

Classics in Cartography

Reflections on Influential Articles from *Cartographica*

Edited by

Martin Dodge

*Department of Geography,
School of Environment and Development,
University of Manchester, UK*

With a foreword by Jeremy W. Crampton,
editor of the journal *Cartographica*

 **WILEY-BLACKWELL**

A John Wiley & Sons, Ltd., Publication

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This edition first published 2011, © 2011 by John Wiley & Sons Ltd

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Registered office:

John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

Editorial Offices:

9600 Garsington Road, Oxford, OX4 2DQ, UK

The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

111 River Street, Hoboken, NJ 07030-5774, USA

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Library of Congress Cataloging-in-Publication Data

Classics in cartography : reflections on influential articles from cartographica / edited by Martin Dodge.

p. cm.

Includes index.

ISBN 978-0-470-68174-9 (cloth)

1. Cartography. I. Dodge, Martin, 1971-

GA101.5.C53 2010

526—dc22

2010027896

A catalogue record for this book is available from the British Library.

This book is published in the following electronic formats: ePDF: 978-0-470-66947-1;

Wiley Online Library: 978-0-470-66948-8

Set in 10.5/12.5 pt Minion by Thomson Digital, Noida, India

First Impression 2011

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Ferenc Csillag

Deceased, June 2005

Martin Dodge

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Martin's research focuses on conceptualizing the socio-spatial power of digital technologies and urban infrastructures, virtual geographies, and the theorization of visual representations, cartographic knowledges and novel methods of geographic visualization. He was curator of the well known Web-based *Atlas of Cyberspaces* and has co-authored three books covering aspects of the spatiality of computer technology: *Mapping Cyberspace* (Routledge, 2000), *Atlas of Cyberspace* (Addison-Wesley, 2001) and *Code/Space* (MIT Press, 2010). He has also co-edited two books, *Geographic Visualisation* (Wiley, 2008) and *Rethinking Maps* (Routledge, 2009), focused on the social and cultural meanings of new kinds of mapping practice. He is a member of the editorial board of the journal *Cartographica*.

David H. Douglas

Independent Scholar

David obtained his undergraduate degree at the Royal Military College of Canada in 1963. He served as an officer and pilot in the Royal Canadian Air Force until 1966, after which he obtained a Master's degree in Geography at Carleton University in Ottawa. On completing his degree he was offered a post in the Department of Geography at the University of Ottawa, which he held from 1970 until the end of 1999. After that he held a three year position in the Department of Surveying at the University of Gävle in Sweden.

His research has involved the compression of cartographic data in lines and surfaces, along with work on simple projections for quantitative mapping, polygon topology for dasymetric and choropleth maps, and shortest path algorithms.

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Sarah Elwood

Associate Professor of Geography at the University of Washington, USA

Sarah's work intersects critical Geographic Information Systems (GIS), and urban and political geography. She studies the social and political impacts of spatial technologies such as GIS, and the changing practices and politics of local activism, community organizing and other modes of civic engagement. Her current research focuses on the ever-expanding range of interactive Web-based technologies that are enabling collection, compilation, mapping and dissemination of geographic information by vast numbers of people.

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John has worked as a professional cartographer with the Ontario Ministry of Natural Resources in Canada and as a freelance cartographic designer and consultant. He developed and taught the core Design curriculum in the Cartography Program at Sir Sandford Fleming College, Ontario, and is currently Adjunct Associate Professor in the Graduate GIS Faculty at North Carolina State University. He is the author of the *North Carolina Watersheds* map and co-author of *The Power of Maps* (Guilford Press, 1992), *The Natures of Maps* (University of Chicago Press, 2009) and *Rethinking the Power of Maps* (Guilford Press, 2010).

Rina Ghose

Associate Professor of Geography at the University of Wisconsin-Milwaukee, USA

Rina's research involves critical GIS, political economy and urban geography. She examines the implementation and use of spatial technologies and their socio-political impacts. She has conducted longitudinal research on how spatial knowledge is used by grassroots community organizations and activists as well as powerful actors and networks in shaping the inner-city planning process. Currently she is examining the impact of neoliberal policies upon public participation GIS.

Leonard Guelke

Retired Scholar

Len graduated with a BSc in Geography from the University of Cape Town, South Africa, in 1961. The curriculum of the time had a strong emphasis on cartography,

something the leading thinkers on the nature of geography all agreed was a central component of geographic inquiry. This preparation helped him land his first job as a cartographic compiler and editor with Thomas Nelson & Sons of Edinburgh, which was followed by a two year assignment (1965–1967) as coordinator of the Atlas of Alberta. He obtained a PhD in Historical Geography from the University of Toronto in 1974. Although cartography was not specifically the focus of his graduate studies, on the basis of his earlier education and work experience he was deemed sufficiently well qualified to be appointed a faculty member at the University of Waterloo responsible for teaching cartography. This position stimulated a period, from 1975–1990, of cartographic research and the active participation in the Canadian Cartographic Association. Len retired in 2005.

Mordechai (Muki) Haklay

Senior Lecturer in GIS at University College London (UCL), UK

Muki's research focuses on usability engineering aspects of geospatial technologies, public access to environmental information and participatory GIS. He holds a BSc in Computer Science and Geography and an MA in Geography from the Hebrew University in Jerusalem, together with a PhD in Geography from UCL. He is a member of the editorial board of the journal *Cartographica*.

J. Brian Harley

Deceased, December 1991

Catherine Emma (Kate) Jones

Lecturer in Human Geography at the University of Portsmouth, UK

Kate completed her PhD at University College London in 2008 in the area of Health Geography. She is a specialist in GIS for collaborative research in social and urban geography.

David M. Mark

Professor of Geography at the University of Buffalo, the State University of New York and Director of the Buffalo site of the National Centre for Geographic Information and Analysis (NCGIA), USA

David completed his PhD in Geography at Simon Fraser University (Burnaby, Canada) in 1977, and joined the University at Buffalo in 1981. He has written or co-authored more than 220 publications, including 80 refereed articles and four edited books. His research interests include ontology of the geospatial domain, geographic cognition, cultural differences in geographic concepts, geographic information systems, human-computer interaction and digital elevation models.

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Jeremy received his PhD in Geography from Pennsylvania State University in 2001. His research has focused on spatio-temporal data models and semantic GIS representation. Current research is investigating how social and geographic environments influence crime and health behaviours.

Mark Monmonier

Distinguished Professor of Geography in the Maxwell School of Citizenship and Public Affairs at Syracuse University, USA

Mark is author of sixteen books, including *How to Lie with Maps* (University of Chicago Press, 1991, 1996), *Coast Lines: How Mapmakers Frame the World and Chart Environmental Change* (University of Chicago Press, 2008), and *No Dig, No Fly, No Go: How Maps Restrict and Control* (University of Chicago Press, 2010). His awards include a Guggenheim Fellowship (1984), the American Geographical Society's O.M. Miller Cartographic Medal (2001) and the German Cartographic Society's Mercator Medal (2009).

Donna J. Peuquet

Professor of Geography at Pennsylvania State University, USA

Donna's research interests are in the areas of geographic knowledge representation, knowledge discovery, spatio-temporal data models, spatial cognition, AI approaches to knowledge representation, geocomputation and GIS design. Since the early 1990s, her work has centred on the representation of time and temporal dynamics, including database, visual and cognitive representation and how these interrelate.

Thomas K. Poiker

Retired Scholar

Thomas Poiker, formerly Peucker, grew up in Austria, studied in Germany (Geography) and taught (Economic Geography, Geographic Information Systems (GIS), Cartography and – in the Computing Science Program – Computer Graphics) at Simon Fraser University in Burnaby, British Columbia, Canada. His research area was GIS, especially digital terrain models (DTMs) where he developed the triangulated irregular network structure. He is known for the first text in GIS and some articles in GIS, especially DTMs. He developed an online program (UniGIS, two years, 12 courses) which he directed from 1998 to his retirement in 2007.

Matthew Sparke

Professor of Geography and International Studies at the University of Washington, USA

Funded by a National Science Foundation CAREER grant, Matthew's recent research and teaching have been about globalisation, neoliberal governance, and the impact of transnational market ties on the geography of politics. He is the author of *In the Space of*

Theory: Postfoundational Geographies of the Nation-State (University of Minnesota Press, 2005), and *Introduction to Globalisation* (Blackwell, forthcoming), as well as over 50 articles, book chapters and reviews. In 2007 he received the University of Washington's Distinguished Teacher Award. His work on the politics of cartography is now leading into new research on the geography of global health, including attention to both neogeography Web 2.0 technologies used for risk management in rich countries, and the collective remapping of the globe itself – sometimes also enabled by volunteers – as a space of shared vulnerability and health citizenship.

Denis Wood

Independent Scholar

Denis holds a PhD in Geography from Clark University where he studied map-making under George McCleary. He was curator for the award-winning Power of Maps exhibition for the Smithsonian, and writes widely about maps. His most recent book is *Rethinking the Power of Maps* (Guilford Press, 2010). A former Professor of Design at North Carolina State University, Denis is currently an independent scholar living in Raleigh, North Carolina.

Foreword

Cartographica: The International Journal for Geographic Information and Geovisualization (to give its full title) is one of the longest standing peer review journals for the publication of cartography and mapping and geographic information systems (GIS).

The journal was founded by Bernard Gutsell (1914–2010) and his wife Barbara. As a young man in his native England, Gutsell was a squadron leader in the Royal Air Force during World War II. It might be that he found his love of geography and maps at that time. After the war, Gutsell moved to Canada, where he got a job with the government in the Geographical Bureau, later joining York University in Toronto. He retired from York in 1989. To some degree his career parallels that of another cartographer, the American Arthur Robinson. Like Gutsell, Robinson was involved in World War II, although his job was more directly cartographic, since he was in charge of the Map division of the Office of Strategic Services (OSS), which became the CIA after the war. It would be interesting to compare their careers further, but they do highlight the deep interconnections between cartography and government.

In the early 1960s the Gutsells asked for funds to start a journal from Canada's National Research Council (NRC) and the Canada Council. The sponsors asked him to produce Volume 1 before they were prepared to issue any funds. Since Gutsell had no money to do this, he actually started the journal with Volume 2! This was May 1965. It was only a few years later that Volume 1 appeared (labelled '1964'), in response to many enquiries from people asking where they could get a copy.

At this time the journal was simply called *The Cartographer*, and although it has gone through several name changes, one constant of its first thirty years was Gutsell's editorship. His involvement is generation-spanning. When he started the journal I was a baby; when I published my first articles in the journal in the early 1990s he was still editor. He stepped down in 1994. Due to his long tenure I'm still only the fifth editor of the journal after 45 years (and the first from outside Canada, although like Gutsell I am originally British). Following Gutsell, the journal was edited by Michael Coulson (1994–1999), Brian Klinkenberg (1999–2004) and Peter Keller (2004–2007). Other significant figures include Roger Wheate and Cliff Wood, who served as co-editors from 2004–2010. In addition, Ed Dahl must be mentioned in a number of roles, such as Associate Editor (1981–1994) and Board member (1994–2007). It was Ed who arranged the responses to the Harley article I discuss later in this book.

The very idea of classics in cartography might seem anachronistic in an age when cartography has become GIS, and GIS itself is either going to have to revolutionise or be subsumed by so-called Volunteered Geographic Information (VGI) or the geospatial Web and their corporate ilk such as Google Earth. It raises the question not only of what constitutes a classic (Something cited a lot? Something 'old'? Something cited a lot at first but not much now?) but of what cartography actually is (and whether the answer to that is historically variable or constant). Perhaps, in fact, a classic is something which *changes the definition of cartography*.

Indeed, Denis Wood's manifesto cry that 'Cartography is Dead – Thank God!' might at first glance appear to be the *sine quo non* judgement upon cartography. But this idea bears further examination. Wood does not celebrate the end of maps and mapping, but rather of a certain species of cartographic enquiry (academic, dry, irrelevant to real-world map use) that he sees as all too prevalent – and after all he is on the editorial board of *Cartographica*. Wood's point is subtle, it is not maps that have betrayed us, rather we have betrayed maps. We have flogged them to death and analysed them as if they were disturbed mental patients on the psychiatric couch. We have prosecuted them for war crimes, for supporting militaristic conquests and colonial exploitation, for propping up ministers and monarchs. And perhaps most indefensibly we have forgotten the beauty and wonder of maps, not to mention their sheer power amongst the general public.

No doubt Wood has a point, and his own work on map art has done much to correct these imbalances. But cartography, as a study of maps and mapping, is a product of modernity, and like most disciplines has undergone shifts in emphasis. Cartography embraced the scientific reason of the European Enlightenment as a practice of mapping and surveying in the sixteenth and seventeenth centuries, and as an academic discipline in the late nineteenth and early twentieth centuries. As this book neatly demonstrates, 'classics' come in a number of forms, and the classical scientific side of the discipline is well represented – notably the very influential work of Douglas and Peucker (now Poiker), which has been cited well over 1000 times according to Google Scholar (unfortunately academic citation databases have not indexed that year of *The Canadian Cartographer*, as the journal was then known). We also see from the selection how the study of mapping has evolved. Harley's article, which has been cited about half as much, represents a very different tradition, that of map critique. Newer concerns such as participatory GIS (PGIS) and experiential mapping are also included (see the Introduction for a fuller discussion of the choices included).

So classics can be thought of as articles that attract attention, whether formally through citations or more informally by word of mouth, that serve to shift the discipline and cause us to rethink maps.

Classics in cartography also raises the question of the relation and importance of the field in the larger sense. To Wood, it's dead, but I think that a little ungenerous to those of us still interested in thinking about mapping (and by 'us' I don't just mean academic cartographers, but map artists, geographers, philosophers, historians, political activists and the like). My old professor at Penn State, Peter Gould, used to say that geography was a great place to begin, but a bad place to remain. The same is probably true of cartography. Cartography is strongest (and I think to me this is what 'classics in cartography' ultimately means) when it reaches out and joins with these other forms of

questioning. Cartography for cartography's sake is probably not going to light up the world. But cartography for art's sake, for philosophy's sake or for politics' sake, now that's something.

Jeremy W. Crampton
Editor, *Cartographica* 2008–2010

Acknowledgements

I would like to thank Rachael Ballard, Fiona Woods, Izzy Canning and colleagues at Wiley-Blackwell for their sterling work in supporting the development and production of the book.

For useful suggestions and ideas at points along the way, thanks to Jeremy Crampton, Muki Haklay, David O'Sullivan, Sara Fabrikant and Chris Perkins. I am very grateful to Graham Bowden, in the Cartographic Unit at the University of Manchester, for all his hard work on the illustrations. Morag Robson and Donna Pope were also helpful for gaining access to the original bound volumes of *Cartographica* held in the John Rylands University Library.

I also acknowledge Pete Fisher and his earlier book on GIS 'classics' for sparking the initial idea for this volume.

Martin Dodge

1

What are the 'Classic' Articles in Cartography?

Martin Dodge

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1.1 Outline of the Book

The intention of *Classics in Cartography* is to provide an intellectually-driven reinterpretation of a selection of some of the most influential articles from the last thirty years of academic cartography research. The ten chosen 'classic' articles were written by a range of the leading academic cartographers, geographers and allied scholars. They were all published in the international peer-reviewed journal *Cartographica*.

While the ten 'classic' articles are diverse in their agendas and approaches, they are all thought provoking texts that demonstrate how different aspects of mapping work as a mode spatial representation; they also shed light how different cartographic practices have been conceptualised by academic researchers. They are reprinted in full in this volume and, importantly, they are accompanied by newly commissioned reflective essays by the original authors (or other eminent researchers) to provide fresh interpretation on the meaning of the ideas presented and their wider, lasting impact on cartographic scholarship. Moreover, these essays give insights into how academic ideas emerge and some present a personal perspective on the nature of scholarly research. As such it is hoped that they will furnish current and future researchers with insights into how influential academic ideas come about and circulate as catalysts that can codify and instigate important areas of research within cartography and generate novel theoretical perspectives on mapping. While the focus on past 'classics' is perhaps rather backward looking in an era of such rapid social and technical change in cartography, it can be counter-argued that today there is real intellectual value in historical reflection because of the ways it helps us to understand better the present context for cartographic studies and to better inform future strategies for more innovative, creative mapping research (Dodge, Perkins and Kitchin, 2009; Kitchin and Dodge, 2007).

The book's intellectual focus on reflecting on 'classic' work in cartographic research, as opposed to GIScience or geovisualization is a conscious decision (see Dodge, McDerby and Turner, 2008; Fisher, 2006 for coverage of these allied fields). There is a strong case that cartography, broadly conceived, has become a newly reinvigorated topic in recent years, and that mapping has growing relevance to many scholars and students across the social sciences and humanities disciplines (Dodge and Perkins, 2008). The turn towards the 'visual' and 'spatial' in many large social science disciplines (such as anthropology, literary studies, sociology, history and communications) means there is extensive interest in spatial representations and mapping practice in its many forms (Warf and Arias, 2008). Meanwhile, mapping approaches are also proving instrumentally powerful in the information sciences, bio-informatics and human-computer studies as the basis for novel knowledge discovery strategies (Börner *et al.*, 2009). There is also much more lively engagement with cartography beyond academia, with growing artistic interest, numerous exciting participatory mapping projects and, of course, mass consumer enrolment of interactive spatial media on the Web, on mobile phones and in-car satellite navigation systems to solve myriad daily tasks (Crampton, 2009; Elwood, 2010).

So, looking beyond the core readership in cartography and GIScience, it is hoped that *Classics in Cartography* will have utility more widely across the sciences, social sciences and humanities, meeting the needs of a range researchers and postgraduate students interested in maps. It provides a new route into the wealth of significant cartographic literature, a unified and coherent way to bring a range of important mapping theories to the attention of a wide range of people looking to intellectually inform their mapping practice. The combination of 'classic' articles with new interpretation, which includes the significant work of many of the most well known cartographic scholars, makes this a uniquely useful book.

1.2 Delimiting the Cartographic 'Classics'

At the heart of the academic discipline of cartography are a set of theoretical frameworks and empirical findings that provide the intellectual basis for understanding the nature of maps and the work they do in the world. While such theories and findings are often the incremental product of the collective thought of many scholars, there are also signature pieces of writing that become recognized as 'classics' because of the way in which they push forward understanding or praxis by a significant degree. Such books and articles, through dint of their novel insights, analytic rigour or breadth of scholarship, gain recognition as foundational touchstones for students and academic researchers in cartography.

However, the task of drawing up a *short* and *definitive* list of such 'classic' work for any academic discipline that would achieve widespread agreement is an almost impossible one. The idiosyncratic interests, personal biases, partial knowledge and political agendas of the list maker will always mean the selection is less than perfect. To begin there are multiple dimensions upon which 'classic' status can be defined and the judgements made are almost always subjective. Perhaps most obviously a 'classic' might

be delineated in terms of the degree of novelty and originality in the material: being first to publish can often be crucial in claiming rights to found a field of research. Additionally, 'classic' status might be judged by the impact the paper or book has in terms of setting on-going research agendas and acting as the initiator of something bigger – it is a 'classic' not so much for what it is but because of what it caused. Along a different track, it could be argued that some writing is rightly regarded as 'classic' because it is an archetypal model or stylish synthesis of a large and important body of knowledge, it elegantly encapsulates an argument better than rest, and the quality of expression and depth of scholarly interpretation means it becomes widely referenced as the definitive source. Such articles and books can also be powerful in pedagogic terms – giving students and the next generation of academics their 'route maps' into ideas and interpretation of the literature. So 'classics' are classic because teachers and textbooks cite them as such. The longevity of the work can also award 'classic' stature as ageless pieces that every serious student and new scholar must read (although many do not!). A piece of work can also be elevated to the prominence of a 'classic' because it provides a convenient shorthand signifier for a much large body of scholarship by one academic or research group; it becomes the totemic masterwork of a lifetime of research. This is particularly the case where scholarly reputations inflate and evolve after the death of the person concerned. One could argue, for example, that J.B. Harley's 'classic' article *Deconstructing the Map* (Chapter 16), which was published shortly before his sudden death in 1991, has subsequently been cited oftentimes as a summary of his larger body of work on the politics of maps.

'Classics' can also emerge because what they say becomes the centre of controversy, either by accident or deliberate design by the author. Such pieces can spark a flurry of responses and commentaries in journals – and now online discussions and blog posts – and also generate an inflated citation score. While sometimes pieces can become a 'classics' because they got things wrong and are seen as prime exemplars of how misguided scholars were in the past. Others become elevated as talismans of failed paradigms or as placeholders for politically unacceptable viewpoints of previous generations (e.g. in political geography dealing with the overt colonial ideologies of past in Halford Mackinder's writing with its infamous 'Heartlands' mapping, Blouet, 2005; or the racist agenda underlying the cartographic analysis of W.Z. Ripley, Winlow, 2006).

This kind of revisionism also begs the questions, is 'classic' a permanent state – once its achieved, does it remain forever more? Perhaps it is less so now given the extent to which theories seem to change with fashion and the rapidity of cycling through research agendas in contemporary social science scholarship. Consequently, 'classic' status must be regarded as provisional: a touchstone piece for the in vogue paradigm can become moribund as the core research agenda shifts and it is superseded by other, better – or perhaps just different – work. And, one of the interesting academic games is to try to find such 'lost classics' and resurrect them to bolster a newly emerging perspective.

Beyond these intellectual issues, subjective judgements and temporal fluctuations, there is a panoply of projects that seek to 'scientifically' assess the most significant scholarly work using citations counts, impact factors, h-scores and an assortment of other quantitatively derived metrics. Such calculative 'classics' seem to offer objectivity, but this is very much a veneer that masks a whole host of messy realities, fallacies and

contingencies with quantitative approaches, particularly relating to relative comparability through time and across subject areas. As anyone who has used citations knows, the major databases recording them are also incomplete, with varying coverage over time, by language, publishing formats and academic disciplines. The partiality of the data sources is easily highlighted in their inconsistencies when comparing citation scores for the same article across the three main databases (e.g. citations to my 2007 paper *Rethinking Maps*: ThompsonISI's Web of Science: 13; Google Scholar: 32; Elsevier's Scopus: 17). Moreover, the practices and intellectual significance of citations varies across scholarly domains, which means measuring 'classics' absolutely, in quantitative terms, across subjects areas is unworkable.

Yet these acknowledged flaws in citations do not stop a significant degree of fascination with such metrics by academics (particularly, perhaps, by those who seem to have high scores or want higher ones!), by promotion committees, grant giving bodies and government funding agencies. Increasingly over last decade, quantitative assessment of the significance of published work has figured in efforts to systematically profile academics, allocate funding amongst departments and rank institutions in the name of improving quality, rewarding so-called research excellence and achieving greater value for money. It is interesting to ponder how cartographic research – with a relatively small core body of active scholars and particular publishing practices and arguably peripheral outlets – fares in these kinds of citational games.

High citation scores are no guarantee of scholarly quality or intellectual significance; they are at best a popularity indicator. Controversial articles get cited just for being controversial, not necessarily because they are good. Poor quality work can pile up citations simply because its visible or easily accessible. Other articles can accrue citations because of assiduous self-promotion by authors and through lazy citation practices by fellow academics (too many of us cite articles or book as 'tokens' of credibility without ever having read them).

An interesting alternative to the admittedly subjective individual list-maker and attempts at objective metrics would be to try a robust qualitative approach using a sample survey method. Here a kind of opinion poll would be taken of a wide sample of scholars in a subject area who would be asked to select their 'classics'. Combining multiple selections could generate a consensual view of 'classics', assuming a broadly representative sample of people willing to participate in the poll could be achieved. While this was not done for this book – which is primarily the result of subjective list-making – it would be a potentially worthwhile exercise to try to draw a more definitive list of cartography's 'classics' by such a polling approach.

1.3 Why Re-publish 'Classics'?

Notwithstanding the problematic task of identifying 'classics', there is certainly an intellectual tradition of evaluating developments in scholarship in terms of such touchstone articles and books, through their re-reading and re-interpretation. Such reflection and appraisal is conducted in a range of forms of academic publishing in many disciplines. For example, leading disciplinary journals, such as *Progress in Human*

Geography, regularly consider citation ‘classics’ with the goal of ‘reflecting on books and other works that have more than stood the test of space and time in shaping the discipline and practice of human geography’. Over the years a number of books reprising ‘classics’ from a specific sources – journals, institutions and research groups – are put together: Peter Fisher, for example, edited a large collection of *Classics from IJGIS* (2006), which reprinted nineteen important articles, accompanied by reflective essays, from the *International Journal of Geographical Information Science*. There is also a practice of publishing festschrifts of the ‘classics’ work of eminent scholars as a reflection and celebration of their contribution to the intellectual progress of disciplines. Examples include *The New Nature of Maps*, a posthumously edited collection of Brian Harley’s later theoretical papers on cartography put together by Paul Laxton (2001), and *Land and Life*, edited by John Leighly (1976), presented significant work of Carl Sauer.

In pedagogic terms a range of different kinds of collections of ‘classics’ are a staple of academic publishers. Produced chiefly as primers for undergraduate students, examples include: *Human Geography: An Essential Anthology* (1996) edited by John Agnew and colleagues. A large number of reader style volumes that try to provide synoptic coverage of a body of literature by excerpting from ‘classic’ work often with editorial interpretation have been produced over the last decade as well (e.g. Moseley *et al.*’s *Introductory Reader in Human Geography*, 2007). Other books focus solely on the interpretation of ‘classics’, without actually reprinting or excerpting the originals: Hubbard, Kitchin and Valentine (2008), for example, edited *Key Texts in Human Geography*, a successful collection of essays appraising twenty-six of the most significant books for the discipline. More broadly there are now host of disciplinary dictionaries, introductory handbooks and larger encyclopaedia projects that seek to codify an academic field, in part, by identifying and evaluating ‘classic’ material.

Such anthologies, readers and key texts type books, while often aimed at students, are also important because the selection decisions of the academic editors ineluctably also provide signifiers in terms of ‘what matters’ intellectually. They influence directly what student’s see, read and come to regard as the canons of the discipline. More broadly, it might be argued that there is scholarly value in this raft of reflective publishing, in that it can help cut through ‘information overload’ generated by bibliographic databases and ready online access to e-journals and digital books. A coherently edited collection can save much time and effort for students and academics in tracking down a set of the landmark articles that are otherwise scattered across many decades worth of journal issues (much of which can now be quickly downloaded but without means or indicators to determine what is worth reading). In summary, the wide range of competing and complimentary reflective efforts does, in some senses, establish the merit of considering ‘classics’ in cartography.

1.4 Choosing the ‘Classics’ in Cartography from *Cartographica*

The task of drawing up top ten lists of academic articles is at one level a rather worthless exercise, yet it can focus minds and provide a starting point for considering what are the

most significant works and why. Also, given peoples liking for such 'list-o-mania', it can also offers up some prurient entertainment, talking points at seminars and something to argue over at conference lunch lines!

In the initial planning of this book it was decided to use the 'top ten' approach¹ as an organizing principle and also to focus on a single core disciplinary journal as the source.² In drawing up a shortlist of 'classics' from the wide array of high-quality material published in the four decades worth of *Cartographica*, an effort was made to select articles that have provided significant contributions to advance cartographic thought and praxis. This was guided, in part, by looking at citations counts of articles but this was not in itself seen as a sufficient or always reliable indicator of significance. Therefore, a sizeable degree of subjective editorial judgement was also involved in the final selection of 'classics'.

The decision to focus solely on the journal *Cartographica* as the source rather than to look more widely across other peer review outlets was a conscious choice and offers several advantages. From the mid-1960s *Cartographica* has grown into a key academic guiding force in cartography, reflected in both the breath and quality of the research articles it has published over the years. It now enjoys a well established international reputation for publishing innovative peer-reviewed work, with material submitted from a broad range of scholars in cartography, GIScience, human geography and allied disciplines. It has been the outlet of choice for many landmark pieces of research along with some larger monographs, particularly during the 1980s. It has published several hundred peer-reviewed research articles covering a huge breadth of ideas and approaches to mapping. It now has extensive historical archives, having been produced continuously since 1964, and is currently published on a quarterly basis by University of Toronto Press. (Further discussion of the historical context of *Cartographica* is provided in Jeremy Crampton's foreword.)

Using peer-reviewed articles only from *Cartographica* was felt to be a strength in the book's intellectual design, not a weakness. It has positive virtues of concentrating the choice on a cogent and high-quality range of material. It would be fair to say none of the other cartography journals has the same *international* reputation for publishing innovative research and for intellectual leadership. While the use of *Cartographica* alone is an arbitrary decision, widening sourcing to look across multiple cartography journals would have increased the diversity of selected material but would not have necessarily identified a higher quality set of 'classics' or improved the insight offered by this volume.

Looking for 'classics' across more journals would have made selection decisions that much harder and also raised thorny boundary issues – what is cartography and what is not. (In some senses this was side-stepped here – if it was published in *Cartographica*, it

¹ Of course ten is an arbitrary but universal feature of the mania for lists. Psychologically, ten seems like a good number – large enough to be useful but not too long to be unwieldy and impossible to grasp. It does not mean there are only ten 'classic' articles in *Cartographica* – it could easily have been fifteen or twenty. However, ten also fits pragmatic demands of publishers for a scale of book that is commercially viable.

² I am very grateful to the assistance of Jeremy Crampton in formulating the book and in the process of selecting 'classic' material for inclusion. Note, Jeremy currently serves as editor of *Cartographica*. I serve on the editorial board of the journal.