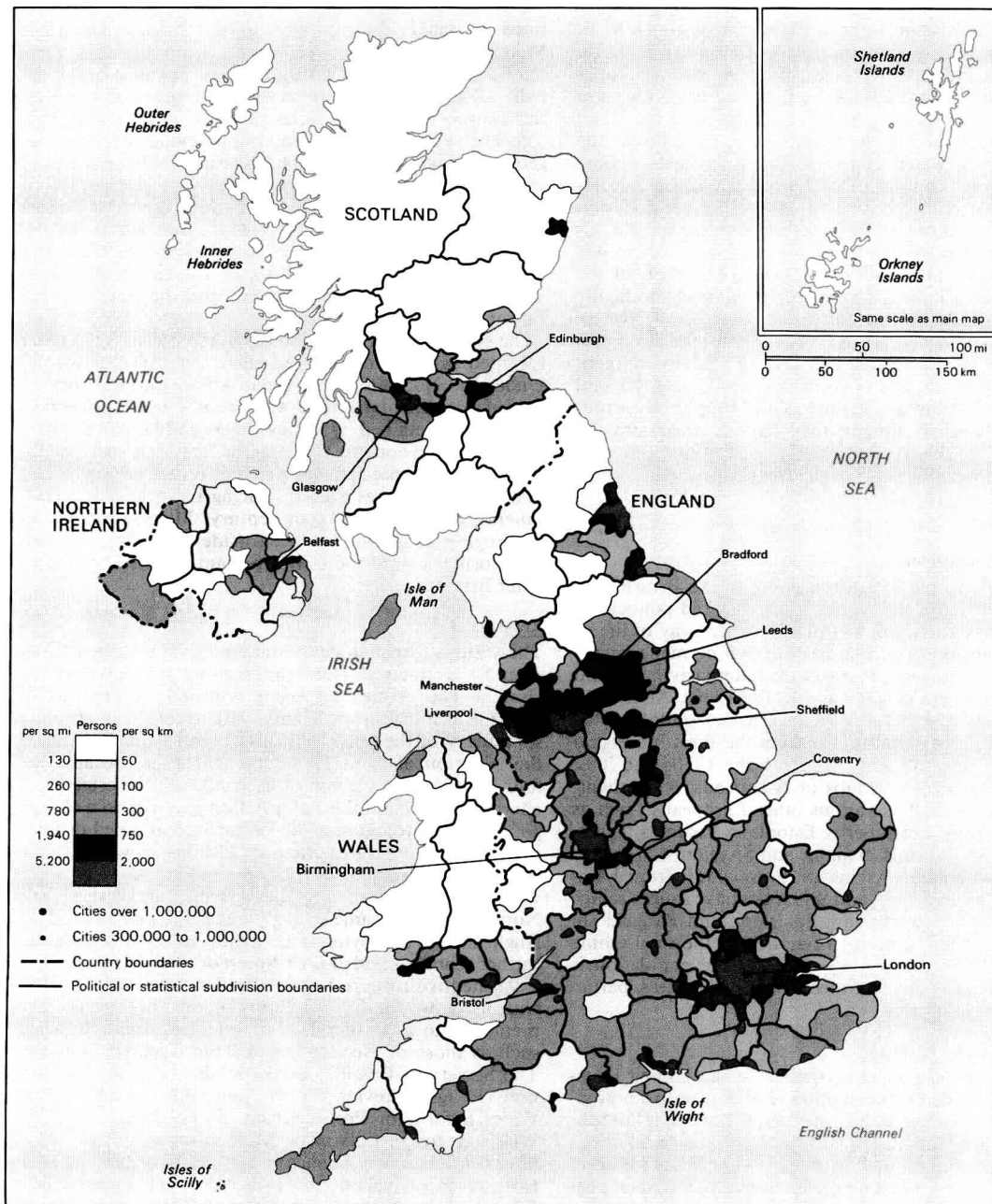
The conditions of regional awareness

refugees, conquerors, or traders from continental Europe. The social and economic advantages that led people to cluster and, on the other hand, the equally strong desire for separateness on the part of some individuals are apparent in settlement forms from very early times, and so regional contrasts in the degree of dispersion and nucleation are frequent.

The single farmstead, together with many survivals of the old clachan (cluster or hamlet), interspersed with the occasional village and small town, is still characteristic of much of the Highland zone. Radical alteration has nevertheless occurred in some nucleated settlement patterns: in Wales the breakup of hamlets began in the late Middle Ages as a result of the related processes of consolidation and enclosure that accompanied the decline in the numerical strength of the bond (feudally tied) population. This trend was reinforced by the Black Death of 1349, which spread quickly among the poorer inhabitants. Many surviving bondsmen took advantage of the turmoil caused by the nationalistic uprising led by Owen Glendower (Welsh: Owain Glyndŵr) to escape their servile obligations by flight, and thus many Welsh hamlets fell into decay by 1410, when the rebellion was crushed. In Scotland

great changes accompanied the Highland clearances in the mid-18th century; in Northern Ireland, as late as the 1880s, many clachans disappeared as part of a deliberate policy of reallocating land to new dispersed farmsteads. Great changes have also occurred in the Lowland zone, where the swing to individual ownership or tenancy from the medieval custom of landholding in common brought about not only dispersion and deserted villages but also the enclosure of fields by hedges and walls. Nucleations remain remarkably stable features of the rural landscape of Britain, and linear, round, oval, and ring-shaped villages survive, many with their ancient greens still held in common by the community.

Urban settlement. By any standards Britain must be regarded as the most urbanized of countries, for towns are not only particularly expressive of the national way of life but are also unusually significant elements in the geography of the country. The greatest overall change in settlement was, in fact, the massive urbanization that accompanied Britain's early industrial development. The increasing percentage of employees in offices and service industries ensures continued contemporary urban growth. Of every 10 people in the United Kingdom, nine live in



Population density of the United Kingdom.

The role
of Greater
London

towns and more than three of them in one of the country's seven conurbations. The Greater London conurbation—the greatest port, the largest centre of industry, the most important centre of office employment, and the capital city—is by far the largest of these. The need for accommodating business premises has involved the displacement of population from inner London, and this development, in part, has led to the designation of New Towns outside the 10-mile-wide Green Belt, which surrounds London's built-up area.

Large conurbations have also formed on or near the exposed coalfields. The extensive built-up area of the West Midlands conurbation is dominated by Birmingham, but the industrial Black Country—named for its formerly polluted skies and grimy buildings—also has several large and flourishing towns. In the South East Lancashire conurbation, with a similar number of inhabitants, urbanization accompanied the mechanization of the cotton textile industry. Across the Pennines similar mechanization of wool textiles created the West Yorkshire conurbation, with Leeds and Bradford as its twin centres. The Tyneside and the Central Clydeside conurbations are also located on coalfields, the latter housing about one-third of Scotland's people. Merseyside is not on the Lancashire coalfield, but it has close economic links with it. About one-fifth of Northern Ireland's population live in Belfast. In addition to these large metropolitan areas, there are also a number of other minor urban agglomerations and large towns, a number of which are strung out along the coast.

With so much urban and suburban concentration, the problems of air, water, and noise pollution have become subjects of much concern in the United Kingdom. Considerable progress has been made in controlling air pollution as a result of changes in fuel usage and through clean-air legislation, which has led to the establishment of smoke-control areas in most cities and towns. Pollution of the rivers remains a large problem, particularly in the highly industrialized parts of the United Kingdom, but vigilance, research, and control on the part of the National River Authorities and general public concern for the environment are encouraging features of contemporary Britain. Several statutory and voluntary organizations support measures to protect the environment; they have as their aim the conservation of the natural amenity and beauty not only of the countryside but also of the towns and cities.

The people

ETHNIC COMPOSITION

For centuries people have been going to the British Isles from many parts of the world, some to avoid political or religious persecution, others to find a better way of life or to escape from poverty. The Irish have long made homes in Britain, as have Jews, many of the latter arriving toward the end of the 19th century and in the 1930s. After 1945 large numbers of other European refugees settled in the country. The large communities from the West Indies and South Asian subcontinent date from the 1950s and '60s. There are also sizable groups of Americans, Australians, and Chinese, as well as various other Europeans, such as Greeks, Russians, Poles, Serbs, Estonians, Latvians, Armenians, Turkish Cypriots, Italians, and Spaniards. Since the early 1970s, Ugandan Asians and immigrants from Latin America, Southeast Asia, and Sri Lanka have sought refuge in Britain. Persons of Indian, Pakistani, and Bangladeshi origin account for more than one-half of the total ethnic minority. The foreign-born element of the population is disproportionately concentrated in inner-city areas, particularly in the South East.

LINGUISTIC COMPOSITION

All the traditional languages spoken in the United Kingdom are descended from a common Indo-European original, a tongue so ancient that, over the centuries, it has split into a variety of languages, each with its own peculiarities in sounds, grammar, and vocabulary. A separate idiom in what became the United Kingdom was initiated when peoples from the Continent were cut off, in their new homes, from regular intercourse with their continental kindred.

Of the surviving languages the earliest to arrive were the two forms of Celtic: the Goidelic (from which Irish Gaelic, Manx, and Scottish Gaelic are derived) and Brythonic (from which are descended the old Cornish language and modern Welsh). Among the contemporary Celtic languages Welsh is the strongest: about one-fifth of the total population of Wales are able to speak it, and there are extensive interior upland areas and regions facing the Irish Sea where the percentage rises to 50 percent and more. Scottish Gaelic is at its strongest among the inhabitants of the islands of Outer Hebrides and Skye. It is still heard in the nearby North West Highlands. Because less than 2 percent of the Scottish people are able to speak Gaelic, it has long since ceased to be a national language, and even in the northwestern part, where it remains the language of religion, business, and social activity, Gaelic is losing ground. In Northern Ireland very little Gaelic is spoken. Similarly, Manx is now used by very few individuals indeed, although as late as 1870 it was spoken by about half the people of the Isle of Man. Cornish became extinct in the early 18th century.

The second link with Indo-European is through the ancient Germanic language group, two branches of which, the North Germanic and the West Germanic, were destined to make contributions to the English language. Modern English is derived mainly from the four Germanic dialects spoken by the Angles, Saxons, and Jutes (who all arrived in Britain in the 5th century AD) and by the Danes, whose long series of raids began about 790. The Humber became an important linguistic as well as geographic boundary, and the English-speaking portion of what became England was divided into a Northumbrian and a Southumbrian province (in which the most important kingdoms were Mercia, Wessex, and Kent). In the 8th century Northumbria was foremost in literature and culture, followed for a short time by Mercia; finally, Wessex remained the linguistic centre until the time of King Edward the Confessor.

The Normans, although also of Viking stock, were at first regarded as much more of an alien race than the Danes. Under the Norman and Angevin kings, England formed part of a continental empire, and the prolonged connection with France retained by its new rulers and landlords made a deep impression on the English language. An Anglo-French hybrid speech developed and remained the official language, sometimes even displacing Latin in public documents, until the mid-14th century. Many additions to the English language have been made since that date, but the Normans were the last important linguistic group to enter Britain.

RELIGIONS

The various Christian denominations in the United Kingdom have emerged from the schisms that divided the church. The greatest of these occurred in England in the 16th century, when Henry VIII rejected the absolute supremacy of the pope. This break with Rome facilitated the adoption of some Protestant tenets and became the foundation of the Church of England, still the established church. In Scotland the Reformation gave rise to a church governed by presbyteries—local bodies composed of ministers and elders—rather than by bishops, as was the case in England. Roman Catholicism in Ireland as a whole was almost undisturbed by these events, but what became Northern Ireland came strongly under the influence of the Anglican and Presbyterian churches. In the 17th century further schisms divided the Church of England; these were associated with the rise of the Puritan movement, which, with its desire for simpler forms of worship and government, led to a proliferation of nonconformist churches, such as those of the Baptists and the Congregationalists. The Society of Friends (Quakers) also originated at that time. Religious revivals of the mid-18th century gave to Wales a form of Protestantism closely linked with the Welsh language; Calvinistic Methodism is still the most powerful religious influence in the principality. The great Evangelical revivals of the 18th century, associated with John Wesley and others, led to the foundation of Methodist churches, particularly in the industrial areas; Northum-

Germanic
language
links

20th-
century
immigra-
tion

The
established
church

berland, Durham, North Yorkshire, and Humberside in northeastern England and Cornwall in the southwestern peninsula still have the largest percentages of adherents to this denomination. In the 19th century the Salvation Army and various fundamentalist sects grew from minor schisms. The 19th century also saw the introduction of sects from the United States as well as a marked increase in the number of Jews in Britain. The first Jewish community in Britain after their expulsion in 1290 was that established in London during the 17th century, and in the 19th century Jews also settled in many of the large provincial cities. More than half of all British Jews live in London, and the rest are essentially members of urban communities. Jewish congregations in Britain now form the second largest Jewish community in Europe.

Britain has a long tradition of religious tolerance, a feature that has been particularly advantageous since the 1950s, when a large variety of religious beliefs began to be brought in by immigrants. There are large and growing communities of Muslims, Hindus, and Sikhs. The largest number of Muslims came from Pakistan and Bangladesh, with sizable groups from India, Cyprus, the Arab world, Malaysia, and parts of Africa. The large Sikh and Hindu communities originated in India, the Sikhs being the larger group of the two, and there are also many Buddhist groups.

DEMOGRAPHIC TRENDS

Population growth. Since the making in 1086 of the Domesday Survey, a detailed compilation that enables the earliest reasonable estimate of England's population to be made (the survey did not cover other areas), the number of people has been increasing. This growth has continued despite some setbacks, by far the most serious of which was the Black Death in the mid-14th century, in which it is estimated that about one-third of the population died. There is little concrete information, however, concerning variation in rates of births to deaths and of immigration to emigration until 1801, when the first official census was taken. The assumption is that a population of about two million lived in what became the United Kingdom at the end of the 11th century and that this figure had increased to about 12 million by 1801. This slow growth rate, in contrast with that of more modern times, resulted mainly from the fact that a high birth rate was accompanied by an almost equally high death rate. Family monuments in old churches show many examples of men whose "quivers were full" but whose hearths were not crowded. It is estimated that in the first half of the 18th century three-quarters of the children born in London died before they reached puberty. Despite the appalling living conditions it produced, the Industrial Revolution resulted in an acceleration of the birth rate; gradually the greater medical knowledge, improved nutrition, and concern for public health that characterized the 19th and 20th centuries bore fruit in a lower mortality rate and an overall increase in population.

Since the 1930s the population has experienced a complete cycle in its pattern of growth. A low rate of increase during the 1930s was followed by a postwar marriage boom that gave rise to an acceleration in the rate of growth, culminating in a peak during the mid-1960s. Since 1964 a considerable fall in the birth rate has brought about a dramatic decline in growth, even giving rise to an absolute decline between 1974 and 1978. Although the main cause of these abrupt reverses was the erratic nature of the birth rate, it must nevertheless be associated with a general decline in fertility, plus a rising longevity and a reduction in mortality. Such processes have also affected the age composition of the population, which has assumed a decidedly older cohort. There has been a decline in the proportion of those under 16 and an increase in the proportion of older people, especially those aged 85 and over.

Migration patterns. After 1957 the immigration of non-white ("New Commonwealth") people from such developing nations as India, Pakistan, and the countries of the West Indies became significant, and from that year until 1962 there was a net migration gain. Since then restriction on the entry of New Commonwealth citizens has lessened

the primary inflow, but dependents of immigrants already in the United Kingdom are still admitted. The reasons for restricting entry were in part economic but were also associated with the problems of assimilating so many peoples of different cultures. Nevertheless, the United Kingdom continues to be a net importer of people from the New Commonwealth.

Although historical records make reference to emigration to North America in the 17th and 18th centuries, there is little quantitative information about such movements before the middle of the following century. The greatest numbers appear to have left Great Britain in the 1880s and between 1900 and the outbreak of World War I. Emigration, particularly to Canada and Australia ("Old Commonwealth"), continued at a high rate after the war until 1930, when unfavourable economic conditions in the British Empire and in the United States reversed the movement. During the same years there also was an influx of refugees from Europe. After World War II both inward and outward movements reached considerable dimensions. Emigration to the countries of the Old Commonwealth and, to a lesser degree, to the United States continued, but until 1951 the net migration balance of the United Kingdom with the rest of the world was not large. Since the mid-1960s there has been a slackening of emigration as Canada and Australia no longer maintained an open-door policy to citizens of the United Kingdom, accepting only those whose skills were in demand. Nevertheless, the United Kingdom continues to be an exporter of population, albeit on a declining scale, to the Old Commonwealth, but this is offset by emigration to the European Communities nations and other foreign countries.

Migration within the United Kingdom has at times reached sizable dimensions. Until 1700 the small population was sparsely distributed and largely rural and agricultural, much as it had been in medieval times. From the mid-18th century, scientific and technological innovations created the first modern industrial state, while, at the same time, agriculture was undergoing technical and tenurial changes and revolutionary improvements in transport made easier the movement of materials and people. As a result, by the first decade of the 19th century, a previously mainly rural population had been largely replaced by a nation made up of industrial workers and town dwellers.

The rural exodus was a long process. The breakdown of communal farming started before the 14th century; and subsequently enclosures advanced steadily, especially after 1740, until a century later open fields had virtually disappeared from the landscape. Many of the landless agricultural labourers so displaced were attracted to the better opportunities for employment and the higher wage levels existing in the growing industries; their movements, together with those of the surplus population produced by the contemporary rapid rise in the birth rate, resulted in a high volume of internal migration that took the form of a movement toward the towns.

Industry, as well as the urban centres that inevitably grew up around it, was increasingly located near the coalfields, while the railway network, which grew rapidly after 1830, enhanced the commercial importance of many towns. The migration of people, especially young people, from the country to industrialized towns took place at an unprecedented rate in the early railway age, and such movements were relatively confined geographically. Migration from agricultural Ireland provided an exception, for, when the disastrous potato disease of 1845-46 led to widespread famine, large numbers moved to Britain to become the urban workers of Lancashire, Clydeside, and London. The rural exodus continued, but on a greatly reduced scale, after 1901.

Soon after World War I, new interregional migration flows commenced when the formerly booming 19th-century industrial and mining districts lost much of their economic momentum. Declining or stagnating heavy industry in Clydeside, northeastern England, South Wales, and parts of Lancashire and Yorkshire swelled the ranks of the unemployed, and the consequent outward migration became the drift to the relatively more prosperous Midlands and southern England. This movement of peo-

The drift south

First
official
census

"New
Common-
wealth"
immigrants