Mapping Different Geographies
Preface

This book is the outcome of the work of contributors who participated in the workshop “Mapping Different Geographies (MDG)” in February 2010, held in Puchberg am Schneeberg, Austria. This meeting brought together cartographers, artists and geoscientists who research and practice in applications that focus on enhancing one-to-one communication or develop and evaluate methodologies that provide innovative methods for sharing information. The main intention of the workshop was to investigate how ‘different’ geographies are being mapped and the possibilities for developing new theories and techniques for information design and transfer based on place or location.

So as to communicate these concepts it was important to appreciate the many contrasting meanings of ‘mapping’ that were held by workshop participants. Also, the many (and varied) viewpoints of what different geographies are, were elaborated upon and discussed.

Therefore, as the focus on space and time was embedded within everyone’s fields of investigation, this was addressed during the workshop. This resulted in very engaging discourse, which, in some cases, exposed the restrictions that certain approaches need to consider. For participants, this proved to be most useful, as this allowed them to appreciate the limits and restrictions of their own approach to understanding and representing different geographies. As well, the workshop also was most helpful as a vehicle for demonstrating the common ground of interest held by the very diverse areas of endeavour that the workshop participants work within.

The focus of this publication is to give the reader an overview on the topic of Mapping Different Geographies from a conceptual-theoretical, as well as practical cartographic perspective. The list of contributors to this book reflects the many disciplines that contributed to the workshop and their heterogeneous approach to the topic.

The relevance and significance of the workshop, and this subsequent publication is seen as a starting point for further research and development. It also provides the stimulus for organizing further events that will explore this extremely interesting topic.

The editors would like to acknowledge the work of Michaela Kinberger and Felix Ortag, who undertook the task of the design and layout of the book and its chapters.

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William Cartwright, Melbourne, Australia
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Introduction

Mapping Different Geographies

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Introduction

To providers of geographical information in the form of maps and map-related artefacts the development of product usually considers human or physical geography as the topic being represented. However, cartographic techniques are also used to map different geographies – those that are outside the usual cartographer’s bailiwick. Maps are used to transmit information about not-real places using the same methodologies as applied to mapping real places. Can ‘standard’ cartographic processes be employed to produce these representations of different geographies and, how can designer/producers of these cartographic products be sure whether the ‘not-real’ is not confused or substituted for the real?

‘Everyday consumers’ experience the not-real almost every time they turn on a television or watch a movie. They are instantly taken to another world, which may well be the very reason that they use these devices – for ‘escaping’ their real reality. They may see this representation of a different geography as a way to escape reality, to explore and experience ‘other’ worlds and to participate in non-daily activities.

This book provides a record of the issues addressed by a number of disciplines that use the map metaphor to represent their different geographies. The common factor that underpins and links the applications covered in this book is location. Colleagues who have contributed to this work use location to place their work and their resultant representation – a map – to analyse and comprehend the intricacies of the geographies presented.
Exploring Disciplines Outside ‘Standard’ Geography and Cartography

Professional designers and cartographers use the non-real to make it easier to navigate the real using paper maps. Take for instance the London Underground map. Its designer, Beck, modified geography so that the artefact would communicate information better – and it worked! By replacing the strict geographically imposed demands that required that representations be placed exactly where they were located, within a regular pattern of generally horizontal, vertical or diagonal lines, his new ‘diagram’ showed more clearly the relative locations of the different lines and the sequence of stations. His original design moved away from the concept that the maps had to follow the actual geographical route of the lines. What were critical to Beck’s design were connections: the interchanges between the various lines. It is these connections and the simple information graphics that make the map ‘work’, irrespective of whether the user is a seasoned London commuter or a tourist arriving at the capital for the first time. By representing a different geography – the underground geography of the London tube – Beck made the map more usable and an effective communicator about how the London Underground transportation system worked. Visitors to Britain’s capital use it to enter hitherto unexplored territory using a map that made it easy to understand the system and to make connections.

This example illustrates how different geographies, if mapped in innovative ways, can be better understood through maps. Whilst these products might, at first, appear to be somewhat removed from conventional maps they are powerful tools to inform about the particular geography being studied.

In order to further develop the concept of mapping different geographies a workshop was held in 2009 that brought-together colleagues with a common research and development goal – to explore the potential of maps to represent geographies that were unique to various areas of research endeavour. This book provides a record of this workshop.

Mapping Different Geographies (MDG) Workshop

From 11th to the 15th of February 2009 the first workshop on “Mapping Different Geographies (MDG)” took place in the scenic mountainous village of “Puchberg am Schneeberg” in Austria. The leading theme of the workshop “Mapping Different Geographies” had the goal to enhance the communication between scientists as well as artists and to share information from current research that is investigating how “different” geographies might be mapped. Furthermore to develop a consensus about which methodologies and standards might be appropriate for integration into trans-disciplinary research programs that are exploring the application of map-
based information systems in non-traditional areas or using innovative applications. Additionally the application of map-based information systems in non-conventional areas and the usage of innovative applications and approaches were showcased. 24 participants from 7 countries used the opportunity to present and discuss the outcomes of various research projects in this diverse field of cartography and geo-communication.

In traditional mapping data is usually visualized with defined relationships to geographic space and time. Different Geographies often lack these clearly defined relationships of “geotagged” information. Therefore, before specified topics can be mapped, information has to be spatialised. Due to the fact that the resulting depictions lack traditional geographic information they are mostly not considered to be maps in a common way. These depictions do not represent geographies that map users are accustomed to, but “maps” of “other” geographies.

Questions and statements that arose during the workshop were manifold as well as to some extent provocative and are addressed in the contributions within this publication. They also show how diverse the topic is and where further investigation and research is located.

A selection of questions and statements that were addressed during the workshop:

- Do maps work?
- We should not reject subjectivness from maps.
- Hope to map the unmappable.
- Mapping into a new dimension.
- Mapping the imagined creates place space.
- Same space, different geographies.
- Let us turn to local human knowledge landscape (again).
- Let us rediscover all maps with new geographic technology.
- Why do we make everything so complicated?
- Overlay maps and animistic perception of space?
- How can GIS be used in numismatic?
- What to expect from a prototype literature atlas?
- How to help literature scholars become better researchers?
- It is possible to create maps with words!
- Literature geography – a way of integrating identity and geography.
- Does visualization need different methods and tech. for usability research?
- Cartographic applications depend on their user interface

The conclusion from this workshop was besides the fruitful discussions amongst scientists and artists a publication of reviewed papers.
This Book

The focus of the publication is to give the reader an overview on the topic of “Mapping Different Geographies (MDG)” from a conceptual-theoretical as well as practical cartographic perspective. The compendium is therefore divided into three categories and offers an overview on this fascinating new field within cartography and geo-communication.

The first section deals with conceptual and theoretical principles within the area of mapping different geographies and comprises six inspiring contributions. The second section with five entries focuses on structural and methodological topics that give an overview on various methods and approaches within the focused field. Finally the third section that contains five chapters emphasizes on use cases and examples that round up the theoretical discussion and describes various facets of mapping different geographies.

Conceptual and Theoretical Principles of Mapping Different Geographies

How maps are used to understand spatial relationships is a crucial issue within cartography and geo-communication. William Cartwright focuses on this issue and describes in his contribution “Media Creating Other (Geographical) Realities” the fact of experiencing “real” and “non-real” reality through cartography and postulates the question whether the way of “seeing” geography influences the way of knowing about “real reality”.

Christina Ljungberg goes one step further in her submission on “Mapping Practices for Different Geographies” and charts various forms of mapping practices, ranging from basic concepts of maps and mapping to how these spatial strategies interact with various types of textual representations. She seeks answers to the question “What is a map and how does it function?”

Michaela Kinberger pursues in her contribution on “Spatial Metaphors for Mapping Informal Geographies” the communication of schemes and coherencies of complex data that seem to reside – according to her research – in the user interface, restricting the potential of up-to-date computational and communications technologies.

In Georg Gartner’s chapter on “Emotional Responses to Space as an Additional Concept of Supporting Wayfinding in Ubiquitous Cartography” various methods of identifying emotional responses to spatial objects are discussed. Furthermore he postulates that the emotional relation and the degree of emotional response is structuring space and is used for human wayfinding.

Affective and Collaborative Cartography are areas of interest both currently being studied and explored by cartographers. Teresa Iturrioz and Monica Wachowicz
address these topics in the contribution “An Artistic Perspective for Collaborative and Affective Cartography”. They discuss the issue that different artistic outcomes are demonstrating how contemporary, new media art and design projects can be used for investigating the relationship between people and space in order to discover new realities, perceptions and emotions that possibly could remain unknown under the objectivity of the conventional map representations.

Laurene Vaughan explores in her submission “Mapping the imagined” the relationship between the map and the imagination, the imagined and the act of representation and translation. She states that utilizing this approach the mapping of unknown geographies can help make the imagined real.

**Structural and Methodological Issues of Mapping Different Geographies**

The aim of the contribution “Now and Then, Here and There... on business: mapping social/trade networks on First Global Age“ by Amélia Polónia, Miguel Nogueira and Amândio Barros is to address the question in what extent did territory conditioned commercial performances, contacts and the networks’ organization in the First Global Age. Mapping historical data related to commercial networks implies spatial visualization in order to comprehend the nature of such networks, their design and topology, extension and intensity.

Alberto Fernández Wyttenbach, W. Siabato, M. Bernabé-Poveda and M. Wachowicz describe with their paper “Evolution of Digital Map Libraries towards Virtual Map Rooms: New Challenges for Historical Research“ the state-of-the-art Digital Map Libraries (DML) initiatives carried out until now, emphasizing their technological evolution within the new institutional framework. From the results obtained, a new generation of Virtual Map Rooms is presented for the integrated access to the Spatial Data Infrastructures (SDI) thanks to the design of new crosswalks between geographic and bibliographic metadata profiles.

Alexander Pucher poses the question in his submission “Information Architecture of the Cultural History Information System of the Western Himalaya” to what extent can a Geographic Information System (GIS) be assembled to deliver an integrated cartographic decision-support tool for information collection and analysis visualization that stores data gathered from multiple resources and provide a communal internet-delivered repository of information and geo-located artifacts.

David Schobesberger also utilizes in his contribution “User-Centred Design of a Web-based Cartographic Information System for Cultural History” the thematic aspects of cultural history however focuses primarily on usability aspects of various interdisciplinary cartographic information systems in the proximity of cultural historic research. The systems analyzed have very clear communication goals and
can therefore be objectively evaluated. He aims to give impulses for discussing the necessity of evaluation in the context of mapping other geographies.

Markus Breier investigates in his paper “GIS for Numismatics – Methods of Analysis in the Interpretation of Coin Finds” the suitability and application of methods proprietary to Geographic Information Systems (GIS) in context with numismatics. Up to now this special field of cultural historic research is only rarely taking advantage of the strengths and opportunities that GIS can offer.

Use Cases and Examples of Mapping Different Geographies

The physical relationship between space and objects is certainly one of the key aspects for a correct understanding of historical, cultural and artistic phenomena. Anna Filigenzi elaborates in her contribution “Le vie dello Swat“ that the Buddhist rock sculptures that flourished in Swat (ancient Udāyiśa, North-West Pakistan) in the 7th-8th century AD not only revive pilgrimage routes leading to the ancient Buddhist sacred areas but are closely bound up with the sacred space.

Fani Gargova, Sarah Teetor, Daniel Terkl and Ulrike Unterweger present in their submission “DiFaB – A Databased Visual Archive of Byzantium and the Challenges of Indexing Historical Material Culture” on the one side the goals of the project DiFaB (Digitales Forschungsarchiv Byzanz/Digital Research Archive for Byzantium) to preserve documentation of monuments and to make this material available to the international scholarly community. On the other side they further discuss the usefulness of mapping for Byzantine art history with possible analogies to other cultural-historical sciences and the innovative potential of historical databases.

Mihailo Popovic presents in his paper “Mapping Byzantium – The project ‘Macedonia, northern part’ in the series Tabula Imperii Byzantini (TIB) of the Austrian Academy of Sciences” an outline of the history, development and current status of the project Tabula Imperii Byzantini (TIB) of the Austrian Academy of Sciences. This project that was founded in 1966 carries out systematic research of the historical geography of the Byzantine Empire, which existed from the beginning of the 4th century AD until the 15th century AD.

“The Mastery of Narratively Creating Mental Maps: Literary Cartography in Karl May’s Œuvre” by Manfred Buchroithner describes the biographic background and the art of landscape description of Karl May, one of the most prominent European travel tellers and novelists. Based on meticulous studies of up-to-date atlases and geographic scientific publications he developed most realistic depictions of the settings of his novels.

Finally the contribution by Harriet Edquist “Ghosts of the Past: Mapping the Colonial in Eleanor Dark’s Fiction“ examines Eleanor Dark’s fiction from the 1930s
and 1940s, for what it tells us about literature, history and place. By attending to where action takes place in the novels the reader finds a particular engagement with Sydney and its origins, as they are represented in the landscape, in urban form, in language and in maps.

**Lessons Learnt**

The workshop provided a venue for various projects to be explained, demonstrated and discussed. Whilst the applications ‘mapped’ many different geographies, it was apparent that the underlying need to map these geographies demanded innovative solutions. Solutions varied from project to project, and these are explained in the chapters that follow. Whilst new computer and communications technologies were employed to facilitate production and delivery, each project depended on researchers thinking differently about how they could better understand the problems that they were addressed if information was mapped. This lateral thinking resulted in applying the map metaphor to record, analyse and depict the various geographies of research.

Contemporary geographical information processes, methodologies and reporting/presentational artifacts have their origins in the geographic, surveying and mapping professions. It was therefore most interesting to see how the map metaphor already used by geospatial disciplines could be implemented by other disciplines as the most convenient (and, generally, the most understood) methods for data capture, access and display. The papers presented at the workshop allowed attendees to ascertain if the map was the most appropriate metaphor for the provision of information about non-physical and non-human geographies. A metaphor that has served well in the geospatial disciplines, and one that had been developed along with the ‘rules’ of usage, could be introduced immediately by other disciplines, but their effectiveness needs to be evaluated. As well, lessons learnt from mapping other geographies might prove to be appropriate for application into ‘mainstream’ cartography.

**Applying the Results of Mapping Different Geographies to ‘Mainstream’ Cartography**

Cartography is all about extraction of relevant information and thus creating clearness out of an excessive supply of geographical information representing the “real world”. Thereby, data may be selected, aggregated and even geometrically and semantically altered before presenting them in a graphical manner according to a suitable set of cartographic symbols. After the definition by the International
Cartographic Association in 2003, Cartography is “a unique facility for the creation and manipulation of visual or virtual representations of geospace – maps – to permit the exploration, analysis, understanding and communication of information about that space”. Cartography strives as much as possible for standardised workflows and representation rules. Nevertheless, to some degree, cartographers make use of ‘fuzzy’, ‘subjective’ methods in order to produce maps. During editorial work and designing of a map or a map-related representation, information can never be compiled, selected, modelled and represented in a complete, comprehensive and fully objective way. The Swiss cartographer Eduard Imhof even stated in a radio interview that maps are implemented virtual and therefore illusory worlds, which are up to a certain point independent from the ‘real world’, but should strongly correlate with it.

In this respect, the cartographic way of modelling spatial objects and phenomena is closely related to the mapping of different geographies: The depiction of landscapes and topics in classical maps may only differ in their degree of realism or abstraction from ‘different geographies’, but the main cartographic workflow or methodology is common to both worlds. But how might mainstream cartography then profit from the mapping of different geographies at all?

First, the different geographies or landscapes are new territories to be mapped. These territories might be rather closely correlated to our real world, but they might also differ significantly, for example, regarding their thematic properties or their dimensionality. This volume shows the great variety of possible landscapes, which in most cases rely on the human imagination. Cartography will never run short of work when offering its services for developing these geographies!

Speaking in terms of spatial sciences, different geographies created by cultural processes may be seen as a source or primary model. As in classical mapping processes this model then has to be transformed into a secondary model that is suitable for further processing, analysis, cartographic representation and interaction. Any of the steps in this workflow has to be carefully reconsidered and maybe even reinvented for the specific application. Cartography offers the knowledge and methodology to successfully apply, adapt and even newly design the necessary concepts and tools. The editors hope that this book helps to uncover and promote the power of cartography to the benefit of the exploration of different geographies!

**Acknowledgments**

The workshop was organised by Dr Karel Kriz and his team from the University of Vienna. This activity was developed under the general ‘umbrella’ of the International Cartographic Association’s Working Group on Art and Cartography.
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Conceptual and Theoretical Principles of MDG

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Chapter 1

Mapping Other (Geographical) Realities

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Abstract

To ‘everyday consumers’ of information from a popular media the ‘not-real’ is experienced by almost every time they read a book or magazine, turn on a television, watch a movie or access information via the Web. They are instantly taken to another world, which may well be the very reason that they use these devices – for ‘escaping’ their real reality. They may see access to media as a way to escape reality, to explore and experience ‘other’ worlds and to participate in non-daily activities.

This is something that is just an attribute of main-stream media consumption. Professional designers and cartographers use different representations of geography to make it easier to navigate, like metro maps which depict the geography ‘underground’ with minimal links to what is happening above ground London Underground map. Also, maps of ‘nowhere’ – those that depict places made famous in popular media, and ‘visited’ via books, comics, film, television – been produced to represent these not-real geographies.

This paper addresses how ‘other’ geographies are represented, generally from outside ‘main-stream’ cartography. It begins by discussing maps and the representation of place and space. Then it looks at how maps are used to understand spatial relationships. This is followed by an overview about how maps are used or incorporated into popular media. The use of spatialisation and how other geographies are represented using the map metaphor is covered next. Finally, issues about extending cartographic representations to accord with the use of interactive and integrated media to visualise other geographies is addressed.
1.1 Introduction

It is widely acknowledged that 80 percent of all decisions made by humans and all work undertaken in the public sector at national, regional or local level have a spatial or geographical aspect or application element (Albaredes 1998, Østensen 1996). Also, Frank, Raubal and van der Vlugt (2000) have stated that geographical information is used in making decisions that have a spatial element and consequently geographical information improves the decision making process. The multi- and interdisciplinary aspects of the depiction of spatial information prove that we are dealing with an area that forms part of the infrastructure of society. Spatial information needs to depict faithfully the aspects of information that effect the everyday lives of citizens. In order to represent phenomenon that have a spatial component we use maps, which represent these phenomena graphically.

To represent information that is spatially-dependent, defined or determined maps provide tools under the umbrella of what Balchin (1977) has called ‘graphicacy’. He described graphicacy as “one of the four basic types of intelligence or modes of communication and their educated counterparts”. Graphicacy involves the visual-spatial means of communication, as distinct from those that fall under the umbrella of articulacy, literacy and numeracy. Information graphics that illustrate information that has a spatial element – maps allow map readers to better comprehend the meaning ‘behind the data’. Maps and map-related objects have historically been a powerful form of communication because they intersect the humans perceptual understanding of place with a conceptualisation of the reality (MacEachren 1995).

Mapping has at its core the requirement to accurately show spatial phenomena. The ‘stuff’ that comprises the discipline is measurement and depiction. Designers and producers of map products are concerned with whereness – something that can be formulated and depicted in quantitative terms, and whatness – dealing with qualitative information. The whyness element of mapping is a combination of a user’s knowledge about the subject being depicted and the map producer’s skill in choosing the appropriate data and designing the most effective portrayal medium.

But, what is the most effective method for portraying different geographies? Can ‘standard’ mapping practices just be applied to produce usable representations? Investigations are needed to explore techniques that might be appropriate for mapping other geographies. The following sections explore how these different geographies have been mapped to provide some insight into what is being mapped and to illustrate how the representation of this information through maps can make more sense than just looking at myriads of textual or numerical information.
1.2 Maps and the Representation of Place and Space

Maps use small-scale space to represent large-scale (geographic) space. How they are designed, developed and produced vary and the ‘rules’ used to guide design and the ‘foundations’ upon which they are built can vary. There are a number of ways for visualising / expressing the world and a number of them have been adopted by sectors of the mapping industry. The most common method is the Mathematical (or Surveyor’s) view that can be seen to be near-Euclidean. Maps that are produced under this ‘umbrella’ provide the basis for mapping geography and representing the elements of the physical world. However, not just physical geography that needs to be mapped, ‘other’ geographies – ‘different geographies – can also be represented using maps.

This next section of this paper provides an overview about the use of maps to represent place and space. It reports on where maps have been used to illustrate a selected number of other, different geographies and where maps have been used to support other media, like books and television.

1.2.1 Maps of Well-Being

This first example looks at a more traditional mapping theme – well-being, or health. Historically, maps of a population’s well being (physical or mental) have been produced to support the reporting and analysis of health information gathered as part of a census or a specific study. Historically, the beginnings of using maps for health analysis was that used by Dr John Snow (Figure 1.1) to ascertain the source of drinking water that caused the spread of cholera in London. By mapping the data – by spatialising it – Snow isolated one supply of water – the Broad Street pump (at the centre of the map in Figure 1.1) – which was at the centre of where the biggest number of deaths were located as being a potential source of the disease.

Looking at a more recent example of mapping physical well-being, the map shown in Figure 1.2, Spatial patterns of natural hazards mortality in the United States, illustrates death from natural hazards in the United States. The map illustrates the results of reporting and clearly shows (in red) areas of the United States where the likelihood of death from natural hazards is more prevalent.

Also, maps do not only focus on physical well-being. Relatively recently, mapping emotional health or well-being (actual or perceived, collective or personal) has occurred. An Atlas of Emotion was produced by Giuliana Bruno – the San Francisco emotion map (Figure 1.3). It illustrates recordings of changes in emotions as the data collector (and I assume mapmaker as well) walks through San Francisco.
Fig. 1.1. Snow’s cholera map showing the locations of deaths from cholera. Source: http://clareverse.files.wordpress.com/2006/12/613px-snow-cholera-map.jpg

1.2.2 Maps of Works of Fiction

Many maps have been produced that depict worlds of fantasy or worlds created by books, film and television. Book readers have created their own mental maps of places that have never existed. Images of fictitious locations are built as mental maps and they become real ‘places’ in our minds. Maps of these imaginary places have been produced to evoke ‘naturalness’ or to facilitate a ‘realness’ factor that does not exist. We can use these images to study the small details of the area or region, like maps of the Middle Earth (Figure 1.4).

In a book of humorous drawings by Jiz, Really, Miss Henderson (1946) a map (Figure 1.5) illustrates the adventures of Miss Henderson during WWII.

Works of fiction have also included maps that depict a two-dimensional world. In Flatland: A Romance of Many Dimensions, Edwin Abbott (1884) looked at the geometry of higher dimensions and outlined a two-dimensional earth that was inhabited by ‘flat beings’ (Banchoff 1990). Banchoff (1990) described Abbott’s perspective of flatland by referring to Abbott’s drawing of his own house (a 2D structure) (Figure 1.6):

‘A Square’, which summarizes the social structure of Flatland. A Square’s wife and daughter are drawn as single lines, and, in ascending social order, the male servants, butler, footman and page, are triangles. The owner is A Square, and as each future generation adds a further angle, the Square’s sons are the four pentagons and his two grandsons the two hexagons. The entrance doors to the house are of an appropriate width for the two sexes.”
Fig. 1.4. Map of the Middle Earth. Source: The Fellowship of the Ring, Ace Books. http://www.isildur.com/tolkien/maps/fullmap.gif

Fig. 1.5. Map from the book Really, Miss Henderson. The map provides an overview of the content via this playful graphic drawn by the author. Source: http://www.fulltable.com/VTS/b/bc/bbb/06.jpg
Maps in books can also show nothing at all. The map by Henry Holiday (Figure 1.7) illustrates – nothing at all’ – the blank map referred to in the poem by Lewis Carroll, *The Hunting of the Snark* (1876).

> He had brought a large map representing the sea,  
> Without the least vestige of land:  
> And the crew were much pleased when they found it to be  
> A map they could all understand.  
> “What’s the good of Mercator’s North Poles and Equators,  
> Tropics, Zones, and Meridian Lines?”  
> So the Bellman would cry: and the crew would reply  
> “They are merely conventional signs!  
> Other maps are such shapes, with their islands and capes!  
> But we’ve got our brave Captain to thank”  
> (So the crew would protest) “that he’s bought us the best—  
> A perfect and absolute blank!”

From Lewis Carroll, *The Hunting of the Snark*, Fit the Second (1876).

### 1.2.3 Mapping Literature

As well as maps in Works of Fiction there have been academic studies about the location of settings in books. One excellent example of this type of endeavour is the *Literary Atlas of Europe* prototype, a project funded by the Gebert Rüf Foundation,
Fig. 1.7. Map by Henry Holiday depicting the map noted in Lewis Carroll’s poem The Hunting of the Snark – “A perfect and absolute blank.” Source: http://www.sscnet.ucla.edu/geog/gessler/167-2000/bellmans-map.gif

Fig. 1.8. Map from the Literary Atlas of Europe prototype. Source: https://www.ethlife.ethz.ch/archive_articles/071005_Literaturatlas/literaturatlas-l? hires