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Relating physical and human geography

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## AUTHOR'S NOTE

This paper is the result of joint reflections by the two authors. Christian Kesteloot took responsibility for the final draft of the historical part and Lorenzo Bagnoli for the present-day part.

*The authors thank four anonymous reviewers for their tough comments. They helped us to substantially improve our paper, especially by unveiling the multiple readings of its first version and by helping us towards a more humble and inviting message.*

## Introduction

- 1 It is striking to find that influential handbooks in human and physical geography are quite explicit about the importance of the other half of the discipline. When defining the object of physical geography, Strahler, a prominent physical geographer who was a key figure in introducing quantitative approaches in the discipline, states it is about "... understanding the relationship of man to his physical environment. ... Physical geography is a study of the workings of an environment that not only nourishes and stimulates life processes, but also places constraints and limitations upon those

processes. ... man does respond to the forces of the environment, but man in turn acts upon and modifies environmental processes and forms. ... man creates many forms of environmental degradation and pollution” (1975, p. 1)<sup>1</sup>. His short introduction to the matter ends with “As man withdraws, utilizes, and disposes of water and mineral resources, he makes severe impacts upon the natural environment. We shall be interested in assessing the extent of these impacts, the better to understand what must be done to minimize environmental degradation” (1975, p. 2).

- 2 One of the widely used handbooks in human geography has a quite different tone: “Human Geography is ... a social construction. ... Interpretations of the world differ from different vantage points in time and place. Whose human geography, where and when?” (Daniels P. *et al.*, 2008, p. 2). For these authors, “Human geography ... is about explaining how space is configured and shapes economies, societies and social processes” (2008, p. 6). But in the face of the growing environmental issues, they also state that “geography in its broader definition provides an interface between the human and the natural worlds. [It] is a *key* subject for the twenty-first century, in part because many of the challenges that face humanity are at the interface between human societies and natural environments.” (2008, p. 6 (*italics in original text*)).
- 3 Clearly, even if more than 30 years separate the two writings, both physical and human geographers care about the how societies are threatening the capacity of our environment to sustain human life and feel the necessity to take respectively humans and the environment into account. They also use the concept of environment rather than nature for doing so and this emphasize the position of humans in nature and their interactions with it, rather than considering nature as pristine and conceptually separated from humans. But there are also significant differences in the way to approach this. Strahler is considering “man”, not society. This suggests a historical and spatial continuity in the way humans interact with nature. Moreover, this interaction seems independent of the way people interrelate with each other within different societal contexts<sup>2</sup>. Daniels and his colleagues on the other hand insist on the variability of the ways to consider these interrelations up to the point of considering any analysis of it as a social construction, that, hence, can be deconstructed and reconstructed into other ways. And this deeply contrasts with Strahler’s project to understand the human impacts on the environment in order to minimize (and not eliminate ...) environmental degradation and to establish objective and universal knowledge about this issue.
- 4 Nevertheless, the view that human and physical geography form two separated, if not antagonistic worlds, is challenged by this common attention for environmental issues and the understanding that one side of the discipline alone cannot deliver the knowledge needed to address these issues. The problem, however, might be that if both human and physical geographers want to address these issues together, they might be doing it so differently, that they might not even understand each other<sup>3</sup>.
- 5 In the remaining of this paper, we will try to understand the origin and the nature of this divergence through a short historical overview of the relations between human and physical geography. We then look at the recent trends, especially in relation to the current environmental challenges, and discuss how they might contribute to bridging the divide between social and natural sciences that is at the heart of the divide of “geography in its broader definition”.

## A short history of the relations between human and physical geography<sup>4</sup>

### Context

- 6 An overview of how the relations between human and physical geography have changed during the history of academic geography might help to understand the present-day problem of divergence. Before doing so, it is necessary to stress that our intention is not to study the original works of famous geographers in order to distil their views on society-environment relations, but to capture the changing relations between the two subdisciplines. This is a tricky task, as the history of a discipline enables layered readings and even contradictory views<sup>5</sup>. This is even more the case when reading scientific texts and analysing their impact on further work. It is therefore useful to consider some aspects of our own positionality. As a Belgian and an Italian geographer, we focus our study of these relations on European geography, with some emphasis on German and French geography, both very influential in Belgium, the latter in Italy. Some great figures in the history of academic geography, like Davies, Herbertson or McKinder are not treated here, because in our view their contributions to the discipline, how original they may be, did not entail a significant change in the way human and physical geography were combined. Conversely, Anglo-Saxon geography is considered when we feel it introduces a change in these relations. This means that we only consider authors and approaches as far as they changed the relations between human and physical geography during the history of the discipline, in order to see if there is any useful lesson to draw from this history for future cooperation between the two subdisciplines, given the present-day planetary problems. This also entails that we have no intention to deliver a normative reading of this history with the intention to distill what geography ought to be, nor how the relation between physical and human geography should be reconstructed. We just want to clarify if there is any fruitful way of cooperation.

### Why do the relations change?

- 7 Before presenting this overview, we need also to understand why such relations between human and physical geography can change over time. Indeed, since the origins of academic geography in the last quarter of the 19<sup>th</sup> century, the discipline has constantly evolved not only in terms of progress, but also in terms of diversification. There are several reasons for these changes. Like in all sciences, progress is expected to arise from the application of a scientific stance. Most of the geographers embrace the concept of empirical verification and the need to reconsider their explanations if facts contradict their theories. They do this, even if not acquainted with philosophy of sciences, according to Popper's sophisticated falsification principle (Harvey 1969, pp. 36-43)<sup>6</sup>. Hence, change can be related to internal scientific progress that includes both replacing weak theories by better ones and expanding theories and their applications. Another obvious source of change is technological progress and the availability of new data. This data dependence of science is strong enough to define a historical sequence of science paradigms from empirical description based on visual data, over modelling (in the sense of generalization), to computer simulations and eventually, thanks to big

data, explorative science that relies on statistics and data mining and makes abstract theoretical thinking nearly irrelevant (Kitchin, 2014). Moreover, as will be clear in the short history presented below, competition with other disciplines for academic recognition and, later, within the discipline for research money and students and the institutions through which the disciplines are organised, form also a powerful engine of change. However, these sources of scientific change are unable to explain the strong relations between societal changes and scientific changes.

- 8 Three elements strongly link the history of geography to the societal context. First, since geography is studying society and human induced environmental change, changes in society will be reflected in the objects of geography. Themes like globalisation and climate change are recent ones in the discipline, while the study of civilisation was typical in the late 19<sup>th</sup> and early 20<sup>th</sup> century. Second, the function of geography in society changes with broad societal changes (Harvey, 1984), although not at the same speed and with the same intensity in each country. One can find strong relations between colonialism, the welfare state, neoliberalism and some developments in the discipline. Third, geography, like any human endeavour is influenced by what is called the “Zeitgeist” or more precisely the dominant worldview and the language used to express it in the period concerned. Evidently, a Zeitgeist is linked to the relatively stable stages between periods of rapid societal change. Nationalism, modernism, postmodernism, but also the cold war, climate change or resistance to sexism and racism are shaping the Zeitgeist in the periods under study. Even if that Zeitgeist can vary in space and between social classes and if older ones can linger in some places and groups while new ones are coming up, it contributes to strengthen the relations between academic geography and society, making these appearing as natural or at least self-evident.

### **Classic geography: physical geography servicing human geography**

- 9 With this in mind, it is no surprise that academic geography developed in Europe after West-European core nations had explored most places in the world and were involved in the search for new colonies in the last quarter of the 19<sup>th</sup> century. Contemplating the diversity of environments on the planet, due primarily to different climatic and geological conditions and their relations with what was considered as different levels of civilisation, the first academic geographers defined Society-Environment relations as the core field of the discipline and developed environmental determinism (also called physical or geographical determinism) as its theoretical framework. A leading role was played by Friedrich Ratzel in Germany, a new country that needed to establish colonies to sustain its economic development. His thinking on this relation between society and environment, that contains a justification for colonialism, can be summarized as follows. Population pressure forces people to increase their extraction of resources from the environment by increasing their territory and/or developing more efficient uses of that environment. The latter enables higher population densities, which in turn favour further development, or in other words, civilisation. Density is needed to create contacts that help both the creation of new ideas through confrontation of differences, and the transfer and diffusion of culture. This critical density is difficult if not impossible to reach outside the temperate climatic zone, because of a lack of resources in colder and deserts areas or a lack of incentives in tropical areas. This reasoning discloses a teleological view: the environment prescribes what peoples must do. Since

people in some areas can reach civilisation and others not, the civilized ones, that reached the stage of modern states, must bring civilization to the others, who should accept it.

- 10 These ideas were followed and sharpened especially in the US, a country in a similar need of new colonies as Germany, by Ellen Churchill Semple and later by Ellsworth Huntington. The latter rigorously analysed the world distribution of human health and energy by relating it to climatic variables and human physiology (e.g., how does human energy vary with temperature?) and tried to show how this related to the levels of civilisation of the regions of the world (civilisation being interpreted in a very Eurocentric way).
- 11 Other ideas emerged in other places and changed through time. The French geographer Paul Vidal de la Blache is often considered as opposing “possibilism” to environmental determinism. Possibilism expresses the idea that nature does not prescribe societies but offers possibilities among which people chose. Concentrating on the regional rather than the global scale and on the rural areas, Vidal de la Blache conceived that these choices result in delicate balances between regional communities and their environment. This balance is reached through long historical processes and maintained through habits and customs on the one hand and respect of harmonious relations with the environment on the other hand. He also considered that by doing so, territorial communities transformed the environment until that balance with human needs was reached. Interestingly, Vidal de la Blache never opposed Ratzel’s environmental determinism. Indeed, possibilism can be seen as a more detailed and therefore more open and differentiated version of the same idea. But contrary to Ratzel, Vidal de la Blache was defending a conservative position. His focus on the regional scale and its details reflects his aim of protecting the large diversity of the French regions against the standardizing forces of industrialisation and urbanisation. Significantly, he did pay scant attention to cities and industry, considering them as landscapes where the harmonious balance between the environment and human activity had been lost.
- 12 The maverick anarchist Elisée Reclus, whose work has been rediscovered in the 1970s, developed an even more dialectical conception of the society-environment relations. Reclus, a French geographer who travelled a lot and founded the first Institute of Geography in Belgium, as part of a short-lived utopian university in Brussels, stated that natural factors can have a determining influence on human societies, but only in a relative way, and the more social organisation is developed, the weaker this influence. Vandermorten labelled this as dialectical historical determinism (1986). For Reclus, knowledge of the natural world is not seen as the ultimate explanation of differences between societies, but as a necessary basis for enabling people to develop freedom and fraternity through the common mastering of a harmonious environment.
- 13 From environmental determinism, over possibilism to dialectical historical determinism, there is a tendency of increasing weight of the human side in the relation between society and the environment. The scope is not to explain the diversity of environments, but the diversity of humans on the planet. And the latter is basically understood in terms of mastering or balancing the relation with nature<sup>7</sup>, leading in both cases to early ecological awareness. These leading geographers are therefore considered as human geographers. But they would all claim that without an understanding of the natural world, the diversity of social relations on the planet cannot be explained. Hence, physical geography forms the basis on which human

geography can be built. But the goal is human geography. As a subdiscipline within geography, the key auxiliary science of human geography considers the four spheres of the environment (litho-, hydro-, atmo- and biosphere). Climatology and hydrology being parts of physical geography, it needs knowledges from geology and biology, that in turn, like, climatology and hydrology, bear on physics and chemistry. Mathematics, rarely used in sophisticated ways in research, are considered as useful on the curricula, as far as they are needed for projection methods in cartography<sup>8</sup>.

## Geography as a chorological science: physical and human geography servicing regional geography

- 14 This relation will change with the appearance of different forms of regional geography or chorological approaches in the early 20<sup>st</sup> century, a period with rapid advancement in many sciences and efforts to define science itself and its methods. These new approaches in geography share a concern to define geography as a specific science in front of both natural and social scientists doubting that geography could be anything more than the application of their own science to specific areas or places. The German Alfred Hettner defined geography as *Länderkunde* and devoted much attention to methodology. He lay the basis of the classical analysis of world regions that starts with geology and climate, goes through fauna and flora, population distribution, economic activities and political organisation to end with a synthesis considering the interactions and cohesions of these elements within a region. However, the analysis of each of these elements was informed by what he called general geography, in which each element was studied and spatially differentiated at world scale. Nevertheless, the goal of geography (without adjective) was to describe and explain regions at different scales. Therefore, geography was thought as an interplay between differentiation and integration. At first, each element is analysed at world level and differentiated into typical classes (like climate types). This enables to search for large spaces in which these classes of elements show interactions and cohesions. All elements are thus integrated at the level of world regions. In turn these large spaces can be differentiated again in order to construct subspaces in which the integration of the elements can be studied (Harvey, Wardenga, 1998, pp. 134-135). To justify the scientific nature of his *Länderkunde*, Hettner used the classification of sciences into thematic, chronological and chorological sciences, falsely attributed to Kant. History and parts of geology are chronological sciences that study the succession of events in time. Geography is the chorological science and studies space and its multiple differentiations. Hettner was relayed by Hartshorne in the US<sup>9</sup>, who wrote “The nature of geography” (1939), the most sophisticated statement about chorological geography that insisted on the uniqueness of regions and therefore the ‘impossibility of lawful explanations, but the need of descriptions and interpretations. The idiographic nature of geography was set against the nomothetic one of systematic sciences (which might include general geography in Hettner’s sense).
- 15 The other way to define geography as an individual science was through its specific object, even if this remains very close to Hettner’s methodological approach. This way was opened, among others, by Paul Michotte, a Belgian geographer who played a key role in establishing geography as a discipline in the Belgian universities and became Secretary-General of the IGU. Geography was differentiated from other sciences by its unique object, the study of landscapes, and more precisely the material, observable and

hence objectifiable elements in landscapes (1921). Michotte insisted on the fact that the study of the distribution of plants on the earth surface is not geography, but geographical botany. Phytogeography should focus on how space is differentiated by the species, not on the distribution of the species themselves. Hence botany becomes an auxiliary science of geography. Similarly, geomorphology, zoology, climatology, economy, sociology etc. especially when they consider the spatial distribution of their study objects, are auxiliary sciences of geography. As soon as these objects are used to differentiate the surface of the globe, the study becomes geographical and gives rise to special geographies if they consider a single set of study objects, regional geography if they consider their combinations expressed in landscapes. A close variant of this approach appeared with Carl Sauer's cultural geography. Like the other regional geographers, but in a more explicit way, Sauer reversed the relation between environment and society established by the earlier environmental determinists, by studying the impact of people on the environment. In his view, geographers should study culture areas in which the natural landscape was transformed into a cultural landscape. That cultural landscape will bear the traces of several people that succeeded each other (or dominated others) in the history of the area. Sauer was thus reintroducing historical and ecological perspectives in regional geography, but nevertheless geography remains a chorological science.

- 16 Despite their differences, all these approaches were characterised by a strong interweaving of physical and human geography, embodied in the figure of the geographer as a researcher mastering both the natural and societal dimensions of the field. The regional geographer is a synthesiser. He brings all relevant information together and combines it in a vivid description that characterises and interprets the uniqueness of a landscape or a region. Interpretation here, is not about unveiling the meaning of things by relating them to theories, to other things or to abstract ideas, but reconstructing the genesis of a particular situation. To do so, both human and physical geography appear as auxiliary subdisciplines for geography. And therefore, regional geographers also show their knowledge in both subdisciplines, often publishing in both physical and human geography.
- 17 But all these efforts to delineate method and object of geography, be it as the study of the society-environment relations or of regions and landscapes, have also increased its idiographic character. Geography became about the understanding of the unique nature of places and areas. And by doing so, it is moving away from the study of commonalities and regularities, one of the ways to search for laws with which reality can be explained and sometimes also predicted. In other words, all the painstaking efforts to define geography as a science in itself – rather than an application of other sciences to regions, resulted for sure in a certain unity of geography, but at the same time in moving it out of the common project of sciences, by focusing on uniqueness rather than regularities and by not producing theories.

### Theoretical and quantitative geography and the growing divide

- 18 This was deeply felt by geographers in the allied forces during WWII, where they collaborated with other scientists to sustain the war efforts. Barnes and Farish (2008) vividly explain how, between physicists who developed the A-bomb, economists that invented cost-benefit analysis and Operations Research to decide about the best military strategies, and meteorologist forecasting weather conditions, geographers



remained in the world of description of the enemy terrain and the habits of their inhabitants, without any theories for doing so and often with deficiencies regarding the need of efficient work in wartime. Barnes and Farish (2008, pp. 816-817) summarize these deficiencies as follows: "... they had been previously directed toward a conception of region that emphasized areal differentiation over systematic approaches, description over explanation, typology over theory, words over numbers, insularity over openness, and broad eclecticism over narrow instrumentalism". The key to success of the other sciences was modelling and therefore also quantifying reality. This need for sciences to solve technical and social problems not only continued under the Cold War but became also crucial to sustain economic growth during the postwar accumulation regime. The old regional geography appeared more and more as useless.

- 19 After WWII, young geographers in the US and later in the UK eagerly embraced theoretical and quantitative geography, searching for theories rather than celebrating the uniqueness of regions. This revolution gradually penetrated research and education in other countries and hit both human and physical geography. At first sight the common epistemological stance could strengthen the links between physical and human geography. This was exemplified by the collaboration of the "terrible twins" of British geography, Chorley and Haggett. *Progress in Geography* was published as a common journal until it was split in 1977 for reasons of space and balance between both subdiscipline, and *Geographical Analysis*, the flagship journal of theoretical and quantitative geography, continuously publishes papers by physical geographers, albeit sporadically<sup>10</sup>.
- 20 However, the common epistemology and methodology also has dividing effects. Indeed, the analytical empirical approach systematically increases specialisms, each of them striving for its own legitimation<sup>11</sup>. Searching for regularities in the empirical realm, as a source of theory building is impossible without constantly dividing that reality into small parcels so that univocal relations can be discovered. This is the way the theoretical and quantitative revolution slowly broke down the unity of geography. Ideally, the search for regularities happens in experiments, which are precisely ways to exclude as perfectly as possible external influences on the relation between two elements of reality, by keeping these external influences constant. In most cases, this cannot be done in the "real" world, but needs to be done in a lab, a place that can be defined as sheltered from these external influences (and the white coat of the researcher is a symbol of this purity). The lab is filled with specific instruments. Their purpose is not only that of measuring, but also that of creating and controlling a situation in which all the other possible influences are stable. In geography, this has been applied close to perfection in experimental geomorphology.
- 21 Logically, this analytical empirical approach also entails the problem of dividing reality into relevant parcels that are subject to a single relation with another one. For doing so, theories, or at least hypotheses are needed. They deliver the abstract concepts to which the parcels of reality should be related. This is relatively obvious in physical geography, as the abstractions to which these parcels refer have been defined by physics, chemistry and biology (from mass and energy to atoms, species and genes). But this can be much more problematic in human geography. Concepts like society, cities, mobility and even more specific ones like fallow land or ethnic enclaves, are mere generalisations but not abstractions, in the sense that they do not refer to theoretical entities. The state and dynamics of these parcels of reality respond to many different

factors, making the discovery of their relationship with theory and their explanation nearly impossible. They are in other words, theoretically chaotic<sup>12</sup>.

- 22 For human geographers adopting the theoretical and quantitative approach, simplification was too often the way out of this chaos created by generalisation. Homogeneous plains, absolute space and relative space (in contrast to relational space), a-historical time and the Homo oeconomicus, completely stripped of his/her historical conditions, were the key simplifications introduced to model a too complex reality.
- 23 Despite their promises of scientific rigour and academic prestige, and their common use in physical and human geography, theoretical and quantitative approaches eliminated the consideration of relations between society and environment. It demoted regional geography to an old-fashioned art and sealed the divide between human and physical geography.
- 24 This theoretical and quantitative approach is still practiced and sometimes even very much connected with operations research, giving it an applied nature focused on decision-making and hence, departing from the orientation towards explanation and theory-building that is expected from science. No wonder that the further developments in human geography took distance from this neopositivist approach. Humanistic geography, radical geography, the revival of political and cultural geography, the cultural turn, new regional geography among others, have, by developing a postpositivist stance, further moved human geography away from physical geography.

### Critiques on positivism: an opportunity to meet again?

- 25 The next changes in geography with a significant impact on the relation between human and physical geography resulted from philosophical and cultural attacks on modernism in general and positivism in science. They essentially brought an ontological turn in geography<sup>13</sup>. These movements introduced the idea that we cannot capture an immanent reality outside the human world. All our knowledge is constructed, not given by nature. Our languages, even if they constantly evolve, set the limits of what we can know. This finding gave rise to consideration to the power of language, more precisely to deconstructing the power relations between people and between humans and non-humans created by the use of language<sup>14</sup>. The separation of the social and the natural has been identified as such a power, hidden in commonly used and accepted language, and at the basis of the separate existence of human and physical geography. The reaction to this power is the introduction of hybridity (Driessen, 2017). Dualisms like nature/society, human/non-human, subject/object, on which modernity is based, are broken down and reality is seen as a messy entanglement in which these categories cannot be neatly separated.
- 26 Another critical consequence of the impossibility to know an immanent reality is that researchers cannot place themselves outside the reality they study. The logical consequence is that the fact of studying reality is also a part of reality. In other words, it becomes impossible to perform research without affecting reality. A classical methodological example in physical geography is the fact that introducing a device to measure stream speed in a river channel affects that very speed; in human geography the fact that the characteristics of an interviewer and the wording of his/her questions influence the responses of interviewees. In such circumstances, objectivity, when

understood as reflecting the inherent reality in a way that is independent from the researcher and thus enabling straightforward replicability and verification, becomes an impossible goal. Instead, scientists can only strive to honestly consider all facts and arguments that run against their research findings and theories. They should also be explicit about the perspective from which they consider reality and how this might affect their work. Explaining one's positionality is precisely about how one's identity may influence the way one looks at reality and how the same identity may influence reality itself. This calls for reflexivity and for political consciousness. By changing the way the world is seen and named or by enabling changes in the non-human world, scientists affect other people directly or indirectly, be it through ways of understanding and acting in reality and/or by enabling technological developments. Science is therefore a matter of public concern. Science implies an unescapable political dimension<sup>15</sup>.

- 27 This might be obvious for qualitative research in social sciences and lots of research in social geography, but much less in physical geography<sup>16</sup>. The critiques on positivism have only marginally affected physical geography, for several reasons, among which a poor interest in philosophy of sciences and an emphasis on procedures in scientific practice (Rhoads & Thorn, 1996). There is also a firm belief in objectivity as a necessary condition for producing scientific knowledge and even an easy conflation of objectivity and neutrality, that excludes any consideration of positionality, even if the produced knowledge becomes normative. Turning back to Strahler's conception of "man" as impacting the environment, one has to recognize that Strahler's "man" is a social construction that obfuscates society and its conflicts. And this is a very political position, ironically because it denies politics.
- 28 However, there is a recent, slowly growing questioning of the positivist ontology and epistemology in physical geography. Olav Slaymaker, a leading geomorphologist, recently stated: "Physical geographers' commitment to positivist philosophy and impassionate research has muzzled our concerns for the evident injustices that exist, for example, in relation to ownership of land and the power to profit from the misuse of land" (2017, p. 70). Obviously, this opens a field of geographical research praxis in which physical and human geographers can collaborate.
- 29 This might create a completely new situation in the relation between both subdisciplines. Indeed, the short overview presented above, shows in fact that there has never been a unity of physical and human geography in the past, at least in the form that is strived for today to justify the relevance of geography in coping with the present problems faced by humanity. Classical geography was human geography and physical geography was a subordinated to it. In the chorological approaches of regional geography, both human and physical geography are only subdisciplines and their encounter is not realized by collaborations between human and physical geographers, but in the minds of the regional geographers themselves. Such an encounter would be impossible today, given the immense amount of knowledge that needs to be mastered. Theoretical and quantitative geography eliminated the consideration of relations between society and environment, even if human and physical geography within this approach shared a common epistemology and quantitative methodologies. The latter signals the difficulties to bridge the present divide on the basis of common uses of maps and GIS.<sup>17</sup> And all postpositivist developments in human geography have increased the gap between both subdisciplines. But the fact that the limits of positivism start to be

recognized in physical geography opens the way to collaboration for addressing the pressing problems affecting our planet today.

## Present-day relations

### New subjects and new objects in 21<sup>st</sup> century's geography

- 30 At the dawn of the 21<sup>st</sup> century, it was clear that geography had entered, like many other sciences, the way of hyper-specialisation. What was unifying the different branches and sub-branches of both human and physical geography sometimes seemed to be just the fact that their names were composed with that of “geography” followed by a specification, often nothing more than this. Even the core idea that for centuries has been regarded as constitutive of the discipline – that is the interaction between the physical and the human spheres – was sometimes no more taken into consideration. The geographers often seemed to prefer the definition of geography simply as the spatial science, or even did not even think about the foundations of their discipline. Very famous and shared became the definition of geography as “what geographers do” – wide repeated and sometimes traced back to Peter Haggett (1990) – but it soon demonstrated all its limits. For example, when, in 2014, the Association of Italian Teachers of Geography ([www.aiig.it](http://www.aiig.it)) clearly stated also that “geografo è chi il geografo fa” [a geographer is someone acting as a geographer], it was evident that the question of what geography is had entered a loop from where it can be very difficult to get out.
- 31 Nonetheless, during the two last decades, the contemporary reality has produced many stimuli for geographers to look again for the peculiarity of their discipline and to find it right to engage in a renewed discovery of the interactions of physical and human aspects. These stimuli can be recapitulated into two groups, one internal of the academy and one external.
- 32 About the first, there is mainly the decrease of the importance of geography, and consequently of the geographers, in the universities of many countries. The situation, echoing the difficulties of the discipline to be accepted in academia before WWII, is very different from place to place, but a crisis in geographic didactics, often in favour of other “sister” disciplines – such as sociology, anthropology, geology, or earth's sciences – is undoubtedly general at least in Europe. This caused the decline of many departments (e.g., in the UK: Hall *et al.*, 2015), or students (e.g., in Belgium: Vandermotten, Kesteloot, 2012), or courses (e.g., in Italy: De Vecchis, 2020) in Geography. Gathering physical and human geography is thought to be a good solution to strengthen the discipline.
- 33 About the external stimuli, many problems of what some call the Anthropocene are offering the scientific community opportunities to realise that geography without adjectives is a science able to face them with an original and effective approach, like no other one can do, exactly because of its position between human and natural sciences. Geographers are demonstrating all their skills in leading very serious research on extreme events, governance of catastrophes, climate change, environmental refugees, social resilience, global tourism, parks and geoparks, geomorphology and heritage, physical historical cartography, water as resource or danger, global pandemic, etc. On the one hand, this can happen because they finally realize that the limit between what is attributable to human society and what to natural environment has become too weak

and therefore a strong divide between the human and the physical approaches is no more advisable (Cornut, Swyngedouw, 2000; Whatmore, 2014; Taylor, O’Keefe, 2021). On the other hand, this can be fruitful for both physical and human geographers because, finding ways to overcome ontological and epistemological differences, they can enrich each other and occupy a good place among the scientists giving service to the society (Harrison *et al.*, 2006).

- 34 This important change of perspective does not only affect applied geography but also more speculative research in perception and representation of the geographical reality. Under the influence of postmodernism and beyond it, nature is in fact no more considered only as a mere pre-existent resource to be exploited by the human society like in the modern Marxist approach (Smith, 1990), but also as a category of the human imagination and so a part of culture (Schmidt di Friedberg, 2004)<sup>18</sup>. Even if the dichotomy between human being (or, better, human society) and nature is still present in this approach, the relation between both is now interpreted like viewer and view, rather than like worker and resource (Farinelli, 2003, 2009).
- 35 But the influence of postmodernism is reaching further and creates attempt to completely overcome the dichotomy. Among them, a total new style in making geography, the more-than-human geography (Lorimer, 2007), has characterised some interesting works which are trying not only to suggest a new place into the discipline for the living world beyond-the-human, but also to consider hybrid forms of life (Whatmore, 2002). “New animal geographies” have in fact completely undermined the dichotomy natural environment and human society, and caused a complete rethinking of the geographical approach, strictly related with post-humanism. According to this approach, the life worlds of humans and non-humans are enmeshed and co-constituted, and often animals are considered persons like humans, in the sense of recognizing animal subjectivity (Emel *et al.*, 2002).
- 36 Agency is also attributed to other forms of life and even to non-living material and immaterial things. The non-modernist philosopher and sociologist Bruno Latour (1991) has had a big influence on this approach. Latour himself, with the sociologist Michel Callon and the anthropologist John Law, proposed the famous actor-network theory (ANT), the cornerstone of which is that every social fact is the result of a network of social actors among which there are human and non-human “actants”, all on the same level. According to the principle of generalized symmetry, in ANT the same vocabulary is used for both human actors and non-human, even immaterial objects. In that way, the human exceptionalism is completely overstepped, and every model separating human being and nature is reduced to a false intellectual construct.
- 37 All geographers do not readily accept this approach; on the contrary, it is sometimes criticized. For instance, the current president of the Parisian *Société de Géographie* Jean-Robert Pitte, according to the Catholic tradition (Bagnoli, 2020), maintains a strong dichotomy between human beings on the one hand and natural environment on the other. Moreover, he defends the idea that the latter must be intended as “au service de l’homme” (“serving man”) (2020, p. 295), even if he drastically refuses any despotic anthropocentrism.
- 38 Nonetheless, it is true that the dichotomy between the two traditional spheres of human society and natural environment is considered much weaker than in the recent past. For this reason, both human and physical geographers have tried to find softer solutions to overcome it in their research. Calls appear for a “cultural turn” in physical

geography (Thornes, MacGregor, 2003) and for an “environmental turn” in human geography (Demeritt, 2009). In that way, the two subdisciplines have often met halfway without giving up their specificity, but rediscovering what they have in common, and so made a long step forward.

## Food for thought

- 39 We will now reflect upon some recent, original noteworthy ideas that can be taken as further food for thought: the representational aspect of science, the recent success of political ecology, the critical methodological approach, the role of (academic) teaching, and the opportunities offered by cartography.
- 40 Firstly, we can take into consideration Tadaki *et al.* (2012) who assert that several physical geographers have taken the “cultural turn”, engaging more fully with human elements of environmental change (and – we add – several human geographers an “environmental turn” with natural elements of social change). But they show that there is another, even more important way to take that “turn”. Physical geographers should reflect – like human geographers seem to have already done about their subdiscipline – on the fact that their discipline has always been cultural, “as the practitioners and institutions of physical geography provide a signifying system through which order is communicated, reproduced, experienced, and explored” (p. 550). This consideration comes close to the social constructivist ontology. It helps to clearly realise that human and physical geography have both in common the fact that they are descriptions, representations, or narratives of the reality. This leaves us with a lot to think about and opens very interesting further research avenues.
- 41 Among perhaps the most successful applied attempts demonstrating that a connection between the two main branches of our discipline is possible, there is the research recently developed by the geographers committed with political ecology. At a first glance, this can clearly appear just realising how the two parts of its name – both definitely referring to human actors the former, and to non-human ones the latter (Sundberg, 2011) – are fundamentally connected. More deeply, starting from the point that “all socio-political projects are seen as ecological and vice versa” (Harvey, 1996, p. 174), political ecology has come to consist nowadays in a body of studies emphasising interesting questions about power and positionality of our inhabited world in a special way. In order to stress the pivotal importance of these issues in political ecology, Robbins (2004) proceeds with an interesting *a contrario* reasoning, stating that what can be called an “apolitical” ecology is the one ignoring not only power relations, but also policy structures and market economy. Intended in this way, political ecology certainly comes very close to political geography and geopolitics.
- 42 Linked with this issue, there is the position of Rebecca Lave (2014). Like most political ecologists related to geography, this author is not coming from physical, but from human geography – like David Demeritt (who is however less convinced that a deep integration between the two subdisciplines is desirable)<sup>19</sup>. As a key protagonist of critical physical geography, Lave insists on the fact that, instead of *calling* again for integrated work, it is time that the researchers *do* it, “demonstrating the scientific and political utility of integrating critical human and physical geography in practice” (2015, p. 571). What can integrate the two branches – according to Lave and her collaborators – can be therefore the critical approach towards which both of them have

to point. Many geographers consider themselves as critical if they check the accuracy and the coherence of their work. Others might be critical of theories in a Popperian sense. But here, critical means considering the political dimension of their work and the relations between science and society, and this is as well a very good point of consideration.

- 43 Moreover, interesting thoughts about our topic have recently been developed as well in the field of higher education. A webinar on “Teaching about the environment at the nexus of human and physical geography” was organised on September 4<sup>th</sup>, 2020 by the geographers of the University of Exeter at the Royal Geographical Society ([www.rgs.org](http://www.rgs.org)). The aim of this event was to discuss opportunities and challenges in creating inter-disciplinary – between physical and human geographies – modules on environmental geography in university courses in geographical science. During the event, the most discussed topics were if environmental geography had to become a “third pillar” between human and physical geography or could stay in between of the two branches, and the opportunities and the risks not only for the students but also for the staff (and their career, which is also a not-negligible problem in nowadays discussion). Whatever answer one can give, the fact remains that school and university confirm in any case their role as a privileged forum for the meeting of geography and geographers of each branch.
- 44 Finally, on the *Journal of Maps* a special issue on “Geomorphological Mapping in Urban Areas” has recently been published (Brandolini *et al.*, 2021). The papers published on it are addressed, through a wise and careful use of the maps, at highlighting the former topographic features that drove the choice of settlement and subsequent urban development, and at evaluating the impacts of human intervention on geomorphological processes and landforms. This research, clearly at the cross of physical and human geography, show how cartography, peculiar instrument for both physical and human geographers, can also be an original topic where they can possibly meet, even if this common methodology cannot be the crux in bridging the divide. It is nonetheless necessary that present-day geographers generally improve their mapping skills, which are relatively low, and that they focus a deeper attention for spatial patterns. It is also important that GIS cease to be intended as a technical specialisation, but rightly a shared tool, able to study the geographical reality critically (e.g., the deforestation in developing countries, or the protection of farmland against urbanisation, and so on).

### A new regional geography?

- 45 Looking back at the history of the relations between human and physical geography, there is also one element from the past that might be revived. The chorological tradition might deserve a new birth to make people aware of the way global problems express themselves in their causes and their effects in a differentiated way at continental, national, regional and local scales. Regional geography, in that sense, could become a strong instrument to impose awareness and responsibility of differentiated global effects of human, localized activities.
- 46 Especially proponents of the chorological approach, like Hartshorne, have insisted on the fact that the term ‘natural landscape’ has no meaning and that “nature” and “human being” are container concepts that should not be opposed as such (Saey, 2016).

Hettner, Michotte and Hartshorne have also argued that regions are not pre-existing natural entities that must be discovered by geographers, but that they are created by the researchers according to their interest (Harvey & Wardenga, 1998), something that echoes with the need for reflexivity and positionality. There is in fact no such thing as a natural region; regions only exist as areas in which different features, defined by researchers, combine in a specific way. These features may be related to many dimensions, like the physical environment, population characteristics, activities, political systems and ideologies and all sorts of combinations between them. Already Vidal de la Blache, later proponents of the chorological approach and recently those defending the new regional geography, have all asserted that such regions bear the influence of internal and external forces (Holmén 1995). But the latter are overwhelmingly considered as unidirectional and vertical. All the issues mentioned above are strong potential avenues to bridge the divide, but they often seem to lack to a certain extent this chorological tradition. Now might come the time to regionalise the world according to the local effects of global problems and the local potentialities to address these global problems (see also Dietz, Den Hertog & Van der Wusten (2008) and Taylor & O’Keefe (2021)). The point is not anymore to identify the unique nature of regions under study, based on their internal relationality, but by stressing their external relationality, both horizontally (with other regions) and vertically (with larger geographical and social entities) and dialectically (in both directions). In other words, it is about making chorology political: interrelating regions and their class and power structures to the other regions in the world and stressing who, under which power structure, is contributing or is being the victim of what global problem and how to get out of these problems.

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## NOTES

1. In more recent handbooks, gender neutrality is respected by using the word "humans" instead of "man".
2. However, whenever the plural word "humans" is used (unfortunately not in "human-environment interactions"), one can, less explicitly, convey that humans live in societies that frame their relations with each other and with the environment and that these societies are diverse in space and in historical time.
3. See also the recent paper by Taylor and O'Keefe (2021) that shortly describes this history in terms of a shift from a field of study (connecting subjects) to disciplines (specialized) and advocate a return to a field of study to address the climate emergency.
4. This section is mainly based on the accounts of Saey (1990), de Pater & van der Wusten (1996) and Castree (2005). However, none of these authors is specifically considering the relations between human and physical geography. Castree comes close to it, with his sophisticated analysis of the treatment of nature in geography.
5. A strong example of this is the recent work by Stogiannos (2019) who rejects the idea that Ratzel was an environmental determinist on the basis that he also contemplated political, economic and ethnographic phenomena besides the territorial one to explain geopolitical relations.
6. This principle is meant to circumvent the induction problem: it is impossible to make sure that a theory is true simply by accumulating empirical proofs, because it is impossible to verify *all* instances of a universal truth. Popper's solution is to replace verification by falsification: efforts should be directed at showing that theories are false. In that case they should be replaced by better theories.
7. There is, however, a crucial difference in this conception between environmental determinism and possibilism on the one hand and dialectical historical determinism on the other hand: for Reclus social classes (in the Marxist sense of the concept, i.e., differences in terms of ownership of means of production) are crucial to understand access to natural resources and distribution of the product of labour, while for the others social classes are irrelevant to the problem (Kesteloot, Saey, 1986).
8. The special issue of the *Revue Belge de Géographie* devoted to Reclus publishes the course program he prepared for a three years Geography degree in his Institute of Geography in 1895. This neatly confirms this view (1986, pp. 63-65).

9. Although see Harvey & Wardenga (2006) for another example of reading a different layer in Hartshorne work.
10. See also Emiliano Tolusso's contribution in this issue.
11. Roads (2004, p. 749) laments on this within physical geography, but is unaware of the fact that the same process happened in human geography, thus also resulting in greater intellectual distance between both subdisciplines.
12. See Sayer (1979) on this problem in urban economics. This may explain why Walter Christaller conceptualized central places rather than cities in his theory. Concepts like precipitation, mountains or forest are comparable chaotic concepts in physical geography.
13. For a broader account of the recent changes in geography, see the Belgeo special issue 2003-2 on "Geographical marks at the dawn of the 21st century".
14. The most influential progress in this comes from feminist and postcolonial geography.
15. See also the concept of "situated knowledge" developed by Donna Haraway (1988).
16. See Mertens in this issue for a strong example of how this problem also arises in physical geography research.
17. Many completely different disciplines might share common methodologies without anyone claiming their unification on that ground. Nobody would claim the unification of pharmaceutical research and quantitative sociology or empirical psychology because they share similar sampling and testing methodologies.
18. For instance, the famous European Landscape Convention, adopted by the Council of Europe exactly in 2000, is particularly significant concerning that point. It conjugates in fact the traditional definition of landscape as an area the character of which results from the interaction of physical and human factors, and the new one insisting on its perception by the population (Raffestin, 2005).
19. Which is not to say that some physical geographers do not participate to the movement, see e.g., Slaymaker (2017), as well as other contributors the special issue of *The Canadian Geographer/Le Géographe Canadien*, 2017-1.
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## ABSTRACTS

A short overview of the history of academic geography since the 19<sup>th</sup> century shows that there has never been a unity of physical and human geography in the past, at least in the form that is strived for today to justify the relevance of geography in coping with the present problems faced by humanity. But the fact that the limits of positivism start to be recognized in physical geography opens a way to collaboration for addressing the pressing problems affecting our planet today.

The paper ends with some examples of how such a collaboration might look like and advocates greater attention to a political chorological approach, concentrating on the diversity of regions in the world, by taking both their internal and external relationships in terms of power structures into account.

Een kort overzicht van de geschiedenis van de academische geografie sinds de 19e eeuw leert dat er in het verleden nooit sprake is geweest van een eenheid tussen fysische en sociale geografie, althans niet in de vorm die vandaag wordt nagestreefd om de relevantie van de geografie te

rechtvaardigen bij het aanpakken van de problemen waarmee de mensheid vandaag wordt geconfronteerd. Maar het feit dat men in de fysische geografie de grenzen van het positivisme begint te erkennen, opent de weg naar samenwerking om de dringende problemen aan te pakken waarmee onze planeet vandaag te kampen heeft.

Het artikel eindigt met enkele voorbeelden van hoe zo'n samenwerking eruit zou kunnen zien en pleit voor meer aandacht voor een politiek-chorologische benadering, die zich concentreert op de diversiteit van streken in de wereld, door rekening te houden met zowel hun interne als externe relaties in termen van machtsstructuren.

Un bref aperçu de l'histoire de la géographie académique depuis le XIX<sup>e</sup> siècle montre qu'il n'y a jamais eu d'unité entre la géographie physique et la géographie humaine dans le passé, du moins sous la forme nécessaire aujourd'hui pour justifier la pertinence de la géographie face aux problèmes actuels de l'humanité. Mais le fait que les limites du positivisme commencent à être reconnues en géographie physique ouvre une voie à la collaboration pour aborder les problèmes urgents qui affectent notre planète aujourd'hui.

L'article se termine par quelques exemples de ce à quoi pourrait ressembler une telle collaboration et préconise d'accorder une plus grande attention à une approche chorologique politique, en se concentrant sur la diversité des régions dans le monde et en tenant compte de leurs relations internes et externes en termes de structures de pouvoir.

Una breve rassegna della storia della geografia accademica a partire dal XIX secolo mostra che in passato non c'è mai stata un'unità tra geografia fisica e geografia umana, almeno nella forma oggi necessaria per giustificare l'attinenza della geografia ai problemi attuali dell'umanità. Tuttavia, il fatto che la geografia fisica stia cominciando a riconoscere i limiti del positivismo apre la strada alla collaborazione per affrontare le questioni urgenti che affliggono oggi il nostro pianeta.

L'articolo si conclude con alcuni esempi di come potrebbe essere tale collaborazione e raccomanda di prestare maggiore attenzione a un approccio regionale politico, concentrandosi sulla diversità delle regioni nel mondo e tenendo conto delle loro interrelazioni, interne ed esterne, in termini di strutture di potere.

## INDEX

**Trefwoorden** sociale geografie, fysische geografie, chorologie, postpositivisme

**Parole chiave:** geografia umana, geografia fisica, corologia, post-positivismo

**Keywords:** human geography, physical geography, chorology, postpositivism

**Mots-clés:** géographie humaine, géographie physique, chorologie, postpositivisme

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