

THE DICTIONARY OF

# Human Geography

5th Edition

Edited by

Derek Gregory

Ron Johnston

Geraldine Pratt

Michael J. Watts

and Sarah Whatmore

 **WILEY-BLACKWELL**

A John Wiley & Sons, Ltd., Publication



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*To the memory of*

**DENIS COSGROVE AND LESLIE HEPPLER**

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# Preface to the Fifth Edition

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Geographical dictionaries have a long history. A number were published in Europe in the seventeenth and eighteenth centuries: a few – mostly those with greater pretensions to providing conceptual order – were described as ‘Geographical Grammars’. The majority were compendia of geographical information, or gazetteers, some of which were truly astonishing in their scope. For example, Lawrence Echard noted with some asperity in his 1691 *Compendium of Geography* that the geographer was by then more or less required to be ‘an *Entomologist*, an *Astronomer*, a *Geometrician*, a *Natural Philosopher*, a *Husbandman*, an *Herbalist*, a *Mechanic*, a *Physician*, a *Merchant*, an *Architect*, a *Linguist*, a *Divine*, a *Politician*, one that understands *Laws* and *Military Affairs*, an *Herald* [and] an *Historian*.’ Margarita Bowen, commenting on 1981 on what she took to be Geography’s isolation from the scientific mainstream in Echard’s time, suggested that ‘the prospect of adding epistemology and the skills of the philosopher’ to such a list might well have precipitated its Cambridge author into the River Cam!

It was in large measure the addition of those skills to the necessary accomplishments of a human geographer that prompted the first edition of *The Dictionary of Human Geography*. The original idea was John Davey’s, a publisher with an extraordinarily rich and creative sense of the field, and he persuaded Ron Johnston, Derek Gregory, Peter Haggett, David Smith and David Stoddart to edit the first edition (1981). In their Preface they noted that the changes in human geography since the Second World War had generated a ‘linguistic explosion’ within the discipline. Part of the *Dictionary*’s purpose – then as now – was to provide students and others with a series of frameworks for situating, understanding and interrogating the modern lexicon. The implicit model was something closer to Raymond Williams’ marvellous compilation of *Keywords* than to any ‘Geographical Grammar’. Certainly the intention was always to provide something more than a collection of annotated reading lists. Individual entries were located within a web of cross-references to other entries, which enabled readers to follow their own paths through the *Dictionary*, sometimes to encounter unexpected parallels and convergences, sometimes to encounter creative tensions and contradictions. But the major entries were intended to be comprehensible on their own, and many of them not only provided lucid presentations of key issues but also made powerful contributions to subsequent debates.

This sense of *The Dictionary of Human Geography* as both mirror and goad, as both reflecting and provoking work in our field, has been retained in all subsequent editions. The pace of change within human geography was such that a second edition (1986) was produced only five years after the first, incorporating significant revisions and additions. For the third (1994) and fourth (2000) editions, yet more extensive revisions and additions were made. This fifth edition, fostered by our publisher Justin Vaughan, continues that restless tradition: it has been comprehensively redesigned and rewritten and is a vastly different book from the original. The first edition had over 500 entries written by eighteen contributors; this edition has more than 1000 entries written by 111 contributors. Over 300 entries appear for the first time (many of the most important are noted throughout this Preface), and virtually all the others have been fully revised and reworked. With this edition, we have thus once again been able to chart the emergence of new themes, approaches and concerns within human geography, and to anticipate new avenues of enquiry and new links with other disciplines. The architecture of the *Dictionary* has also been changed. We have retained the cross-referencing of headwords within each entry and the detailed Index, which together provide invaluable alternatives to the alphabetical ordering of the text, but references are no longer listed at the end of each entry. Instead, they now appear in a consolidated Bibliography at the end of the volume. We took this decision partly to avoid duplication and release space for new and extended entries, but also because we believe the Bibliography represents an important intellectual resource in its own right. It has over 4000 entries, including books, articles and online sources.

Our contributors operated within exacting guidelines, including limits on the length of each entry and the number of references, and they worked to a demanding schedule. The capstone entry for previous editions was ‘human geography’, but in this edition that central place is now



taken by a major entry on 'geography', with separate entries on 'human geography' and (for the first time) 'physical geography'. The inclusion of the latter provides a valuable perspective on the multiple ways in which human geography has become involved in interrogations of the biophysical world and – one of Williams's most complicated keywords – 'nature'. Accordingly, we have expanded our coverage of environmental geographies and of terms associated with the continued development of actor-network theory and political ecology, and for the first time we have included entries on biogeography, biophilosophy, bioprospecting, bioregionalism, biosecurity, biotechnology, climate, environmental history, environmental racism, environmental security, genetic geographies, the global commons, oceans, tropicality, urban nature, wetlands and zoos.

The first edition was planned at the height of the critique of spatial science within geography, and for that reason most of the entries were concerned with either analytical methods and formal spatial models or with alternative concepts and approaches drawn from the other social sciences. We have taken new developments in analytical methods into account in subsequent editions, and this one is no exception. We pay particular attention to the continuing stream of innovations in Geographic Information Systems and, notably, the rise of Geographic Information Science, and we have also taken notice of the considerable revival of interest in quantitative methods and modelling: hence we have included for the first time entries on agent-based modelling, Bayesian analysis, digital cartography, epidemiology, e-social science, geo-informatics and software for quantitative analysis, and we have radically revised our coverage of other analytical methods. The vital importance of qualitative methods in human geography has required renewed attention too, including for the first time entries on discourse analysis and visual methods, together with enhanced entries on deconstruction, ethnography, iconography, map reading and qualitative methods. In the previous edition we provided detailed coverage of developments in the social sciences and the humanities, and we have taken this still further in the present edition. Human geographers have continued to be assiduous in unpicking the seams between the social sciences and the humanities, and for the first time we have included entries on social theory, on the humanities, and on philosophy and literature (complementing revised entries on art, film and music), together with crucial junction-terms such as affect, assemblage, cartographic reason, contrapuntal geographies, dialectical image, emotional geography, minor theory, posthumanism, representation and trust (complementing enhanced entries on performance, performativity, non-representational theory and representation). Since the previous edition, the interest in some theoretical formations has declined, and with it the space we have accorded to them; but human geography has continued its close engagement with postcolonialism and post-structuralism, and the new edition incorporates these developments. They involve two continuing and, we think, crucial moments. The first is a keen interest in close and critical reading (surely vital for any dictionary!) and, to repeat what we affirmed in the preface to the previous edition, we are keenly aware of the slipperiness of our geographical 'keywords': of the claims they silently make, the privileges they surreptitiously install, and of the wider webs of meaning and practice within which they do their work. It still seems to us that human geographers are moving with considerable critical intelligence in a trans-disciplinary, even post-disciplinary space, and we hope that this edition continues to map and move within this intellectual topography with unprecedented precision and range. The second implication of postcolonialism and post-structuralism is a heightened sensitivity to what we might call the politics of specificity. This does not herald the return of the idiographic under another name, and it certainly does not entail any slackening of interest in theoretical work (we have in fact included an enhanced entry on theory). But it has involved a renewed interest in and commitment to that most traditional of geographical concerns, the variable character of the world in which we live. In one sense, perhaps, this makes the fifth edition more conventionally 'geographical' than its predecessors. We have included new entries on the conceptual formation of major geographical divisions and imaginaries, including the globe and continents (with separate entries on Africa, the Americas, Asia, Australasia and Europe), and on Latin America, the Middle East, the global South and the West, and on cognate fields such as area studies and International Relations. But we also asked our contributors to recognize that the world of geography is not limited to the global North. In previous editions, contributors frequently commented on the multiple ways in which modern human geography had worked to privilege and, indeed, normalize 'the modern', and together they traced a genealogy of geographical knowledge in which the world beyond Europe and North America was all too often marginalized or produced as a problematic 'pre-modern'. For this edition, we asked contributors to go beyond the critique of these assumptions and, wherever possible, to

incorporate more cosmopolitan geographies (and we have included a new entry on cosmopolitanism).

And yet we must also recognize that this edition, like its predecessors, remains focused on English-language words, terms and literatures. There are cautionary observations to be made about the power-laden diffusion of English as a 'global language', and we know that there are severe limitations to working within a single-language tradition (especially in a field like human geography). The vitality of other geographical traditions should neither be overlooked nor minimized. We certainly do not believe that human geography conducted in English somehow constitutes the canonical version of the discipline, though it would be equally foolish to ignore the powers and privileges it arrogates to itself in the unequal world of the international academy. Neither should one discount the privileges that can be attached to learning other languages, nor minimize the perils of translation: linguistic competences exact their price. But to offer some (limited) protection against an unreflective ethnocentrism, we have been guided by an international Editorial Advisory Board and we have extended our coverage of issues bound up with Anglocentrism and Eurocentrism, colonialism and imperialism, Empire and Orientalism – all of these in the past and in the present – and we continue to engage directly with the politics of 'race', racism and violence. All of this makes it impossible to present *The Dictionary of Human Geography* as an Archimedean overview, a textual performance of what Donna Haraway calls 'the God-trick'. The entries are all situated knowledges, written by scholars working in Australia, Canada, Denmark, India, Ireland, Israel, New Zealand, Singapore, the United Kingdom and the United States of America. None of them is detached, and all of them are actively involved in the debates that they write about. More than this, the authors write from a diversity of subject-positions, so that this edition, like its predecessor, reveals considerable diversity and debate within the discipline. We make no secret of the differences – in position, in orientation, in politics – among our contributors. They do not speak with a single voice, and this is not a work of bland or arbitrary systematization produced by a committee. Even so, we are conscious of at least some of its partialities and limitations, and we invite our readers to consider how these other voices might be heard from other positions, other places, and to think about the voices that are – deliberately or unconsciously – silenced or marginalized.

None of these changes is a purely intellectual matter, of course, for they do not take place in a vacuum: the world has changed since the previous edition, and this is reflected in a number of entries that appear here for the first time. Some reach back to recover terms from the recent past that are active in our present – including Cold War, fascism, Holocaust and Second World – but all of them are distinguished by a sense of the historical formation of concepts and the webs of power in which they are implicated. While we do not believe that 'everything changed' after the attacks on the World Trade Center and the Pentagon on 11 September 2001, one year after our last edition, a shortlist of terms that have achieved new salience within the field indicates how far human geography has been restructured to accommodate a heightened sensitivity to political violence, including its ethical, economic and ecological dimensions. While many of these terms (like the four we have just mentioned) should have been in previous editions, for the first time we now have entries on: American Empire, asylum, bare life, the camp, ethnic cleansing, spaces of exception, genocide, *homo sacer*, human rights, intifada, just war, militarism, military geography, military occupation, resource wars, rogue states, security, terrorism, uricide and war. Human geography has made major contributions to the critical study of economic transformation and globalization too, and our entries continue to recognize major developments in economic geography and political economy, and the lively exchanges between them that seek to explicate dramatic changes in contemporary regimes of capital accumulation and circulation. The global economic crisis broke as this edition was going to press. We had already included new entries on anti-development and anti-globalization, on the International Monetary Fund and the World Social Forum, and on narco-capitalism and petroculturalism, which speak to some of the ramifications of the crisis, but we also believe that these events have made our expanded critiques of (in particular) capitalism, markets and neo-liberalism more relevant than ever before.

A number of other projects have appeared in the wake of previous editions of the *Dictionary*: meta-projects such as the *International Encyclopedia of Human Geography* and several other encyclopedias, an indispensable *Feminist Glossary of Human Geography*, and a series devoted to *Key Concepts* in the major subdisciplines of human geography. There is, of course, a lively debate about scale in geography, but we believe that the scale (or perhaps the extent of the conceptual

network) of *The Dictionary of Human Geography* continues to be a crucial resource for anyone who wants to engage with the continued development of the field. It is not the last word – and neither pretends nor wishes to be – but rather an invitation to recover those words that came before, to reflect on their practical consequences, and to contribute to future ‘geo-graphings’. This makes it all the more salutary to return to Echard’s original list and realize that virtually all of the fields he identified as bearing on geography have their counterparts within the contemporary discipline. The single exception is the figure of the Herald, but if this is taken to imply not the skill of heraldry but rather a harbinger of what is to come, then human geography’s interest in prediction and forecasting returns us to the footsteps of our seventeenth-century forebear. Be that as it may, none of us is prepared to forecast the scope and contents of the next edition of *The Dictionary of Human Geography*, which is why working on the project continues to be such a wonderfully creative process.

*Derek Gregory  
Ron Johnston  
Geraldine Pratt  
Michael J. Watts  
Sarah Whatmore*

# How to Use This Dictionary

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Keywords are listed alphabetically and appear on the page in **bold type**: in most cases, users of the *Dictionary* should begin their searches there. Within each entry, cross-references to other entries are shown in CAPITAL LETTERS (these include the plural and adjectival versions of many of the terms). Readers may trace other connections through the comprehensive index at the back of the book.

*Suggested readings* are provided at the end of each entry in abbreviated (Harvard) form; a full *Bibliography* is provided between pages 818 and 956, and readers seeking particular references or the works of particular authors should begin their searches there.

# Acknowledgements

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The preparation of a large multi-authored volume such as this is dependent on the co-operation of a large number of colleagues, who accepted our invitation to contribute, our cajoling to produce the entries, our prompts over deadlines and our editorial interventions: we are immensely grateful to them for their care, tolerance and patience. It is with the greatest sadness that we record the deaths of two of them during the preparation of the *Dictionary* – Denis Cosgrove and Les Hepple – and we dedicate this edition to their memory.

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# A

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**abduction** A form of reasoning that takes accepted knowledge and infers the ‘best available’ explanations for what is observed. Whereas DEDUCTION formally infers the consequences of a cause-and-effect relationship (if *a*, then *b*), and INDUCTION infers a conclusion from a number of observations (of the same patterns, for example), abductive reasoning infers relationships from observations rather than asserting them. It thus presents a ‘provisional’ account for what has been observed (for why *a* is related to *b*), either inviting further empirical investigation that might sustain the ‘explanation’ or encouraging deductive work that might put the putative causal chain on a former footing. RJ

**abjection** A psychoanalytic concept that describes a psychic process through which the pure, proper and bounded body and IDENTITY emerge by expelling what is deemed impure, horrific or disgusting. The abject refers to bodily by-products such as urine, saliva, sperm, blood, vomit, faeces, hair, nails or skin, but also to impure psychic attachments, such as same-sex desire (Butler, 1997) and to entire zones of uninhabitable social life. What and who is classified as abject is socially and culturally contingent; it is that which ‘upsets or befuddles order’ (Grosz, 1994, p. 192). The abject thus signals sites of potential threat to the psychic and social order. Abjection is a process that can never be completed, and this is one factor that creates the intensity of psychic investment in the process. The concept is of interest because it attests to the materiality of subjectivity (the constant interplay between the body and SUBJECTIVITY); the persistent work required to maintain the fragile boundary between inside and outside, object and subject; and the intimate ways in which cultural norms inhabit the BODY. Geographers have been drawn in particular to the role that abjection plays in group-based fears manifest, for instance, in RACISM, sexism, homophobia (see HOMOPHOBIA AND HETEROSEXISM), ableism and some forms of NATIONALISM (Young, 1990a), particularly in the maintenance of borders and purification of space, and in the production of the space of the exception (see EXCEPTION, SPACE OF). As one example, Jo Long (2006) interprets the efforts of the

Israeli state to defend its borders from the ‘leakage’ of Palestinian checkpoint births and female ‘suicide bombers’ through the concept of abjection; Judith Butler (2004) conceives the US-operated Guantánamo Bay detention camp as a domain of abjected beings. GP

**Suggested reading**  
Sibley (1995).

**aboriginality** A term derived from the Latin *ab origine*, meaning the original founders, or ‘from the beginning’. In the nineteenth century, ‘Aborigines’ denoted the existing inhabitants of what Europeans called the ‘New World’. Today, the terms ‘aboriginal peoples’ and ‘aboriginality’ are in official use in Australia and in Canada, and in Canada it is also common to refer to ‘First Nations’. Elsewhere, it is more usual to refer to *indigenous peoples*, and hence *indigeneity*.

According to the United Nations Working Group on Indigenous Peoples, the interpretation of such expressions should reflect the historical and current situations of these colonized peoples (see COLONIALISM), as well as their manner of self-identification and search for greater degrees of self-determination. However, as a construct of European MODERNITY, ‘aboriginality’ was freighted with connotations of ‘savagery’ and lack of CULTURE (Anderson, 2000a) (see also PRIMITIVISM), and its continued use also obscures the subjectivities of the heterogeneous groups to which it is applied. Indigenous peoples often had no single name to describe themselves before there was a colonizing Other to make this necessary. The Maori (meaning ‘ordinary’, or ‘the people’) of New Zealand did not describe themselves as such until they were aware of Pakeha (‘not Maori’ or Europeans). They knew and named themselves as members of kin-based groups, as is still the case. Likewise, amongst the Kwara’ae of Malaita (one of the Solomon Islands) self-definition is understood in relation to PLACE, genealogy, right of access to land and the right to speak (Gegeo, 2001).

Since the 1980s, GLOBALIZATION and the architecture of NEO-LIBERALISM have presented both problems and opportunities. Marginalization and loss of control of RESOURCES continue (Stewart-Harawira, 2005), but there is also

## ABSTRACTION

potential for insertion into transnational informational and economic networks. This can facilitate steps towards indigenous professionalization and self-determination. Participation in activities such as TOURISM, oil extraction and cattle ranching by the Cofan and Secoya peoples of the Ecuadorian Amazon has opened spaces for questioning fixed notions of indigenous identities (as 'natural' conservationists of remote territories, for example). These are often articulated in different ways and contested within communities, particularly along generational lines (Valdivia, 2005).

Despite official recognition of indigenous peoples in national legislation and constitutional LAW, the practical implementation of policy remains a problem in many parts of the world. According to the United Nations Working Group in 2003, this applies in areas ranging from rights to land and natural resources to the alleviation of POVERTY. Institutionalized discrimination is pervasive, not least through superimposed definitions of identity (e.g. for census purposes or for state entitlements). State education systems have often been structured to facilitate integration or assimilation, denying cultural and ethnic diversity. Universities may be complicit. Research on, rather than with, indigenous people is seen as reproducing colonial relations, advancing the career of the researcher rather than indigenous interests. (cf. Smith, 1999b). EP

### Suggested reading

Smith (1999); Valdivia (2005).

**abstraction** Methodologically, abstraction involves the conceptual isolation of (a partial aspect of) an object. During the QUANTITATIVE REVOLUTION, abstraction was seen as the starting-point for the construction of spatial MODELS, but few methodological principles were provided (Chorley, 1964). Some critics of SPATIAL SCIENCE were drawn instead to the construction of what the sociologist Max Weber called IDEAL TYPES: 'one-sided' idealizations of the world seen from particular points of view. There was nothing especially 'scientific' about them, which is presumably why they appealed to the critics, and Weber claimed that this kind of selective structuring is something that we all do all the time. Since it is possible to construct quite different ideal types of the same phenomenon, depending on one's point of view, the critical moment comes when the ideal type is compared with 'empirical reality' – but here too few methodological principles were proposed to conduct or interpret any such comparisons.

REALISM rejected both of these approaches as arbitrary and substituted what its proponents saw as a rigorous scientific methodology. According to Sayer (1992 [1984]), abstractions should identify essential characteristics of objects and should be concerned with 'substantial' relations of connection rather than merely 'formal' relations of similarity (which Chorley (1964) had called 'analogues'; cf. METAPHOR). Realism turns on identifying those INTERNAL RELATIONS that *necessarily* enter into the constitution of specific structures. Hence Sayer distinguished a *rational abstraction* – that is, 'one that isolates a significant element of the world that has some unity and autonomous force' – from a *chaotic conception* – that is, one whose definition is more or less arbitrary. It is no less important to recognize different *levels of abstraction*, a strategy of considerable importance in theoretical formations such as HISTORICAL MATERIALISM that claim to move between the general and the (historically or geographically) specific (Cox and Mair, 1989). But these prescriptions turn out to be far from straightforward in a HUMAN GEOGRAPHY where 'context' cannot be cleanly severed from objects of analysis, and recent debates over SCALE have revealed the importance of revisiting issues of EPISTEMOLOGY and ONTOLOGY that are focal to the process of abstraction (Castree, 2005b).

Abstraction is more than a formal method: it is a profoundly human and thoroughly indispensable practice, as Weber recognized, so that what matters are the consequences of *particular* modes of abstraction. Seen thus, it spirals far beyond the spheres of SCIENCE and other forms of intellectual enquiry. Many critics have drawn attention to the role of abstraction in the heightened rationalization of everyday life under CAPITALISM – what Habermas (1987b [1981]) called 'the colonization of the LIFEWORLD' – and the attendant production of an *abstract space*, 'one-sided' and 'incomplete', that Lefebvre (1991b [1974]) identified as the dominant spatial thematic of MODERNITY (see PRODUCTION OF SPACE). DG

### Suggested reading

Castree (2005b); Sayer (1982).

**accessibility** The standard definition is the ease with which people can reach desired activity sites, such as those offering employment, shopping, medical care or recreation. Because many geographers and planners believe that access to essential goods and services is an important indicator of QUALITY OF LIFE, measures of access are used to compare the accessibility

levels of different groups of individuals and households, or of different places or locations. Most measures of accessibility entail counting the number of opportunities or activity sites available within certain travel times or distances of a specified origin (Handy and Niemeier, 1997). A simple example is

$$A_i = \sum_j O_j d_{ij}^{-b}$$

where  $A_i$  is the accessibility of person  $i$ ,  $O_j$  is the number of opportunities (say, the number of job openings of a particular type or the number of grocery stores) at distance  $j$  from person  $i$ 's home, and  $d_{ij}$  is some measure of the FRICTION OF DISTANCE between  $i$  and  $j$  (this measure could be distance in kilometres, travel costs in euros or travel time in minutes). This equation could also be used to assess the relative levels of accessibility of different areas, such as census tracts; in this case,  $A_i$  is the accessibility of place  $i$ ,  $O_j$  is the number of opportunities in place  $j$ , and  $d_{ij}$  is a measure of separation between places  $i$  and  $j$ .

As is evident from the measure above, accessibility is affected by land-use patterns, MOBILITY and mobility substitutes in the form of telecommunications. If many opportunities are located close to someone's home or workplace, that person can enjoy a relatively high level of accessibility with relatively little mobility, and will be more likely to gain access to opportunities via walking or biking rather than via motorized modes (Hanson and Schwab, 1987). As opportunities are located at greater distances from each other and from residential areas, greater mobility is required to attain access. As the cost of overcoming spatial separation increases, all else being equal, accessibility decreases. Electronic communications such as the telephone and the INTERNET enable access without mobility, although in most cases, such as that of purchasing a book from an online vendor, the cost of overcoming distance remains in the form of shipment costs (Scott, 2000b). These relationships among accessibility, mobility and land-use patterns are central to efforts to promote the URBAN VILLAGE as an alternative to SPRAWL.

The advent of GIS technology has enabled the development of accessibility measures that recognize that a person's access changes as that person moves about, for example, over the course of a day (Kwan, 1999). In addition, there is increasing recognition that the ability to take advantage of spatially dispersed employment opportunities, medical services and shops involves more than overcoming dis-

tance. Gaining access often entails overcoming barriers constructed by language and culture (as in the ability to access medical care), by lack of education or skills (as in access to certain jobs), or by GENDER ideologies (which prohibit women from entering certain places or place additional space-time constraints on women's mobility). In short, lack of access involves more than SPATIAL MISMATCH. SHA

#### Suggested reading

Kwan and Weber (2003); Kwan, Murray, O'Kelly and Tiefelsdorf (2003).

**accumulation** The process by which CAPITAL is reproduced on an expanding scale through the reinvestment of surplus value. Accumulation of capital is possible within a variety of social structures, but for Marx accumulation was uniquely imperative within capitalist societies and therefore constituted a definitive condition of the capitalist mode of production (see CAPITALISM).

In capitalist contexts, accumulation involves reinvesting the surplus value from past rounds of production, reconvertng it into capital. Marx discussed different forms of accumulation that applied to different historical and geographical conditions of production. In early centuries of European capitalism, a crucial dimension of the accumulation process was enclosure of common lands and conversion of communal or tied labour into 'free' wage labour, through destruction of independent control over means of production. Marx described this process of primitive (or 'primary') accumulation as a historical precondition for the development of capitalism (Marx, 1967 [1867], pp. 713–41), but it has also been seen in more recent Marxist scholarship as a continuing dimension of the overall process of accumulation that Harvey (2003b, pp. 137–82) calls *accumulation by dispossession* (cf. Amin, 1974; see also MARXIAN ECONOMICS).

Within the capitalist mode of production proper, the major form of accumulation is what Marx calls 'expanded reproduction.' To remain in business, any given capitalist must at least preserve the value of the capital originally invested, what Marx calls 'simple reproduction.' But, as individual capitalists seek to more effectively extract surplus from labour, they employ new means of production (machinery and other technologies), the value of which can only be fully realized through expanding their scale of operation. This spurs competition over markets, and competition in turn comes to act as the enforcer of expanded

reproduction. Any capitalist who chooses only to engage in simple reproduction would soon lose market share and go out of business. As Marx put the matter, 'Accumulate, accumulate! That is Moses and the prophets!' (Marx, 1967 [1867], p. 595).

This competition-enforced dynamic of accumulation shapes the geography of capitalist development. The search for new MARKETS drives investors to intensify production and consumption within given locations, contributing to the development of the built environment and transforming social relations in ways that facilitate expanded reproduction (Harvey, 1999 [1982]). It also drives investors to seek opportunities in new locations, thus giving rise to a geographical expansion of capitalist relations of production and consumption, albeit in a highly uneven fashion when considered at a global scale (Amin, 1974; see UNEVEN DEVELOPMENT). Both intensive and extensive capitalist accumulation are fraught processes that do not occur automatically, and are shaped by numerous social struggles (Harvey, 2003b, pp. 183–211). The reproduction of capitalist social relations may or may not occur in given contexts, and may depend upon a variety of factors, including the roles played by STATES. JGL

#### Suggested reading

Amin (1974); Harvey (1999 [1982], 2003b); Marx (1967 [1867]).

**acid rain** The deposition of sulphuric and nitric acids on to land or water by rainwater. Acid rain is one form of acid precipitation, which also includes acid snow, acid hail, dry deposition and acid fog condensation. On a pH scale of 14, a substance with a pH value of less than 7 is considered acidic, while a pH value greater than 7 is considered alkaline. Rainwater is naturally slightly acidic, with a pH value of about 5.6. Acid rain generally has an average pH range of 3–5. Acidity is greatest near the base of clouds, and is diluted by a factor of 0.5 to 1 pH during rainfall (Pickering and Owen, 1994).

The English chemist R. A. Smith discovered a link between industrial POLLUTION and acid rain in Manchester in 1852, although it was known in the twelfth century that the burning of coal caused air pollution (Turco, 1997). Smith first used the term 'acid rain' in 1872, but his ideas have only been treated seriously since the late 1950s. The studies of Swedish soil scientist Svante Oden focused attention on this international issue. In 1972 the Swedish Government presented its case at the United

Nations Conference on the Human Environment in Stockholm. The term 'acid rain' has been used extensively in recent decades.

Acid rain is caused primarily by the cumulative release of nitrogen and sulphur from the burning of fossil fuels. This includes coal for power, heating and industry, petrol in automobiles, and uncontrolled fires in coal-fields and coal mines, particularly in northern China (Stracher and Taylor, 2004). While acid rain may occur through natural processes such as volcanic activity, it is the cumulative impact of human activities that has caused a marked increase in acid rain over the past century. Since about 1990 various Western countries have been generally successful in reducing their generation of acid precipitation, mostly through the closure of old factories, improved pollution control measures and the phasing out of domestic coal burning, but sulphur and nitrogen oxide emissions have increased rapidly in countries such as China (Cutter and Renwick, 2004).

Acid deposition is most severe in western Europe, the Midwest of North America, in China and in countries near its eastern borders. These areas have higher generation rates. Acid rain may cross national boundaries and fall several hundred kilometres from the source, particularly when tall smokestacks displace pollution from its source area. The areas most affected by acid rain tend to be downwind of dense concentrations of power stations, smelters and cities, are often in upland areas with high levels of precipitation, and are often forest areas dissected by rivers and lakes. Acid rain kills forests when acidic particles directly damage leaves, and/or when the soil becomes acidified and the metals bound in the soil are freed. The nutrients necessary for plant growth are then leached by the water. Acid rain lowers the pH value of lakes and other water bodies, which kills fish and other aquatic forms of life. Acid rain may also corrode buildings and other structures. PM

**action research** A synthesis between study of social change and active involvement in processes of change, where critical research, reflexive activism and open-ended pedagogy are actively combined in an evolving collaborative methodology.

By its very nature, action research interrogates the conventional idea of the academic researcher as an isolated expert who is authorized to produce knowledge about the marginalized 'Other'. It seeks to eliminate the dichotomy between researcher and researched

by involving research subjects as intellectual collaborators in the entire process of knowledge production: from agenda formation, analysis and decisions about forms that knowledge should take, to grappling with the intended and unintended outcomes emanating from the knowledges produced. In this sense, the relevance of research for social action is not primarily about helping the marginalized to identify their problems by fostering social awareness or militancy. Rather, relevance comes from deploying analytical mediation, theory-making and critical self-reflexivity in ways that allow people who are excluded from dominant systems of knowledge production and dissemination to participate in intellectual self-empowerment by developing critical frameworks that challenge the monopolies of the traditionally recognized experts (Sangtin Writers [and Nagar], 2006; see also PARTICIPANT OBSERVATION).

To avoid slipping into a romance of undoing the dominant norms of knowledge production, however, one must recognize that 'participation,' 'transformation,' 'knowledge' and 'EMPOWERMENT' are also COMMODITIES with exchange values in the academic (and expertise) market. Rather than assuming social transformation to be the ultimate goal for a COMMUNITY, it is necessary to examine critically what motivates and legitimizes the production of social knowledge for social change or empowerment and to ask whether participation is a means or an end. Poetivin (2002, p. 34) points out that participation as a means runs the risk of becoming a manipulative device in the hands of urban researchers and social activists who can operate communication techniques and modern information systems with a missionary zeal. As an end, however, participation can become an effective democratic process, enabling intellectual empowerment and collective social agency.

Until the 1980s, action research was regarded as a largely unproblematic community-based and practice-oriented realm that was less theoretical than other forms of research. But such neat separation between action and theory has been successfully muddled by geographers whose work blends POST-STRUCTURALISM with a commitment to praxis (see APPLIED GEOGRAPHY). Such writing struggles with dilemmas of authority, privilege, voice and REPRESENTATION in at least three ways. First, it recognizes the provisional nature of all knowledge, and the inevitably problematic nature of translation, mediation and representation. Second, it underscores the

importance of being attentive to the existence of multiple situated knowledges (frequently rooted in mutually irreconcilable epistemological positions) in any given context. Thus, negotiating discrepant audiences and making compromises to coalesce around specific issues are necessary requirements for academics who seek to engage with, and speak to, specific political struggles (Larner, 1995). Third, it suggests how specifying the limits of dominant DISCOURSES can generate dialogues across difference in ways that disrupt hegemonic modes of representation (Pratt, 2004). RN

#### Suggested reading

Enslin (1994); Friere (1993); Gibson-Graham (1994).

**activism** The practice of political action by individuals or collectives in the form of social movements, non-government organizations and so on. Within GEOGRAPHY, this is related to discussions about the political RELEVANCE of the discipline to 'real-world concerns' and to practices of RESISTANCE. With the advent of RADICAL and MARXIST GEOGRAPHY in the 1960s came a concern to facilitate the direct involvement of geographers in the solving of social problems (e.g. Harvey, 1972). Early radical geographers called for the establishment of a people's geography, in which research was focused on politically charged questions and solutions and geographers actively involved themselves with the peoples and communities that they studied (e.g. William Bunge's 1969 'Geographical Expeditions' in Detroit). The development of FEMINIST GEOGRAPHY has emphasized politically committed research, including promoting dialogue and collaboration between activist-academics and the people they study, as well as recognizing and negotiating the differential POWER relations within the research process. Another central concern has been the question of whom research is produced 'for' and whose needs it meets (Nast, 1994a; Farrow, Moss and Shaw, 1995).

Since the 1990s, geographers have lamented anew the separation between critical sectors of the discipline and activism both inside and outside the academy (e.g. Blomley, 1994a; Castree, 1999a; Wills, 2002: see CRITICAL HUMAN GEOGRAPHY). Calls have been made for critical geographers to become politically engaged outside the academy, collaborating with social movements, community groups and protests, among others, to interpret and effect social change (Chouinard, 1994b; Kobayashi, 1994; Routledge, 1996b; Fuller, 1999). Because

activism is gendered, classed, racialized and infused with cultural meanings depending on the context of struggle, collaboration requires theorizing and negotiating the differences in power between collaborators and the connections that they forge. Hence several authors have proposed that the differences between academic and activist collaborators are engaged in relational and ethical ways, aware of contingency and context (Katz, 1992; Slater, 1997; Kitchin, 1999; Routledge, 2002). This also demands acknowledgement of what Laura Pulido (2003) calls the 'interior life of politics': the entanglement of the emotions, psychological development, souls, passions and minds of activist-academic collaborators.

Activism is discursively produced within a range of sites, including the media, grassroots organizations and academia, and this has frequently led to a restrictive view of activism that emphasizes dramatic, physical and 'macho' forms of action. Ian Maxey (1999) has argued for a more inclusive definition of activism, as the process of reflecting and acting upon the social world that is produced through everyday acts and thoughts in which all people engage. Through challenging oppressive power relations, activism generates a continual process of reflection, confrontation and EMPOWERMENT. Such an interpretation opens up the field of activism to everybody and serves to entangle the worlds of academia and activism (Routledge, 1996b; see also THIRD SPACE).

Recent calls for activist research have argued that academics have a social responsibility, given their training, access to information and freedom of expression, to make a difference 'on the ground' (Cumbers and Routledge, 2004; Fuller and Kitchen, 2004a), although such responsibility is not necessarily restricted to the immediate or very local (Massey, 2004). Fuller and Kitchen see the role of the academic as primarily that of an enabler or facilitator, acting in collaboration with diverse communities. Radical and critical praxis is thus committed to exposing the socio-spatial processes that (re)produce inequalities between people and places; challenging and changing those inequalities; and bridging the divide between theorization and praxis. They bemoan the fact that there is still some scholarly distance between geographers' activism and their teaching, as well as between their research and publishing activities, and that critical praxis consists of little else beyond pedagogy and academic writing. They posit that the structural constraints of the desire to

maintain the power of the academy in knowledge production and the desire to shape the education system for the purposes of the neo-liberal status quo work to delimit and limit the work of radical/critical geographers. Under such conditions, an activist geography entails making certain political choices or committing to certain kinds of action (Pain, 2003), where commitment is to a moral and political PHILOSOPHY of social justice, and research is directed both towards conforming to that commitment and towards helping to realize the values that lie at its root (see also ACTION RESEARCH). PR

**actor-network theory (ANT)** An analytical approach that takes the world to be composed of associations of heterogeneous elements that its task it is to trace. What became known as ANT emerged out of work being done within Science and Technology Studies (STS) during the 1980s by a group of scholars including, most notably, Bruno Latour, Michael Callon and John Law. Drawing on a diversity of conceptual influences ranging from the relational thought of philosopher of science Michel Serres and materialized POST-STRUCTURALISM of philosophers Michel Foucault and Gilles Deleuze to the practice-centred ETHNOMETHODOLOGY of sociologist Harold Garfinkel and the narrative semiotics of Algirdas Greimas, these authors together produced the basis of a thoroughly empirical philosophy (Mol, 2002) that has now established itself as a serious alternative to more established SOCIAL THEORIES.

Latour (2005) suggests that what ANT offers as a 'sociology of association' is an uncertainty as to 'what counts' in a given situation, which stands in marked contrast to the approach of traditional 'sociologies of the social', where the salient factors are more or less determined in advance. The objective of ANT is thus to give things some room to express themselves such that the investigator can 'follow the actors' (to quote an oft-quoted ANT rule of method), letting them define for themselves what is or is not important. In practice, of course, such aspirations are profoundly difficult to operationalize, meaning that ANT studies rarely start from a completely blank slate and instead tend to repeatedly draw attention to a number of features of the world that are usually downplayed or ignored in classic social science accounts. This has led Law (1994) to suggest that ANT is perhaps better thought of as a 'sensitivity' than a theory *per se*, an orientation to the world that brings certain



characteristics into view. Most notably, these include (1) *the constitutive role of non-humans* in the fabric of social life. Whether it is as ‘quasi-objects’ around which groups form, ‘matters of concern’ that animate sociotechnical controversies or ‘immutable mobiles’ through which knowledge travels in the durable guise of techniques and technologies, ANT takes things to be lively, interesting and important. This move can be seen as restoring agency to non-humans as long as it is appreciated that (2) *agency is distributed*, which is to say that it is a relational effect that is the outcome of the ASSEMBLAGE of all sorts of social and material bits and pieces. It is these actor networks that get things done, not subjects or objects in isolation. Actors are thus networks and vice versa, hence the significance of the always hyphenated ‘actor-network theory’. Making and maintaining actor-networks takes work and effort that is often overlooked by social scientists. Callon (1986) terms this mundane but necessary activity the ‘process of translation’, within which he elaborates four distinctive movements. This concern with the work of the world also helps to explain the ongoing attraction of sociotechnical controversies to ANT practitioners as sites not only of political significance, but also where science and society can be observed in real time.

Advocates of ANT often express modesty and caution regarding how far the findings of their specific case studies might be extended. However, the approach itself offers a radical challenge to the organizing binaries of MODERNITY, including nature and culture, technology and society, non-human and human and so on. Viewed from an ANT perspective, these are, at best, the outcomes of a whole range of activities (as opposed to the appropriate starting points for action or analysis). At worst, they are political shortcuts that serve to bypass the due democratic consideration that our collective ‘matter of concerns’ deserve.

With its combination of a transferable toolkit of methods and far reaching conceptual implications, it is perhaps not surprising that ANT has begun to travel widely, far beyond the laboratories where it started into fields as various as art, law and economics. In geography, the particular appeal of ANT has been that it speaks to two of the discipline’s most long-standing concerns. On the one hand, the approach has proved helpful to those seeking to enrich and enliven understanding of the relationships between humans and non-humans whether coded ‘technological’ (e.g. Bingham, 1996) or ‘natural’ (e.g. Whatmore,

2002a; Hinchliffe, 2007). On the other hand, ANT’s tendency to at once ‘localise the global’ and ‘redistribute the local’ (Latour, 2005) has been both employed and extended by geographers seeking to understand how action at a distance is achieved in a variety of contexts (e.g. Thrift, 2005b; Murdoch, 2005).

Despite internal debates about everything from the appropriateness of the term (Latour, 2005) to whether we are now ‘after ANT’ (Law and Hassard, 1999), there can be little doubt that the sensibility, and probably the term, is here to stay – if still very much a work in progress. One indication of this is the fact that there now exist a number of standard criticisms of ANT. These include the charges that it ignores the structuring effects of such classic sociological categories as RACE, CLASS and GENDER and that it underplays the influence of POWER in society. Whether such dissenting voices represent valid concerns or are an indication of the challenge that ANT poses to traditional social science thinking is a matter of judgement. More significant, perhaps, for the future of ANT is that a number of its most influential figures have begun to address such criticisms in more or less direct ways, armed with a newly identified set of antecedents (including Gabriel Tarde, John Dewey and Alfred North Whitehead). Prompted in part by contemporary work around the edges of ANT, such as the cosmopolitical thinking of the Belgian philosopher of science Isabelle Stengers (2000) and the ‘politics of what’ promoted by Dutch philosopher Annemarie Mol, recent work in the field is concerned not only with how the world is made, unmade and remade, but also with the better and worse ways in which the social is and might be reassembled. Whether this marks the start of a ‘normative turn’ for ANT it is too early to tell, but will be worth following. NB

#### Suggested reading

Law and Hetherington (2000); Latour (2005).

**adaptation** Derived from Darwinian and evolutionary theory (cf. DARWINISM; LAMARCKIANISM), adaptation is an enormously influential METAPHOR for thinking about the relations between populations (human and non-human) and their environment (Sayer, 1979). It is a concept with a long and robust life in the biological and social sciences. Adaptation is rooted in the question of survival, and specifically of populations in relation to the biological environments that they inhabit (Holling, 1973). Adaptation refers to the changes in

gene frequencies that confer reproductive advantage to a population in specific environments, and to physiological and sociocultural changes that enhance individual fitness and well-being.

Adaptation has a currency in the social sciences through the organic analogy – the idea that social systems are forms of living systems in which processes of adaptation inhere (Slobodkin and Rappaport, 1974). In geography, CULTURAL and HUMAN ECOLOGY drew heavily on biological and adaptive thinking by seeing social development in terms of human niches, adaptive radiation and human ecological succession (see Watts, 1983b). Some of the more sophisticated work in cultural ecology (Nietschmann, 1973) drew upon the work of Rappaport (1979), Wilden (1972) and Bateson (1972), who employed systems theory (cf. SYSTEMS ANALYSIS), cybernetics and ECOSYSTEMS modelling as a way of describing the structure of adaptation in PEASANT and tribal societies. Here, adaptation refers to the ‘processes by which living systems maintain homeostasis in the face of short-term environmental fluctuations and by transforming their own structures through long-term non-reversing changes in the composition and structure of their environments as well’ (Rappaport, 1979, p. 145). There is a structure to adaptive processes by which individuals and populations respond, in the first instance, flexibly with limited deployments of resources and over time deeper more structural (and less reversible) adaptive responses follow. Maladaptation in this account refers to processes – pathologies – by which an orderly pattern of response is compromised or prevented. In social systems, these pathologies emerge from the complex ordering of societies. Cultural ecology and ecological anthropology focused especially on rural societies in the THIRD WORLD to demonstrate that various aspects of their cultural and religious life fulfilled adaptive functions. Adaptation has also been employed however by sociologists, geographers and ETHNOGRAPHERS in contemporary urban settings as a way of describing how individuals, households and communities respond to and cope with new experiences (MIGRATION, POVERTY, VIOLENCE) and settings (the CITY, the PRISON). In the human sciences, the term ‘adaptation’ has, however, always been saddled with the baggage of STRUCTURAL FUNCTIONALISM on the one hand and biological reductionism on the other (Watts, 1983b). Much of the new work on RISK and vulnerability – whether to global climate change or the resurgence of

infectious diseases – often deploys the language or intellectual architecture of adaptation. MW

**aerotropolis** A term introduced by Kasarda (2000) referring to urban developments focused on major airports, which increasingly act as major economic centres and urban development, for both aeronautical- and non-aeronautical-related activities: Kasarda likens them to traditional CENTRAL BUSINESS DISTRICTS, with important retail, hotel, entertainment and conference facilities, drawing on wider clientele than those who fly into the airport at the development’s core. Increasingly, land-use planning focuses on airports as major economic development cores. RJJ

#### Suggested reading

<http://www.aerotropolis.com/aerotropolis.html>

**affect** The intensive capacities of a BODY to affect (through an affection) and be affected (as a result of modifications). The concept is used to describe unformed and unstructured intensities that, although not necessarily experienced by or possessed by a SUBJECT, correspond to the passage from one bodily state to another and are therefore analysable in terms of their effects (McCormack, 2003). In contemporary HUMAN GEOGRAPHY, there is no single or stable cultural-theoretical vocabulary to describe affect. It is possible to identify at least five attempts to engage with affects as diffuse intensities that in their ambiguity lie at the very edge of semantic availability: work animated by ideas of PERFORMANCE; the psychology of Silvan Tomkins; neo-DARWINISM; Gilles Deleuze’s ethological re-workings of Baruch Spinoza; and post-Lacanian psychoanalysis (see PSYCHOANALYTIC THEORY) (Thrift, 2004a).

Within these five versions, the most in-depth has been the engagement of NON-REPRESENTATIONAL THEORY with Deleuze’s creative encounter with the term *affectus* in the work of the seventeenth-century philosopher Baruch Spinoza (which had been translated as ‘emotion’ or ‘feeling’). This begins from an analytic distinction between affect and other related modalities, including emotion and feeling (Anderson, 2006b), and is organized around two claims. First, affects can be described as *impersonal* or *pre-personal*, as they do not necessarily belong to a subject or inhabit a space between an interpretative subject and an interpreted object. Rather, affects can be understood as autonomous, in that they are composed in and circulate through materially heterogeneous ASSEMBLAGES. This retains the

connotation that affects come from elsewhere to effect a subject or self. Second, affect is equivalent to intensity in that it does not function like a system of signification, but constitutes a movement of qualitative difference. The relationship between the circulation and distribution of affects and signification is not, therefore, one of conformity or correspondence, but one of *resonation* or *interference*.

Unlike other versions of what affect is and does, non-representational theory's engagement with the term is based on a distinction between affect and emotion – where emotion is understood as the socio-linguistic fixing of intensity that thereafter comes to be defined as personal (cf. EMOTIONAL GEOGRAPHY). The term 'affect' has thus been central to non-representational theory's break with signifying or structuralizing versions of CULTURE. The difficulties that affect poses for social analysis – how to describe the circulation and distribution of intensities – have been engaged through the creation of new modes of *witnessing* that learn to pay attention to the inchoate, processual, life of SPACES and PLACES (Dewsbury, 2003). Alongside this development of new methodological repertoires has been a growing recognition that understanding the circulation and distribution of affect is central to engagements with a contemporary political moment in which affect has emerged as an object of contemporary forms of BIOWEAPON and BIOPOLITICS (Thrift, 2004a). In response, a range of work has begun to articulate and exemplify the goals and techniques of a spatial politics and/or ETHICS that aims to inventively respond to and intervene in the ongoing composition of spaces of affect (McCormack, 2003). BA

#### Suggested reading

McCormack (2003); Thrift (2004a).

**Africa (idea of)** Geography, as an institutionalized field of knowledge, figures centrally in both the history of informal and formal colonial rule in Africa and in the ways in which Africa came to be represented in the West – and in turn how the West has represented itself to itself – especially from the eighteenth century onwards. In his important and controversial book *Orientalism* (2003 [1978]), Edward Said reveals how ideas and knowledge, while complex and unstable, are always inseparable from systems of subjection. In his case, ORIENTALISM represents a body of European knowledge, a geography of the Orient, which not only helped construct an

imperial vision of particular places and subjects but displaced other voices, and indeed had material consequences as such ideas became the basis for forms of rule. In an almost identical fashion, the history of geographical scholarship, and of academic geography, in particular in the nineteenth and early twentieth centuries, was closely tied to the European imperial mission in Africa. The Royal Geographical Society (RGS) was formed in 1830 as an outgrowth of the Africa Association, and Britain's overseas expansion in the nineteenth century (in which Africa figured prominently, especially after 1870) was by and large orchestrated through the RGS. Similarly, the Franco-Prussian War (1870–1) directly stimulated an increase in French geographical societies, which helped sustain a coherent political doctrine of colonial expansion, not least in Africa. At the Second International Congress of Geographical Sciences held in 1875, and attended by the president of the French Republic, knowledge and conquest of the Earth were seen as an obligation, and GEOGRAPHY provided the philosophical justification.

Africa was central to, and to a degree constitutive of, the troika of geography, RACE and EMPIRE. European geography helped create or, more properly, invent a sort of Africanism, and relatedly a particular set of tropical imaginaries or visions embodied in the emergent field of tropical geography (see TROPICALITY). Equally, Africa played its part in the debates within geography over ENVIRONMENTAL DETERMINISM, race and CIVILIZATION, and in what Livingstone called the moral economy of climate; Africa helped invent geography. The iconography of light and darkness portrayed the European penetration of Africa as simultaneously a process of domination, enlightenment and liberation. Geography helped make Africa 'dark' in the nineteenth and twentieth centuries, as it simultaneously assisted in the means (military cartography) by which the darkness was to be lifted by the *mission civilisatrice*. In a sense, then, the study of Africa lay at the heart of academic geography from its inception.

The idea of Africa and its genealogical provenance in the West is far too complex to be sketched here. Suffice to say that Stanley Crouch is quite right when he writes that Africa is 'one of the centerpieces of fantasy of our time' (Crouch, 1990). Africa was after all, in the words of Joseph Conrad's Marlow in *Heart of darkness* (2007 [1902]), 'like travelling back to the earliest beginnings of the world'. It is no surprise that one of the most important texts

on contemporary Africa – Achille Mbembe's *Postcolony* (2001) – begins with the statement that Africa stands as the 'supreme receptacle' of the West's obsession with 'absence', 'non being' – in short, 'nothingness' (p. 4). The Hegelian idea that Africa was a space without history has been elaborated so that Africa's special feature is 'nothing at all'. It is against this sort of dehistoricization that so much intellectual effort has been put – by African intellectuals in particular – to account for another idea of Africa, one that approaches what Bayart (1993) calls 'the true historicity of African societies'.

A history of geographers and geographical practice in the service of colonial rule in Africa has yet to be written, but it is quite clear that geographical ideas, most obviously land use and agrarian change, population growth and mobility, and environmental conservation, run through the period from the imperial partitioning of Africa in the 1870s to the first wave of independence in 1960. Richard Grove (1993) has traced, for example, early CONSERVATION thinking in the Cape in southern Africa to the 1811–44 period, which had produced a conservation structure of government intervention by 1888, driven by a triad of interests: scientific botany, the white settler community and government concerns for security. This tradition of land use and conservation was inherited by various colonial officials in Africa, and reappeared across much of western and southern Africa in the 1930s in a debate over population growth, deforestation and the threat of soil erosion. In colonial British West Africa, the rise of a populist sentiment in agricultural policy singing the praises of the smallholder and the African PEASANT is very much part of the historiography of cultural ecological thinking in geography as a whole (see CULTURAL ECOLOGY).

The relevance of geography's concern with land use and HUMAN ECOLOGY for colonial planning in Africa (and elsewhere) was vastly enhanced by what one might call the 'invention of DEVELOPMENT' in the late colonial period. While the word 'development' came into the English language in the eighteenth century with its root sense of unfolding, and was subsequently shaped by the Darwinian revolution a century later, development understood as a preoccupation of public and international policy to improve welfare and to produce governable subjects is of much more recent provenance. Development as a set of ideas and practices was, in short, the product of the transformation of the colonial world into the

independent developing world in the postwar period. Africa, for example, only became an object of planned development after the Depression of the 1930s. The British Colonial Development and Welfare Act (1940) and the French Investment Fund for Economic and Social Development (1946) promoted modernization in Africa through enhanced imperial investment against the backdrop of growing nationalist sentiments. After 1945, the imperial desire to address development and welfare had a strong agrarian focus, specifically productivity through mechanization, settlement schemes and various sorts of state interventions (marketing reform, co-operatives), all of which attracted a good deal of geographical attention. Growing commercialization in the peasant sector and new patterns of population mobility and demographic growth (expressed largely in a concern with the disruptive consequences of URBANIZATION and rural–urban migration) pointed to land use as a central pivot of geographical study.

Geography was a central practical field in the mapping of the continent. At the Treaty of Berlin (1895) when Africa was partitioned, the maps produced by geographers were for the most part incomplete and inadequate. But the harnessing of cartography to the colonial project was an indispensable component of colonial rule and the exercise of power. Cadastral surveys were the ground on which Native Authorities and tax collection were to be based, but fully cadastral mapping proved either too expensive or too political. New critical studies in cartography have provided important accounts of the institutionalized role of mapping in colonial (and post-colonial) rule and its use as an exercise of power (see CARTOGRAPHIC REASON; CARTOGRAPHY). The mapping of Africa is still ongoing and the delimitation of new territories (whether states, local government areas or chieftaincies) remains a complex process, wrapped up with state power and forms of representation that are not captured by the purported objective qualities of scientific map production.

Colonial rule in Africa proved to be relatively short, little more than one lifetime long, and produced neither mature capitalism nor a standard grid of imperial rule. Whether settler colonies (Kenya), peasant-based trade economies (Senegal) or mine-labour reserves (Zaire), in the 1960s virtually all the emerging independent African states shared a common imperial legacy: the single-commodity economy. African economies were one-horse towns, hitched to the world market through

primary export commodities such as cotton, copper and cocoa. However distorted or neo-colonial their national economies, African hopes and expectations at independence were high – indeed, in some sense almost euphoric. The heady vision of Kwame Nkrumah – of a black Africa utilizing the central-planning experience of the Soviet Union to industrialize rapidly and overcome poverty, ignorance and disease – captured the popular imagination. Indeed, among the first generation of African leaders, irrespective of their political stripe, there was an infatuation with national plans and ambitious long-term planning. Health, education and infrastructure were heavily funded (typically aided and abetted by technical foreign assistance), and government activities were centralized and expanded to facilitate state-led MODERNIZATION. In spite of the fact that state agencies extracted surpluses from the agrarian sector – peasant production remained the bedrock of most independent states – to sustain import-substitution and INDUSTRIALIZATION (as well as a good deal of rent-seeking and corruption by elites), African economies performed quite well in the 1960s, buoyed by soaring commodity prices (especially after 1967).

Not surprisingly, much of the geographical scholarship of the 1960s was framed by some variant of modernization theory, or at the very least by the presumption that the processes of MODERNITY (commercialization, urbanization and transportation) were shaping indigenous institutions and practices. From the onset of the 1970s, the complacency and optimism of the 1960s appeared decidedly on the wane. Mounting US deficits, the devaluation of the dollar and the emergence of floating exchange rates marked the demise of the postwar Bretton Woods financial order. The restructuring of the financial system coincided with the crisis of the three F's (price increases in fuel, fertilizer and food) in 1972–3, which marked a serious deterioration in Africa's terms of trade. Ironically, the oil crisis also contained a solution. Between 1974 and 1979, the balance-of-payments problems of many African states (which faced not only a quadrupling of oil prices but a general price inflation for imported goods and a sluggish demand for primary commodities) was dealt with through expansionary adjustment: in other words, through borrowing from banks eager to recycle petrodollars or from the special facilities established by the INTERNATIONAL MONETARY FUND (IMF) and the World Bank. Expansionary adjustment, however, deepened

two already problematic tendencies in African political economies. The first was to enhance the politics of public-sector expansion, contributing to waste, inefficiency and the growing privatization of the public purse. The second was to further lubricate the political machinery, which produced uneconomic investments with cheaply borrowed funds.

The crisis of the 1970s helped to precipitate two major changes in the institutional and theoretical climate of Africanist geography. On the one hand, the spectre of FAMINE in the Sahel and the Horn drew increased foreign assistance to sub-Saharan Africa as a whole and to rural development in particular. To the extent that this support translated into research and programming activities in the donor countries, academics and consultants were drawn into development and applied work, in the USA through USAID, in the UK through the Ministry of Overseas Development, and in France through the Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM). In the USA in particular, USAID-funded projects permitted some campuses to expand their Africanist activities and encouraged some geographers to systematically explore a number of questions relating to drought, food security and rural resource use. On the other, the bleak prospects for Africa in the face of a world recession and deteriorating terms of trade, prospects that contributed to the call for a new international economic order in the first part of the 1970s, were not unrelated to the growing critique of market-oriented modernization theory and the early growth theorists, and to the gradual emergence, beginning in the late 1960s, of radical dependency theory, and subsequently of Marxist-inspired development theory (Watts, 1983a).

The precipitous collapse in the 1980s brought on by drought, famine, AIDS, bankruptcy, civil strife, corruption, the conflation of troubles, was matched by an equally dramatic rise of neo-liberal theory (see NEO-LIBERALISM) – what John Tøye (1987) has called the counterrevolution in development theory. Championing the powers of free and competitive MARKETS – and by extension the assault on the state-led post-colonial development strategies of most African states – while popular in the halls and offices of the World Bank and various development agencies, was an object of considerable theoretical debate. Some geographical scholarship had certainly been critical of state-initiated development schemes, but the myopic prescriptions for free markets were properly criticized for their impact on the poor, for their dismissal of the

institutional prerequisites for market capitalism and as a basis for sustained accumulation. At the same time, the adjustment had devastating consequences on university education in Africa, with the result that research by African geographers was seriously compromised. African scholarship generally withered to the point of collapse as faculties faced the drying up of research monies, compounded by declining real wages. Many academics were compelled to engage in second occupations. The most active African geographers were those who were based outside of the continent or who acted as consultants to international development agencies.

By the new millennium two other issues had, in a curious way, come back to haunt Africa, raising difficult and profound questions about the way Africa is, and has been, inscribed through Western discourse. One is rooted in debates that stretch back to the end of the eighteenth century and the other is relatively new. The Malthusian spectre (see *MALTHUSIAN MODEL*) hangs over the continent and has pride of place in the major policy documents of global development agencies. Some geographers, working largely within a Boserupian problematic (see *BOSERUP THESIS*), had explored the relations between demographic pressure and land use during the 1980s, but the new demographic debate is driven increasingly by the presumption of persistently high fertility rates (in some cases over 4 per cent per annum), rapid environmental degradation (the two are seen to be organically linked) and what is widely held to be the extraordinarily bleak economic future in the short term for most African economies. AIDS, conversely, is of late-twentieth-century provenance, but its history has been, from its inception, linked (often falsely) to Africa. While the statistics are contested on virtually every front, work by geographers has begun to draw out the patterns and consequences of terrifyingly high rural and urban infection rates in the east and central African arc.

Whether the human geography of Africa has approached Edward Said's goal to produce a geography of African historical experience remains an open question. What the most compelling geographies of the 1980s and 1990s accomplished, nonetheless, was the addition of complexity to our understanding of African places and spaces (Hart, 2003; Moore, 2005). Since 2000, there is no question that Africa has gained a newfound international visibility. Driven in part by the debt question and the efforts of the likes of Bono, Gordon Brown in

his time at the British Exchequer, the New Economic Partnership for Africa (NEPAD), and the so-called ANTI-GLOBALIZATION movement, Africa is now the focus of substantial global concern. The conjuncture of a number of forces have brought the continent to a sort of impasse: the HIV/AIDS epidemic, the limited success of the austerity and adjustment reforms, a continuing decline in their share of world trade and foreign direct investment, the failure to meet the 2005 Millennium Goals, and the rise of massive cities (mega-cities) dominated by SLUMS. The Commission on Africa ('Blair Report') and the US Council of Foreign Relations Task Force on Africa Report – both released in 2005 – speak in quite different registers to the challenges that geographical scholarship and practice must speak to. The growing significance of Africa in US 'energy security', in which the Gulf of Guinea figures so centrally, is one area in which the long-standing interest of geographers in strategic resources will continue to develop. MW

#### Suggested reading

Cooper (2003); Ferguson (2006); Mamdani (1995).

**ageing** The process of becoming chronologically older, something affecting all lifeforms, but which in the social sciences becomes significant to the study of human populations and their internal differentiation. *POPULATION GEOGRAPHY* reconstructs the age profiles of populations within areas, noting the relative sizes of different age cohorts, and examining the *DEMOGRAPHIC TRANSITION* ensuing if fertility and mortality rates *both* decline and prompt the overall ageing of a population. This latter phenomenon is an oft-remarked feature of the more-developed world, with implications such as the increasing tax burden placed on the working age cohort, allied to increasing needs for specialist social, health and personal services for the growing elderly cohort (e.g. Andrews and Phillips, 2005).

Other researchers directly tackle the worlds and experiences of older people. While the broad field of gerontology (the study of such people) has prioritized a 'medical model', concentrating on the biological facts of 'senescence' (reduced mobility, deteriorating sight etc.), social scientists – looking to *social gerontology* – increasingly favour a 'social model', emphasizing instead society's progressive withdrawal from and even exclusion of its older members (as in the Western orthodoxy of 'retiring' people at c. 60–70 years). The