

FOUNDATIONS OF GEOGRAPHY

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Summary

This contribution begins with a presentation of the three articles that constitute this part of the geography topic, which are: Main stages of the development, Theory and Methods, and Geographical Education. It continues with the analysis of the basis of the development of modern geographic thought, in which the scientific, institutional, social and political fundamental contexts are presented. It continues with the description of the basis of the geographical approach, what geographers do and what they think. There is a part dedicated to the traditional focus on the study of regions and how it has evolved through the years. The present day diversification of subject matters in geography and the plurality of approaches in modern human geography are also discussed. The text ends with a discussion on the present dilemma in the relationships between physical and human geography and with an overview of the future prospects in the discipline.

1. Introduction

Within these topic level contributions three main articles have been included: Main stages of development (6.14.1.1.), Theory and methods (6.14.1.2.) and Geographical education (6.14.1.3.), which we are summarizing.

The article on Main stages of development provides detailed information on a wide range of historical aspects. As in most scientific subjects, the predecessors of geographical studies can be traced back to the Chinese, Greek and Roman works. During the Middle Ages it is the Muslim and Christian works and travels that give way to very important inputs in geography. In the Early Modern Times it was the development of Astronomy that made possible the writings in Universal Geography.

Modern geography was founded by two German scholars, Humboldt, Ritter, basically putting the basis of the two main branches of geography, the physical one by Humboldt and the Human one by Ritter. After them, the most important impact was due to the theories and writings of Darwin, and to the development of environmental determinism and possibilism. The regional approach was also an important field of the modern geographical thought. Since then, and especially during the first half of the twentieth century, new directions and subjects appeared, and geography became a very vast field of knowledge. In the second half of the century it was the introduction and development of quantitative and technical tools, The present time can be defined as one of diversification and globalisation.

The text on Theory and Methods presents the basic scientific principles that are the base of physical and human geography. In the first case the principles are related to the pure sciences and in the second case in the social sciences. In both cases prevails the systematic approach, which is the study focused on a specific element. The regional approach, on the contrary, aims at studying at the same time the physical and the human environment, the landscape being the result from the interplay of these two forces. Within this approach the study places are selected to emphasize the uniqueness of them. The chapters on methods present the importance of scale in geographical research, which ranges from a plot to a continent and so uses different techniques of approach, such as detailed fieldwork and laboratory work in the first case and remote sensing and GIS in the second place. The scale of investigation influences the systematic framework of the investigation itself. Above all, within the methodology special emphasis is made on field work, the most important method in geography and the one that is shared by both physical and human branches. The structure of field research and field sampling are widely explained, with examples of geographical field research and its importance in teaching.

The article on Geographical education, written by Rod Gerber, deals with the aims, of geographical education and its importance in environmental education, citizenship, curriculum development and pedagogy. Past trends and current trends are discussed. Present trends include problem-based learning, socially-critical approaches and the development of international and intercultural understanding. Teaching and learning strategies and resources are presented, emphasizing the importance of fieldwork in geographical education. The future directions envisaged include: rediscovering geographical education, its relevance for life-long learning, responds to the changing viewpoints through which people have regarded the world. It is believed that geographical education will succeed in its different forms around the world through adopting the role of a “bridge” between the natural and the social sciences and through implementing a series of pedagogic initiatives that will develop in learners, formally and non-formally, the capacity to lead social and community groups in making sensible decisions about people and their use of their environments.

2. Development of Modern Geographic Thought

Further to what has been explained in the chapter 6.14.1.1 about main stages of development of geography, a more detailed focus gives a closer view of the several contexts that have been, and still are, influential in the modern geographic thought.

There are various aspects that influence the present state of geographic thought. One of them is of course the historical background that has been presented elsewhere (6.14.1.1.). But the fact that geography is an academic discipline has meant that it has been influenced by the major intellectual trends. Science and knowledge production are contested activities and there are different ways of thinking and doing it, such as how to conceive a region, how ideas about time and space have changed over time, what is considered to be the nature of science, etc.

2.1. Scientific context

The study of physical and social phenomena implies the use of certain categories of meaning and experience. For example, when we discover a new phenomenon about which we know nothing, usually the only way in which we can describe it is in terms of its similarity or dissimilarity to something we already know. Thus, all new knowledge is understood and interpreted through the lens of past knowledge.

Charles Darwin's ideas had a profound effect upon modern scientific thinking in a wide range of disciplines, including geography. His ideas affected both human and physical geography, particularly with regard to evolution, survival of the fittest and to model building for explaining physical and social processes. Articles by David Stoddart in 1966 on "Darwin's impact on geography" and by Richard Peet in 1985 on "The social origins of environmental determinism", both published in *Annals of the Association of American Geographers* are examples of this fact. Also David Livingstone in 1992 in his book on *The Geographical Tradition: Episodes in the History of a Contested Enterprise* includes a chapter entitled "The geographical experiment: Evolution and the founding of a discipline" in which he deals with Darwin's importance on geographical thought.

An example of how ideas about evolution were introduced in physical geography at the beginning of the 20th century is the work by William Morris Davis, initiated with the article: "The geographical cycle." published in 1899 in the *Geographical Journal*. The cycle is based in a genetic classification of landforms. Although he establishes that the forms of the lands are dependent upon structure, process and time, he considers that time is the one with a most practical value in geographical description. Based on that, he presents an ideal geographical cycle in which landforms evolve sequentially, similarly as the changes found in the organic forms. In this orderly evolution there is an initial *youth* state of rapidly increasing relief, a *maturity* stage of strongest relief and greatest variety of forms, a transition period of slowly decreasing relief, and an indefinitely long *old age* of faint relief. The cycle starts again when uplift events return the relief to a youth state.

In human geography the influence of Darwin was centred on natural selection and on the constraints of the natural environment to the development of societies. This led to a rather deterministic view of struggle for survival, and the relationships between nature and man were the focus of interest and human achievements were explained as consequences of natural conditions. It was believed that natural societies resembled animal organism and that like them were strongly influenced by the natural conditions. Friedrich Ratzel was strongly influenced by these ideas, producing a book in 1882 entitled *Anthropogeography, or Outline of the Influences of Geographical Environment*

upon History. This deterministic point of view is exemplified by the work of Huntington, who wrote a book in 1924 on *The Character of Races as Influenced by Physical Environment, Natural Selection and Historical Development*, with chapters dedicated to "Racial character and natural selection," and "The direct effect of environment on character."

2.2. Institutional context

Johnston considers an academic discipline a miniature society, which has a stratification system, a set of rewards and sanctions, a series of bureaucracies, and a large number of interpersonal conflicts. An outsider may perceive academic work as objective, but many subjective decisions must be taken: what to study and how; whether to publish the results; where to publish them and in what form; what to teach; whether to question the work of others publicly; and so on. As with all human decisions, they are made within the constraints set by the wider society.

The great majorities of academic geographers are teachers in universities or comparable institutions of higher education, and are distinguished from other professional geographers by their commitment to all three of the basic canons of a university: to propagate, preserve and advance knowledge. The advancement of knowledge identifies an academic discipline; the nature of its teaching follows from the nature of its research.

The main publishing outlets for research findings in most disciplines are their scholarly journals, which operate fairly standard procedures for scrutinising submitted contributions. Manuscripts are submitted to the editor, who seeks the advice of qualified academics on the merits of the contribution. Although widely accepted, it has to be taken into account that this procedure is operated by human decision-makers. The opinions of both editor and referees may be biased or partial, so a paper can be rejected by one journal but accepted by another, even without alteration.

Some research results are published in book form by commercial companies whose main interest is marketability among the large student population. The textbook may be innovative in the way that it orders and presents material, and can be beneficial to its author's reputation, but it is not usually a vehicle for demonstrating research ability.

Geographers think the ways they do because of the ways they are taught to think about the world, which in turn arise from overarching views about how the world can be known, what the appropriate ends of knowledge are, and what kinds of people become geographers. Although scientific and humanistic components have long been present in geography, they have coexisted happily for much of the discipline's recent history. Conflict arises from differing beliefs regarding the appropriate uses of geographic knowledge

2.3. Social context

Scientific knowledge is also shaped by the social context within which that knowledge is produced. This suggests that, rather than thinking about the evolution of science and scientific ideas as having their own internal logic, the production of knowledge is a

social act that must be understood contextually. Examples can be found in all phases of the development of geographic thought.

For instance, in the nineteenth century, Friedrich Ratzel in Germany developed a theory of the state on his notion of *Lebensraum*, urging that the character and destiny of a Volk was umbilically tied to a definite area or *Raum*. In the United States the Ratzelian viewpoint was propagated by Ellen Semple who used it to chart the necessitarian course of American history, while Ellsworth Huntington turned to climate as the great mainspring of civilization. In all of these, as in the determinism of Griffith Taylor, the constitutive links between geographical theory and social outlook are clearly displayed. This does not mean that geographical determinism was a social ideology, but serves to remind us that geographical ideas and practices have a social history as well as a cognitive one.

Marxism has also turned to be a significant epistemology that has shaped a great deal of contemporary geographical thought in human geography. David Harvey has discussed this matter extensively, for examples in his articles of 1984 "On the history and present condition of geography: An historical materialist manifesto" published in the *Professional Geographer*, and of 1990 "Between space and time: Reflections on the geographical imagination", published in the *Annals of the Association of American Geographers*

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Biographical Sketch

Maria Sala is Emeritus Professor of Physical Geography at the Department of Physical Geography and Regional Science, University of Barcelona. She created and led the GRAM, Mediterranean Environment Research Group, which is recognized and funded by the University of Barcelona and the Catalan Autonomous Government. Her research interests lie in the fields of fluvial geomorphology, soil erosion and slope hydrology. Work in these fields has mainly been undertaken in the Catalan Coastal Ranges, although by cooperative research she has done work in UK, German Alps, Tunisia, Portugal, Argentina and Mexico. Fundamental research includes environmental problems, mainly increased runoff and flooding as a result of expanding urban land uses and forest fires.

Maria Sala has contributed to several research groups, for example the European Society for soil Conservation (ESSC), where she has served as Vice-President (1988-1992), and the International Geographical Union, where she has been chair of the *Study Group on Erosion and Desertification in Regions of Mediterranean Climate (MED)* (1992-1996), and of the *Commission on Land Degradation and Desertification (COMLAND)* (1996-2000). She has been member of Editorial Board of several International Journals.

Scientific publications include more than 90 articles, 33 at an international level. Chapters in books amount to 19 and co-authored and edited books to 17, the one considered most significant at an international level is Conacher A. & Sala, M. (Eds.) (1998) untitled *Land Degradation in the World's Mediterranean Environments. Nature and Extent, Causes and Solutions*. At a national level the most influential book is the Sala, M. and Batalla, R. *Teoría y métodos en geografía física*, in which the modern approaches to the subject are emphasized.