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## Building “Carto-Didactic Africa”: Cartography and Analysis of Boundaries and Divisions

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### Abstract

The purpose of this work is to illustrate the didactic usefulness of the Congo-Nile Divide. The cartographic analysis (at the appropriate scale) of some important geographical objects allows to analyze the action of unification of the territory, action carried out by the objects themselves. This action, in fact, even when it seems to divide, generates a connecting hinge (as in the case of the Congo River, that partially marks the border between the two States of the same name). Inspired by Buache river basin theory, we could, therefore, propose a theory of unifying river basins.

**Keywords:** *Cartography, Human geography, Didactics of human geography, Africa*

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## 1. Introduction

### 1.1. Preamble

Teaching Human Geography, in Italy, involves a long series of clarifications to be made and an equally long series of nodes to be solved.

It could be assumed that these clarifications and these nodes are fewer in university teaching, but this is not the case. In fact, university students come from a cycle of studies in which Human Geography is at least neglected, if not totally ignored. Here we are talking about the case of Italy and the personal case history of the writer, but, in different ways and quantities, the problem is found in many other States; for example, in the USA, where Human Geography is particularly “fashionable”, also thanks to the foresight of some American Colleagues who contributed to the spread of the large container “Five themes of Geography”.<sup>1</sup> In this sense, the words of a late Professor of

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<sup>1</sup> “The 5 themes of geography are location, place, human, movement, and regions. These themes provide an educational resource for teachers to categorize and summarize geography. The five themes were initially approved and included in curriculums in 1984 by the Association of American Geographers. The association saw these main tenants of geography as a way to provide best practices to teachers in their classrooms. Today, most geography classrooms have in fact adopted the 5 themes of geography as published in the

Geography at Michigan State University are significant: “[...] the decisions are made by elected representatives in government. And then the question becomes: how well informed are they? The answer is not encouraging. Listen to the commentaries by members of the United States Congress on those Sunday-morning television talk shows, and you often cringe at what you hear. True, our representatives have to deal with many and diverse issues, but it’s obvious that, when it comes to the wider world, their knowledge is often fragmentary. [...] In truth, geography itself has gone through several transformations in recent times. When I was a high-school student, learning to name countries and cities, ranges and rivers, was an end in itself. Making the connections that give geography its special place among the sciences was not on the agenda. By the time I go to college, geography (in Europe and America at least) had become more scientific, even mathematical. During my teaching career it became more technological, and not for nothing does the now-common acronym GIS stand for Geographic Information Systems. Today geography has numerous dimensions, but it remains a great way to comprehend our complex world.” (de Blij, 2012, *passim*).<sup>2</sup>

In this study, we will continue, therefore, for nodes to be solved and clarifications to be made.

## 2. The First Node: Scale and Cartography

Actually, in the translation of cartographic language, Italian teachers find much more than a node to solve, especially in relation to the basic notion of cartography: cartographic representation. The writer has already made her own considerations on this (Candura, 2018), but, briefly, the lexical question can be summarized. In the translation from Italian to English, the term “map” (of Latin derivation) is often translated as “*mappa*”, which, however, in Italian, has a different meaning, since it indicates a specific cartographic representation, with very large scale, of a small portion of the territory. As you can imagine, a series of problems ensue; it is not legitimate to think of solving these problems by simply choosing English as the language to be used universally for teaching. Furthermore, the question can be extended to other linguistic reflections: “Definitions of the word “map” are often discussed in a philosophical spirit, but they have not been previously used as a way of throwing light on cartographic history. In this study, a sample of more than three hundred such definitions has been collected from dictionaries, encyclopedias, geographical texts, and other writings of various dates from the mid-seventeenth century to the present day. The results clearly deserve statistical and historical analysis, and several examples of such analysis are offered for consideration. The most common lexicographical approach is to treat maps as representations of the surface of the earth, but for many writers this simple formula has been too general and too crude. Of the alternative definitions, few seem conformable to common usage. Instead, they reflect changing intellectual fashions among geographers and, in more recent times, cartographers. In these cases where greater lexicographical refinement is attempted, a number of motifs can be seen to emerge, those chosen for discussion being, in historical order, scientific, popular, professional, and philosophical”; the study continues with the analysis of 321 definitions of the word “map”: “drawn from dictionaries, glossaries, encyclopedias, textbooks, monographs, and learned journals of the period 1649-1996.” (Andrews, 1996, *passim*).

Add, as a golden rule for the teaching of Human Geography, the fundamental concept of SCALE of observation, apparently simple, but nevertheless very important, especially in the part relating to trans-scalarly (Landini, 1999), therefore to the intellectual dynamics of cartographic analysis; flanked by trans-scalarly, trans-temporality is fundamental, as we will see, at the end of this reflection, regarding Tamanrasset (Skonieczny et al., 2015).

## 3. For a Culture of Multiplicity: Try to Establish “Didactic Procedures”

Another clarification concerns what we will call “didactic procedures”.

In 1931, *sub voce* CONTINENTE (continent) of the prestigious Treccani encyclopedia, the illustrious Italian geographer Roberto Almagià wrote that CONTINENT is how the largest emerged land complexes are designated,

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NCGE/AAG publication titled Guidelines for Geographic Education, Elementary, and Schools. The guidelines are no longer in print; however, they have been republished several times with updated content and can be accessed from most major libraries.” (sciencetrends.com/5-themes-geography/). See also de Blij (2012).

<sup>2</sup> “Harm de Blij (1935-2014) was a famous geographer known for his studies in regional, geopolitical and environmental Geography. He was an author of dozens of books, a professor of Geography and he was the Geography Editor for ABC’s Good Morning America, from 1990 to 1996. Following his stint at ABC, de Blij joined NBC News as a Geography Analyst. De Blij died following a battle with cancer on March 25, 2014, at the age of 78. De Blij was born in the Netherlands and, according to Michigan State University’s Department of Geography, he obtained his Geography education all over the world. His early education took place in Europe, while his undergraduate education was completed in Africa and his Ph.D. work was done in the United States, at Northwestern University. He also has honorary

that is to say the first-rate geographical units; this term, often confused with “parts of the World”, is still not perfectly defined. In ancient times, the known World was divided by geographers into two parts, Europe and Asia (Ionic school; Aristotle, Dicaearco, Eratosthenes, etc.), or into three, considering Libya as a part in itself (Herodotus, Polybius, Strabo, etc.); but it was agreed that these parts constituted a single mass or complex; the existence of other “continents”, inhabited or not, was also discussed and admitted by some. Almagià also pointed out that only the discovery of America brought about a radical modification in ancient concepts: Martin Waldseemüller, the German cartographer who in 1507 proposed to give the name America to the mass of newly discovered lands, designated this mass as an island, in opposition to the old continents, with which certainly came to admit its isolated and independent position. However, this was, at the time, only a hypothesis: still for 30 or 40 years, while the extension of the new complex of lands appeared ever greater, the opinion that it was united with NO with Asia continued to find quite a few adherents. It was only after about 1540 that the principle of the separation of America from Asia (through an hypothetical strait which was called “Anian”) became generally widespread. Almagià still remembers that different opinions were expressed several times, while the promiscuous use of the locutions “continent” and “parts of the World” continued. To cite just one example, Matthias Quad, in his *Compendium universi* (1600)<sup>3</sup>, distinguishes seven masses of emerged lands (Europe, Asia, Africa, North America, South America, Terra Australis and Terra Borealis), which he designates as *partes principales orbis universi* “or” *continentes*.<sup>4</sup>

The continent is, therefore, something that literally contains other things; this is fundamental not only from the etymological point of view, but also from the point of view of the necessary “didactic procedures”. One of these procedures is to remember that, if on the one hand Africa struggles to earn, among the Western culture of the past, the dignity of a continent, it also has the right to be presented as a continent, something that contains something (indeed something that contains a lot); its rich content, in fact, cannot disappear into carelessness or ideologies, into superficial statements that extinguish its biodiversity in the eyes of students. It comes to think, for example, that the notoriously generous Bob Marley,<sup>5</sup> with his insistence on talking about “Africa Unite”, has not done a fair service to a land in which the multiplicity of languages, cultures and landscapes is such as to make us think of a “culture of multiplicity” as a characteristic feature of Africa. There is no doubt that the famous Jamaican singer was looking for a locution capable of stimulating African populations to claim their rights, but this operation, in good faith, was done by Marley with a language that appears to be influenced by the physical distance of his place of birth from Africa. In other words, he thought like a Westerner.

Probably, instead of “Africa Unite” it would have been better to say “Africas United”, since the grammatical plural better defines cultural pluralism. It is not, here, a mere lexical question, but a reflection on the communication technique (which, in teaching, is fundamental). In this way, confusion with the African Union is better avoided.<sup>6</sup> If we persist in superficially using the term “Africa”, we cannot complain about the persistence of misleading stereotypes. We note, however, that the Americans have a similar problem, although less generating bad consequences. In fact, when we say “America” do we mean the United States or the entire American continent? When we say “Americans”, in most cases, we mean US citizens; consequently, when we wish to refer to the continent, we are forced to specify that we are talking about the American continent.

degrees at several American universities for his work. Throughout his career, De Blij has published over 30 books and more than 100 articles.” (thoughtco.com/harm-de-blij).

<sup>3</sup> “It had previously appeared in German with five maps only and without the dedication to Lothar von Metternich, Archbishop-Elector of Trier, in the previous year. The number of maps in the Latin edition varies—this copy contains an unusually full complement. The world map (which was not contained in the German edition) follows the oval projection popularised by Ortelius. According to Shirley it is either the same plate as, or a meticulously copied version of, that which appeared in Magini’s edition of Ptolemy published in Venice in 1596 (a Cologne edition of which appeared the following year). The map of America is a reduced version of the one by Giovanni Lorenzo d’Anania of 1582, with just a few mainly typographical difference. [...] There are also maps of Africa, Asia, and several European countries.” (christies.com).

<sup>4</sup> Free translation of the text published in treccani.it/

<sup>5</sup> “Bob Marley, in full Robert Nesta Marley, (born February 6, 1945, Nine Miles, St. Ann, Jamaica—died May 11, 1981, Miami, Florida, U.S.), Jamaican singer-songwriter whose thoughtful ongoing distillation of early ska, rock steady, and reggae musical forms blossomed in the 1970s into an electrifying rock-influenced hybrid that made him an international superstar.” (britannica.com/biography/Bob-Marley).

<sup>6</sup> “African Union (AU), formerly (1963–2002) Organization of African Unity, intergovernmental organization, established in 2002, to promote unity and solidarity of African states, to spur economic development, and to promote international cooperation. The African Union (AU) replaced the Organization of African Unity (OAU). The AU’s headquarters are in Addis Ababa, Ethiopia. The OAU was established on May 25, 1963, and its activities included diplomacy (especially in support of African liberation movements), mediation of boundary conflicts and regional and civil wars, and research in economics and communications. The OAU maintained the “Africa

Since the beginnings of the cartographic and geomorphological study of Africa, we therefore find this continent in an at least incorrect position, from the point of view of its identity (and not only). We can therefore argue that the study of this continent requires more clarifications than others. In fact, it experiences the strange paradox of having, today, a remarkable geopolitical and geomorphological identity (greater, for example, than that of Europe), but a scarce notoriety of its infinite internal differences. In part, this is due to the fact that, at present, there are too many political opinions and little real attention regarding Africa.

The territorial origin of IDENTITY (almost a tautology, for geographers) is a topic that can be spent, in the didactic field, only on condition that the teacher always starts from interdisciplinary, concrete and concretely geo-historical examples (Candura and Poli, 2017, p. 11).

However, the issues of identity and interdisciplinarity would entail the need for lengthy and complicated reflections which are not the subject of this study.

On the other hand, the subject of this study is the reality and the possible actions to be taken, in the field of Didactics of Human Geography, to correct this intellectual distortion.

First of all, a didactically efficient metaphor is needed: “In 1757, Philippe Buache, in his study *Le parallèle des fleuves des quatre parties du monde pour servir à déterminer la hauteur des montagnes*, proposed the river basin as a criterion for delimiting regions, namely the territory between the surface watersheds of a more or less ample, more or less organized river network. Having the model of the human body circulatory system, consisting of major drains (veins and arteries), branched up to the level of capillaries, the river basin accomplishes, by means of centripetal gravity, an aggregation of space into a systemic unit, which, in the light of this vector, functions similarly to the respective organism. The fact that this criterion had its “limits” is proven in a revealing manner by numerous rivers in the karst regions, where the underground evolution of the watercourses generates surprising situations, often abolishing the gravitational conditionalities of morphology, imposed as law in a sub aerial environment.” (Coccean, 2010). In a sort of homage to Buache’s theory of the river basins (while keeping in mind the limits also indicated by Coccean) we can re-construct the ancient model of observation of the Earth as an organism (see the reflections of Almagià, 1902)<sup>7</sup> and indicate Africa as an important organism; it will therefore be possible to reflect on the circulatory system of this organism, underlining how each part of this, while connected to the macro-system, also has its own individuality. In this way, proceeding with the observation of African river basins, the multiple landmarks are highlighted and it is easier to understand their anthropogeographic complexity. Cartographic observation therefore becomes fundamental, as always.

Europeans’ perception and knowledge of Africa has a long history (linked, of course, to its exploration); this history is made up, at the same time, of correct geographical intuitions and colonial prejudices, which continually mix in the minds and narratives of explorers and geographers. A typical example can be caved from a nineteenth-century text containing both components of the Western vision (precisely colonial prejudice and geographical intuition):

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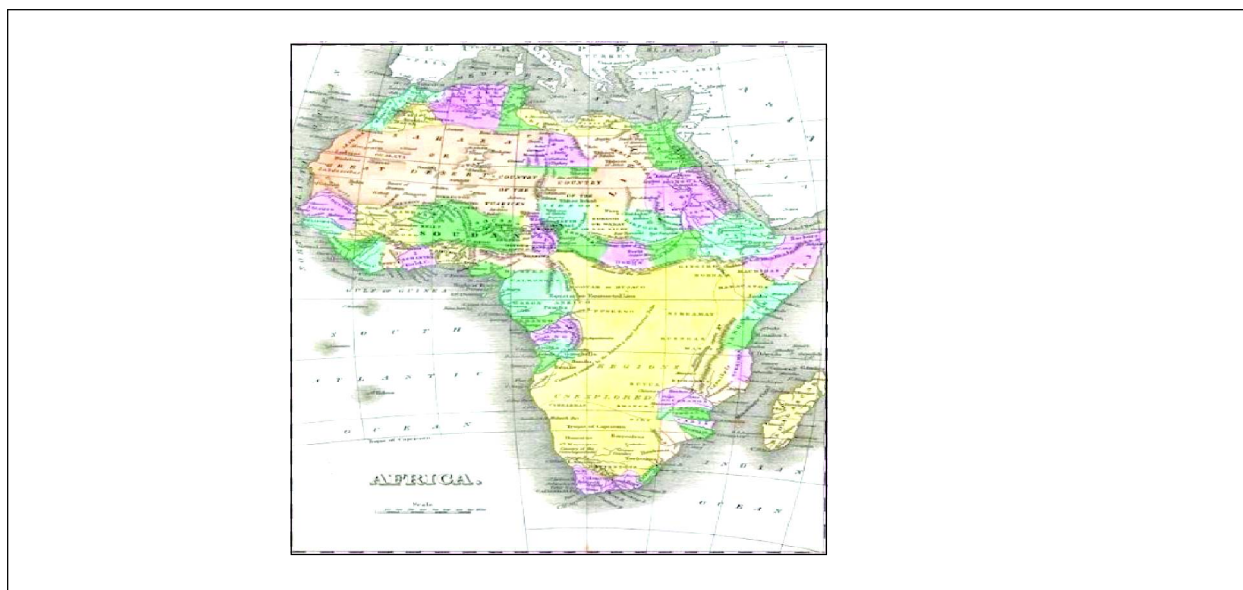
group” at the United Nations (UN) through which many of its efforts at international coordination were channeled. The OAU was instrumental in bringing about the joint cooperation of African states in the work of the Group of 77, which acts as a caucus of developing nations within the UN Conference on Trade and Development. The principal organ of the OAU was the annual assembly of heads of state and government. Between these summit conferences, policy decisions were in the hands of a council of ministers, composed of foreign ministers of member states. The major practical achievements of the OAU were mediations in several border disputes, including those of Algeria and Morocco (1963–64) and Kenya and Somalia (1965–67). It monitored events in South Africa and advocated international economic sanctions against that country as long as the official policy of apartheid was in place. In 1993 the OAU created a mechanism to engage in peacemaking and peacekeeping on the continent. In 1998 the OAU sponsored an international panel headed by former Botswana president Ketumile Masire to investigate the genocide that took place in Rwanda in 1994; its report was released in 2000. Also in 2000, in a move spearheaded by Libyan leader Colonel Muammar al-Qaddafi, it was proposed that the OAU be replaced by a new body, the African Union. The African Union was to be more economic in nature, similar to the European Union, and would contain a central bank, a court of justice, and an all-Africa parliament. A Constitutive Act, which provided for the establishment of the African Union, was ratified by two-thirds of the OAU’s members and came into force on May 26, 2001. After a transition period, the African Union replaced the OAU in July 2002. In 2004 the AU’s Pan-African Parliament was inaugurated, and the organization agreed to create a peacekeeping force, the African Standby Force, of about 15,000 soldiers.” (britannica.com/topic/African-Union).

<sup>7</sup> Almagià recalls, in his article (1902) that Plato (in the *Timaeus*) already had the idea of considering the terrestrial globe as an organism. For the biography of Roberto Almagià, see [treccani.it/enciclopedia/roberto-almagia\\_\(Dizionario-Biografico\)/](http://treccani.it/enciclopedia/roberto-almagia_(Dizionario-Biografico)/)

“The primary object of geographical exploration is the opening to general intercourse such portions of the earth as may become serviceable to the human race. The explorer is the precursor of the colonist; and the colonist is the human instrument by which the great work must be constructed—that greatest and most difficult of all undertakings—the civilization of the world. The progress of civilization depends upon geographical position. The surface of the earth presents certain facilities and obstacles to general access; those points that are easily attainable must always enjoy a superior civilization to those that are remote from association with the world. We may thus assume that the advance of civilization is dependent upon facility of transport. Countries naturally excluded from communication may, through the ingenuity of man, be rendered accessible; the natural productions of those lands may be transported to the seacoast in exchange for foreign commodities; and commerce, thus instituted, becomes the pioneer of civilization.” (Baker, 1870).

In the same text, we therefore read the awareness of the relationship between Man and Planet, the belief that this relationship can be improved by the exploration of the Planet, but also the exaltation of the colonizer as the only possible explorer. We also find praise of the role of transport, together with the assertion that only colonization can give access to transport to those populations that are excluded from it. Certainly, the most interesting aspect of the above-mentioned text is the awareness of the importance of geographical location in the evolution of human communities; an assumption perfectly incorporable, in fact, in the theme “location”, one of the listed “Five Themes of Geography”, a very effective educational container.

Thanks also to the contribution mentioned (Baker, 1870), we are, in the heart of the “circulatory system“ of African rivers.



Regarding the nineteenth-century European perception of the African continent, we also can consider an extremely representative cartographic representation (that can be dated 1827) where the Congo basin was thought to be much smaller, and the Nile to originate in the Mountains of the Moon, to the west of today’s South Sudan. The coastline is depicted accurately, but the interior and the Great Lakes were unknown. In this Antony Finley’s<sup>8</sup> cartographic representation (that predates the explosion of African exploration that occurred in the mid 19<sup>th</sup> century): “much of the interior remains unknown. The Ptolemaic Mountains of the Moon are drawn stretching across the central part of the continent with the suggestion that they are the source of several branches of the Nile. Several speculative courses are drawn for the Niger River, one of which joins it to the Nile, another of which flows south of the Mountains of the Moon to Congo and yet another of which, correctly, bends southwards to empty into the Bight of Biafra. Identifies numerous African tribes throughout, including the Pomba, Jaga, Tbook, Tuareg, Bambara and others. Also identifies a land of Cannibals in Mozambique. Engraved by Young and Delleker for the 1827 edition of Anthony Finley’s *General Atlas*.” (geographicus.com/)

<sup>8</sup> “Anthony Finley (1784-1836) was an American map publisher. Little is known about his life. He is presumed to have been born in Philadelphia, where he also died. A publisher, Finley was also involved in several Philadelphia civic and professional societies such as the Philadelphia Apprentices’ Library. He may have been in business as early as 1809 and his first publication dates from ca. 1811.” (raremaps.com/mapmaker/194/Anthony\_Finley)



Here we need to make two more clarifications.

The first concerns the concept of STATE.

The State is not an organization that has always existed, but rather one indirect consequence of a much simpler anthropological necessity, constantly given: the compulsion to regulate relationships of power among men, by nature always different, in groups of all kinds (Reinhard, 2007 and 2010).<sup>9</sup>

Starting from this awareness, it is natural to focus on a series of considerations, the first of which concerns the nature of the State which, as the Westerners understand it today, is an invention of Europe and the fruit of its history. In general, we can define the State as an organization, historically determined, of power; this power is capable of taking sovereign decisions, which are made in the name of the community that expresses it. Decisions have effects towards both its members and others officially recognized organizations. In the early days, primitive tribal structures were born by consenting aggregation of men who came together to better satisfy the common need to own and control the necessary resources and to defend them from predatory attacks. These requirements formed the foundations of one embryonic form of State that had the principal task of regulating internal and external relations of the community, at the head of which was a skillful and charismatic leader (Castiello, 2017).

The State is, moreover, the anthropogeographic entity that immediately comes to mind when we talk about BORDERS; contemporary culture is used to think “by borders“ and to create borders. This, in fact, is due to the historical construction of human communities.

The three constituent elements of the State (in the western sense) are, in summary: population, sovereignty and territory. The “sovereignty” element over the “territory” element, therefore, requires the application of borders.

There is, therefore, a second clarification to be made.

Administrative boundaries are, by their nature, unnatural. African administrative borders, in particular, are affected of a particularly unnatural Western State model, starting from their introduction in the territories of the continent. We are therefore faced with a double unnatural starting point, so to speak.

Even if there is an abundant and persistent rhetoric about a Planet without borders, these continue to exist. Borders are not erased but are retraced, says Marc Augé (1992) pertinently. Never before has there been so much negotiated, delimited, demarcated, characterized, equipped, guarded, patrolled as today, and it has been a long time since there has been so much discussion of borders, perhaps since the end of the war. Since 1991, more than 26,000 km of new international borders have been established, another 24,000 km have been the subject of delimitation and demarcation agreements, and, if the announced plans for metal or electronic walls, closures and barriers are completed, they would extend over over 1800 km, adds Michel Foucher (2007). The terms frontier (in Italian *frontiera*) and boundary (in Italian *confine*) are not synonymous. The first (which derives from the Latin *frons frontis*) indicates a territory located in front, on the edge. The second rather represents an idea of linearity and passage. English in this context is more precise: it uses FRONTIER (for zonality), BOUNDARY or BORDER (for linearity). For a long time, the frontier did not correspond to a linearly defined space, it was not precisely demarcated and it was a vague space, a no man’s land between two territories.<sup>10</sup>

At this point, we should mention a famous American historian: “For a moment, at the frontier, the bonds of custom are broken and unrestraint is triumphant. There is not tabula rasa. The stubborn American environment is there with its imperious summons to accept its conditions; the inherited ways of doing things are also there; and

<sup>9</sup> The conditions of existence of the State are linked to a *territoriality* (in analogy with Ethology; it is necessary to obtain, from the territory, the necessary tools to live in the best possible way, compatible with the available resources, and to be autonomous). The State *territorializes* its political action and the territory becomes the most important reference of its policies. It must mediate between private and collective interests, think about the type of development towards which to strive, preserve environmental balances, fight against regional imbalances, take care of transport infrastructures, provide energy, allow harmonious territorial development (Claudio, 2013, p. 18).

<sup>10</sup> The distinctions, given by Political Geography, for the terms “border” and “frontier” (Pounds, 1963; and Ferro, 1994) clarify the contrast between a line and a place, but the invention of the phrase “ethnic border” (Barth, 1969) is didactically more effective to clarify the relationships between social boundaries and their territorial counterparts. Often, the concepts of border and frontier refer to a sense of distance and detachment from a center; in this sense we can speak of geographical distance, where, in practice, we speak not only of physical peripherality, but also of real cultural distance. The fact that, for many people, “geographic” is synonymous with “physical”, generates the marginalization of (Human) Geography compared to other pressing and more seductive disciplines (Cultural Anthropology, for one thing) (Candura and Poli, 2017).

yet, in spite of environment, and in spite of custom, each frontier did indeed furnish a new field opportunity, a gate of escape from the bondage of the past; and freshness, and confidence, and scorn of older society, impatience of its restraints and its ideas, and indifference to its lessons, have accompanied the frontier. What the Mediterranean Sea was to the Greeks, breaking the bond of, offering new experiences, calling out new institutions and activities, that, and more, the ever retreating frontier has been to the United States directly, and to the nations of Europe more remotely” (Jackson Turner, 1893).<sup>11</sup>

In light of these explanations, we can, therefore, propose to dissolve a node

#### 4. The Congo-Nile Divide<sup>12</sup> Does Not Divide, But It Can Unite

The watershed lines are not man-made structures; they are cartographically visible and materially identifiable, but Nature has forged them as if they were pivots. River basins are equally identifiable, but no clear boundaries can be established. More generally, Nature tends not to create clear boundaries, but frontiers, id est regions of passage and transformation.

The European colonialists used the Congo-Nile Divide as a boundary between British-controlled territories to the east and territories controlled by the French and Belgians to the west. This was decided at a time when few Europeans had visited the area, which had yet to be mapped. It separated members of the ethnic groups that live on both sides of the Divide.<sup>13</sup>

Having removed the aspect of the Europeans’ lack of knowledge of the territory, they certainly made a doubly unnatural operation; first of all they wanted to impose drawn borders on a territory that had never been “divided”; secondly, they gave to a natural object the “task” of acting as a boundary.

Despite what one might naively think, the border does not necessarily have to be an obstacle; consequently, the spasmodic search for the natural boundary (classic subject in Human Geography) can be misleading, especially when we analyze the appropriateness of an administrative boundary. If we establish that a natural boundary must be, in fact, natural in the sense of not offending local Nature and Culture, in this case we should always establish boundaries where adequate geographical objects are found. We can, for example, believe that the Congo River<sup>14</sup>

<sup>11</sup> “Frederick Jackson Turner, (born November 14, 1861, Portage, Wisconsin, US—died March 14, 1932, San Marino, California), American historian best known for the “frontier thesis.” The single most influential interpretation of the American past, it proposed that the distinctiveness of the United States was attributable to its long history of “westering.” Despite the fame of this monocausal interpretation, as the teacher and mentor of dozens of young historians, Turner insisted on a multicausal model of history, with a recognition of the interaction of politics, economics, culture, and geography. Turner’s penetrating analyses of American history and culture were powerfully influential and changed the direction of much American historical writing.” (britannica.com/biography/Frederick-Jackson-Turner).

<sup>12</sup> “The Congo-Nile Divide runs from North West Rwanda down to the south of Burundi. Rivers flowing to the west form the tributaries of the Congo River while rivers flowing east enter Lake Victoria and the Nile River. Several forest reserves and national parks are found along this mountain crest, including Nyungwe National Park (including Cyamudongo Forest) and Kibira National Park (in Burundi), Gishwati Forest Reserve, Mukura Forest Reserve, in Rwanda, and Bururi Forest Reserve (also in Burundi).” (rwanda.wcs.org/Wild-Places/Congo-Nile-Divide.aspx).

“The Congo-Nile Divide is the area where the sources of the Congo and Nile Rivers both are found within the Nyungwe and Kibira National Parks in Rwanda and Burundi. Streams and rivers flowing west end up in the Congo river while those flowing east end up in the Nile. While this landscape, as defined in the Albertine Rift Strategic Framework Plan, includes some very small forest reserves (Gishwati, Mukura, Bururi, Vyanda, Rumonge) in reality the most important sites are the Nyungwe National park in Rwanda and the Kibira National Park in Burundi. These two parks are contiguous at the international border between the two countries. As a result 100% of the natural habitat in this landscape is protected as national park or reserve and because of the high human population densities around these protected areas. With the intensive agriculture found here there is little likelihood of expanding the natural habitat in the landscape. Species of conservation concern in the landscape include chimpanzee, mountain monkey, owl-faced monkey, unusual aggregations of Angolan colobus which form groups numbering more than 400 individuals, Rwenzori tauraco, Red-collared Mountain Babbler, Kivu ground thrush, and several endemic plants that have only been found in this landscape.” (albertinerift.wcs.org/Wild-Places/Congo-Nile-Divide.aspx).

<sup>13</sup> Freely drawn from wikipedia, to highlight the Western analysis model.

<sup>14</sup> “Congo River, formerly Zaire River, river in west-central Africa. With a length of 2,900 miles (4,700 km), it is the continent’s second longest river, after the Nile. It rises in the highlands of northeastern Zambia between Lakes Tanganyika and Nyasa (Malawi) as the Chambeshi River at an elevation of 5,760 feet (1,760 m) above sea level and at a distance of about 430 miles (700 km) from the Indian Ocean. Its course then takes the form of a giant counterclockwise arc, flowing to the northwest, west, and southwest before draining into the Atlantic Ocean at Banana (*Banane*) in the Democratic Republic of the Congo. Its drainage basin, covering an area of 1,335,000 sq

(which, for a few hundred kilometers, marks the border between the Congo and the Democratic Republic of the Congo) is a good choice for a border (one of the few in Africa). In this case, however, even the mere observation of the cartography suggests us to think of an intact vascular system, of a system of relations, in short, of a river basin: something indivisible. The comparison with the vascular system, from an educational point of view, is more effective; students understand better the concept of a system of relations and that of indivisibility. So is this boundary so “natural”? Will it not, however, be much more artificial than those traced geometrically? All in all, if we think of the course of the Nile in Egypt, we see that, in this case, the river is not only not used as a border, but is actually a geographical object that brings together the population in its own basin, so much so that Egypt is one of the most effective examples that can be used to explain to students the importance of correct data disaggregation in the study of the population.<sup>15</sup>

Currently, it is in vogue a motto that incites to turn difficulties into opportunities; for this, we propose to “use” the tourist cliché that insists on considering Africa a sort of great State to visit, due to its natural wealth. We also take advantage of the “Popular Map”: “A new trend in nineteenth-century cartography was the desire to simplify the process of map-reading for those (typically soldiers and children) whose geographical education had been either incomplete or ineffective” (Andrews, 1996). In other words, let’s make “Didactics for in-competences” (Candura, 2018, *passim*). Finally, let’s use the general tendency to “cartographic marginalization” (which the writer defines “cartographic discrimination” or “iconographic discrimination”, according to the cases), the same descriptive flaw that, for Jennings, represented a stimulus to knowledge of the Planet: “[...] When I was a ‘little chap’ there were (and are) still a few mostly blank spaces on the map: Siberia, Antarctica, the Australian Outback. But I knew these lacunae weren’t just empty because they were rugged and remote; they were empty because nobody really wanted to live there. These were the places on the earth that, well, sort of sucked. So I never put my finger on the glaciers of Greenland and said, ‘I will go there!’ like Conrad’s Marlow. But I liked that they existed. Even on a map that showed every little Ajo, Arizona, there was still some mystery left somewhere” (Jennings, 2011).

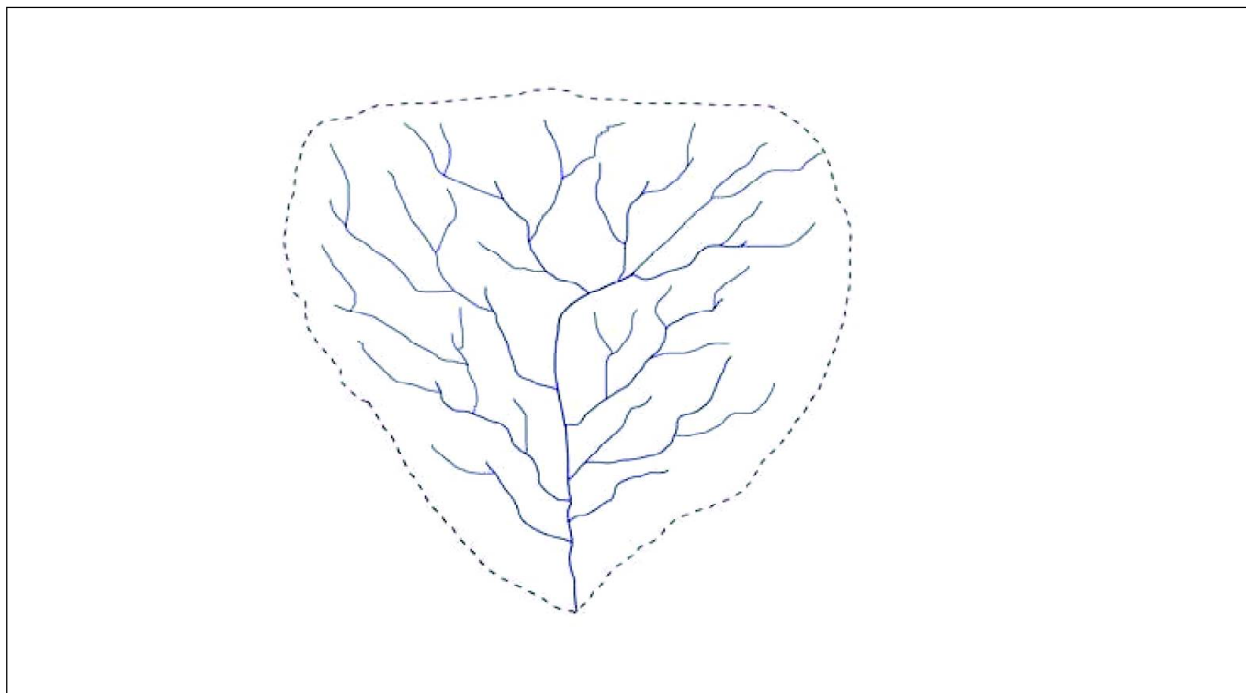
First of all, we observe how the structure and mutual location of the branches of a tree resemble the circulatory system of the blood and the cartographic image of a hydrographic basin.



miles (3,457,000 sq km), takes in almost the entire territory of that country, as well as most of the Republic of the Congo, the Central African Republic, eastern Zambia, and northern Angola and parts of Cameroon and Tanzania.» (britannica.com/place/Congo-River).

<sup>15</sup> “No country has an evenly distributed population. Arithmetic population densities do not reflect the emptiness of parts of Alaska or the sparseness of population in much of the West. Arithmetic population figures can actually be quite misleading. Egypt, with a population of 97.6 million, has a seemingly moderate arithmetic population density of 252 people per sq mile (97 per sq km). Egypt’s territory of 384,345 sq miles (995,450 sq km), however, is mostly desert, and the vast majority of people are crowded into the valley and delta of





In particular, if I schematize an hydrographic basin, the drawing is almost indistinguishable from that of a part of the circulatory system of the human body.

As is known to (almost) everyone, the Congo-Nile Divide (also known as Nile Congo Watershed) is the continental divide that separates the drainage basins of the Nile and Congo rivers. Its length can be quantified in approximately 2.000 km and its extraordinary nature can be summarized by recalling the several geologically and geographically distinct sections. We can, in fact, ideally travel from the border between the Central African Republic and South Sudan (where the Nile and Congo basins meet the Chad Basin) to the southern point in Tanzania (south west of Lake Victoria) where the boundaries of the Nile and Congo basins diverge and border several endorheic basins in the Gregory Rift, of which the largest are Lake Eyasi (or Njarasa) in the north and Lake Rukwa in the south. The people who live along the divide are diverse, mainly speaking Central Sudanic languages in the northern parts and Bantu languages further south. The European colonialists used the Congo-Nile divide as a boundary between British-controlled territories to the east and territories controlled by the French and Belgians to the west. This was decided at a time when few Europeans had visited the area, which had yet to be mapped. It separated members of the ethnic groups that live on both sides of the divide.<sup>16</sup>

The circulatory system is composed of the cardiovascular system and the lymphatic system. The cardiovascular system is made up of heart, blood vessels and blood. The lymphatic system consists of lymphatic vessels and organs (spleen and thymus), bone marrow, lymph nodes, lymphatic tissue, and lymph or lymph fluid. In all these parts, what, in a representation (and in reality, of course), has a different shape or size is not an obstacle, rather it is a point of communication. For the circulatory system it is perhaps easier to understand, but the same thing happens in a river basin, where a divide cannot be considered an obstacle, but a unification, a hinge between two territories. The fact that, in some cases, Men have used the divide as a political border has generated an intellectual obstacle, but has not in the least convinced Nature to conform to the will of Man himself.

##### **5. Ancillary Reflections: Some Responsibilities Also in the Contrast Between “Hard” and “Soft” Sciences (Another Node to be Solved)**

From this brief analysis, carried out essentially for didactic purposes, a basic problem emerges, linked to a stereotype of ancient origin. The geomorphological identity of Africa (its nature as a “continent”) continually prevails over its being a “container” of innumerable cultures and identities. Obviously all the territories are, at the same time, continents and containers, but, in the case of Africa, the Western collective consciousness annoyingly insists on

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the Nile River. Nearly 98% of all Egyptians live on just 3% of the country’s land; so, the arithmetic population density figure is meaningless in this case” (Fouberg, Murphy and de Blij, 2020, p. 32).

<sup>16</sup> Freely adapted from [en.wikipedia.org/wiki/Congo-Nile\\_Divide](https://en.wikipedia.org/wiki/Congo-Nile_Divide).

thinking *Hic sunt leones*, despite all the past History. One cannot fail to note the partial responsibility of Human Geography (as a direct descendant of History of Explorations), in this persistence of superficiality and misunderstandings; but this responsibility does not take the form of an absence of study, knowledge and deepening. Human Geography studies aimed at the complexity of African territories and cultures are many and of an excellent level. Just think of the completeness of those of Robecchi Bricchetti (1899) on Somalia and Benadir. The real responsibility is, alas, to be found in Didactics, or rather in the amount of effort made by geographers to structure and spread the teaching of Human Geography; this effort has always found obstacles in the nature of Human Geography, namely its being a “Soft Science” and (like all “Soft” “Sciences”) its being rather discriminated (to say the least).

The attribution of approximate (and rather offensive) territorial identities may certainly depend on many intricate causes, but it certainly derives also from the long-standing and debated contrast between “hard” and “soft” Sciences. The alleged inferiority of “soft” compared to “hard” would derive, apparently, from the method. Now, this assumption is highly contested by some, therefore it can at least (methodologically) be established that it should be eliminated. To corroborate this last assertion, we can cite a contribution. Larry V. Hedges<sup>17</sup>, in an interesting reflection published in *American Psychologist* (1987), proposes the parallels between methods used in the quantitative synthesis of research in the social and in the physical sciences: “Research results in the social and behavioral sciences are often conceded to be less replicable than research results in the physical sciences. However, direct empirical comparisons of the cumulativeness of research in the social and physical sciences have not been made to date. [...] Essentially identical methods are used to test the consistency of research results in physics and in psychology. These methods can be used to compare the consistency of replicated research results in physics and in the social sciences. The methodology is illustrated with 13 exemplary reviews from each domain. The exemplary comparison suggests that the results of physical experiments may not be strikingly more consistent than those of social or behavioral experiments. The data suggest that even the results of physical experiments may not be cumulative in the absolute sense by statistical criteria. It is argued that the study of the actual cumulativeness found in physical data could inform social scientists about what to expect from replicated experiments under good conditions. Psychologists and other social scientists have often compared their fields to the natural (the ‘hard’) sciences with a tinge of dismay. Those of us in the social and behavioral sciences know intuitively that there is something ‘softer’ and less cumulative about our research results than about those of the physical sciences. It is easy to chronicle the differences between soft and hard sciences that might lead to less cumulative research results in the soft sciences. [...] One such chronicle is provided by Paul Meehl (1978), who listed 20 such differences and went on to argue that reliance on tests of statistical significance also contributes to the poorer cumulativeness of research results in the social sciences. Other distinguished researchers have cited the pervasive presence of interactions [...] or historical influences [...] as reasons not to expect a cumulative social science. Still others [...] have cited the low quality of data in the social sciences as a barrier to truly cumulative social inquiry. These pessimistic views have been accompanied by a tendency to reconceptualize the philosophy of inquiry into a format that implies less ambitious aspirations for social knowledge [...]. Cumulativeness in the scientific enterprise can mean at least two things. In the broadest sense scientific results are cumulative if empirical laws and theoretical structures build on one another so that later developments extend and unify earlier work. This idea might be called conceptual or theoretical cumulativeness. The assessment of theoretical cumulativeness must be rather subjective. A narrower and less subjective indicator of cumulativeness is the degree of agreement among replicated experiments or the degree to which related experimental results fit into a simple pattern that makes conceptual sense. This idea might be called empirical cumulativeness. The purpose [...] is to suggest that it may be possible to compare at least the empirical cumulativeness of psychological research with that of research in the physical sciences. An exemplary comparison suggests that the differences may be less striking than previously imagined. The mechanism for this comparison is derived from recent developments in methods for the quantitative synthesis of research in the social

<sup>17</sup> “Larry V. Hedges is an AIR Institute Fellow, as well as Board of Trustees Professor of Statistics, Education and Social Policy, and Psychology and director of the IPR Q-Center at Northwestern University. His many appointments and honors include serving on the Board of Directors of the national board for Education Sciences and as president of the Society for Research on Educational Effectiveness. Dr. Hedges is also a prolific writer, having written more than 200 publications; the most recent of his eight books is *The Handbook of Research Synthesis and Meta-Analysis* (with Cooper and Valentine, 2009). While maintaining his appointment and duties at Northwestern University, Dr. Hedges will be working with AIR on several topics involving statistical and research methods. He is best known for developing statistical methods for meta-analysis, the backbone of much evidence-based social science research. His broad interests span the costs of systematic reviews, differences between boys and girls in mental test scores, the black/white gap in achievement test scores, and frameworks for international comparative education studies. He is also an expert on education measurement and the design and analysis of rigorous experiments.” ([air.org/person/larry-v-hedges](http://air.org/person/larry-v-hedges)).

sciences. Some of the methods used in meta-analysis are analogous to methods used in the quantitative synthesis of research in the physical sciences. In particular, physicists and psychologists use analogous methods for assessing the consistency of research results, a fact that makes possible comparisons among quantitative reviews in physics and in psychology. One such comparison is reported in this paper. This comparison was not chosen in a way that guarantees it to be representative of either social science research or physical science research. However, some effort was exerted to prevent the comparison from obviously favoring one domain or the other, and additional examples are provided to suggest that the case for the empirical cumulativeness of physical science could have been made to look far worse. More data would obviously be needed to support strong conclusions. It seems, however, that the ‘obvious’ conclusion that the results of physical science experiments are more cumulative than those of social science experiments does not have much empirical support. It may seem difficult to compare research in the social sciences to research in the physical sciences. Theoretical structures and experimental paradigms are quite different. Each research domain has complications and elaborations that do not arise in the other. Moreover the meaning of research results may be quite different. [...] I ignore the many complications and focus instead on aspects of the two domains that can be compared. Experimental results frequently can be expressed as a numerical estimate of a parameter in a theoretical model, such as a mass, an energy, a correlation between variables, or a treatment effect. The consistency of these numerical estimates across replicated experiments can be assessed. A comparison of the empirical consistency of the results of replicated experiments in physics (as an example of a physical science) and in psychology (as an example of a social science) is the subject of this paper (Hedges, 1987, *passim*).

We do not know if Didactics can be considered a unique Science, given its links with the various disciplines it “teaches to teach”. What is certain is that the phrase “Didactics of”, associated with a Soft Science, makes, in that case, also Didactics a Soft Science, with all the problems connected with its being considered a series B Science.

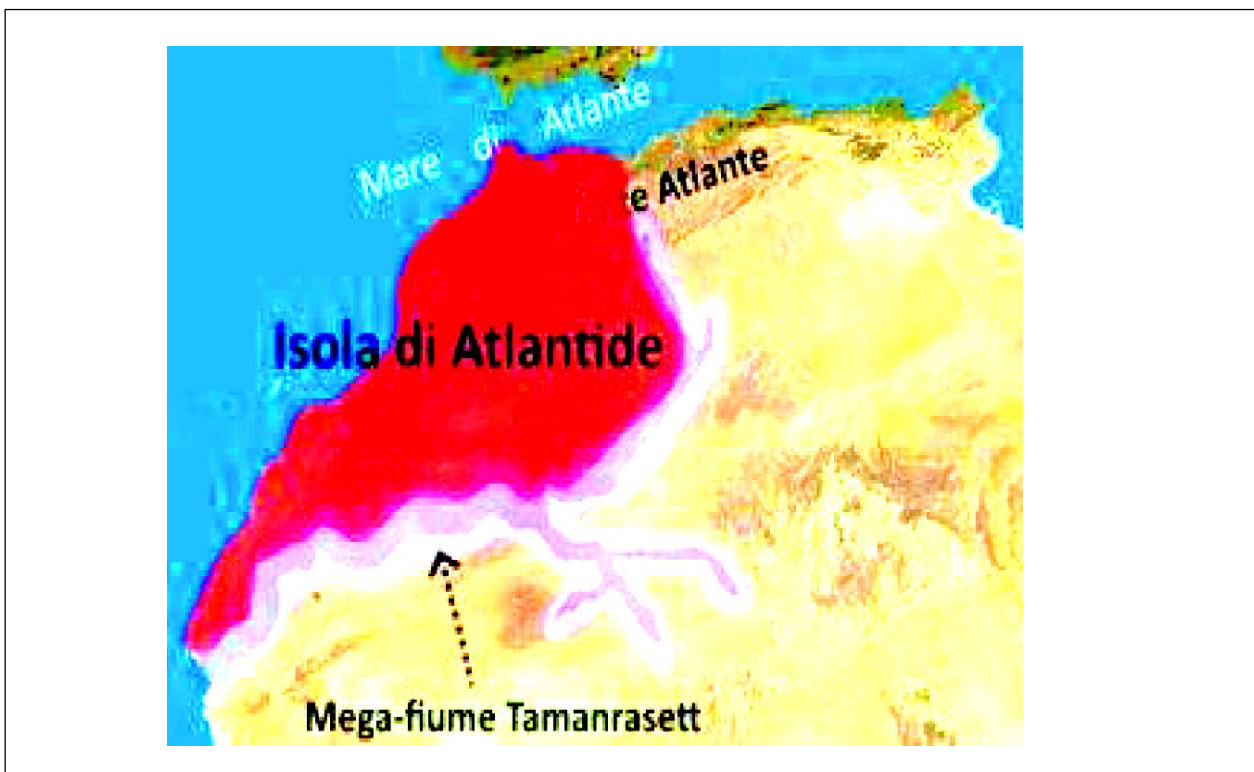
## 6. Appendix the Physiological Past of the Organism Africa: The Tamanrasset

Even by analyzing the geological past, we can find elements of unification.

The great philosopher Plato, one of the greatest minds in human history, was mocked by his contemporaries at the end of his career. The disappointment was so great that he decided not to complete the second of the three stories on the subject, and not even start writing the third. Why did the Greeks, a people accustomed to hearing stories of all kinds, and often to believe it, mocked none other than the great Plato? Well, in the dialogue “Timeo” and in the partial dialogue “Crisia” (which remained unfinished), Plato tells that some “mysterious Egyptian priests” from the city of Sais, told the famous Athenian statesman Solon (638 BC – 558 BC) a story. Plato (428 BC – 348 BC), about 200 years later, received this story through the wrong way, and used it as one of the sources from which to draw his story. And so far nothing strange. In this tale, Plato says many things. Among other things, he tells of the existence of a “Big Island” near the “Pillars of Hercules”. He calls it “Atlantis” or “Land of Atlas”. The Greeks of his time knew that over 40 years before Plato, the famous historian Herodotus (484 BC – 430 BC), in his “Histories” called the mountain range of today’s Morocco with the name “Atlas”. Among other things, it still retains that name today: Atlas Mountains. For a Greek of that time, the name “Atlantis”, or “Land of Atlas”, indicated a land that was evidently located at the foot of Mount Atlas. But everyone knew that there was no “big island” at the foot of the Atlas. In his story, Plato, citing the “mysterious Egyptian priests”, stated that that island existed 9,000 years before Solon, therefore 11,500 years ago. And here the laughter broke out. For about 2,000 years, people have laughed at this statement from Plato. Not finding any “Big Island” near Mount Atlas, several writers have “placed” it almost everywhere: some in Sardinia, some in Ireland, some in Cuba, some in Indonesia. Honest attempts to solve the “rebus”. But “the Land of Atlas” has always remained there, where Plato said. In fact, a few years ago, a small, tiny metal object, the Japanese satellite PALSAR, did justice to the famous Greek philosopher. Whoever the “mysterious Egyptian priests” who had told Solon (and through him Plato) that there was a very large island near the Atlas Mountains, in the Land of Atlas (or Atlantis), were right. The work *African humid periods triggered the reactivation of a large river system in Western Sahara* talks about “[...] a large river system in Western Sahara<sup>1</sup>, taking its sources from the Hoggar Highlands and the southern Atlas mountains in Algeria. This so-called Tamanrasset River valley has been described as a possible vast ancient hydrographic system that would rank twelfth at present among the top 50 largest drainage basins worldwide. Although a putative link between the Tamanrasset paleoriver and the Cap Timiris Canyon has been already suggested previously, direct evidence of any fluvial activity and of a connection to the canyon has never been found on the continent [...]” (Skonieczny *et al.*, 2015). The article continues going into detail from a geological point of view. In short, PALSAR has discovered a gigantic MEGA-

RIVER, now withered, which started right from the Atlas Mountains and cut across the entire North-West corner of Africa, flowing into today's Mauritania. The Tamanrasett river valley has a width of about 90 km. The mouth of this mega-river, now located under the sea, was 400 km wide. It was comparable to the Amazon River, a river so large that in several places it is indistinguishable from the sea. This means that this river could reach a similar width from coast to coast. Imagine an observer at ground level. How could he have known that it was a river, or a sea, if the opposite coast was 90 km away? With the exception of the salinity of the water (but we do not know if this aspect was understood), nothing. Just to say, it is a greater distance than the Strait of Messina and the Strait of Gibraltar combined. Looking from above, we understand that when the mega-river Tamanrasett flowed, during the last African Wet Period, (between 14,500 and 7,000 years ago approximately, with aftermath up to 5,500 years ago), except for a very small piece in the North - East, the "Land of Atlas", or "Atlantis", or territories south of Mount Atlas, were really an island. To the north it was surrounded by the Mediterranean Sea. To the west it was surrounded by the Atlantic Ocean. To the south it was surrounded by the mega-river Tamanrasett. To the east it was almost completely surrounded by the same river, except for a small piece made up of the Atlas Mountains. Can it really be called an "island"? In the Greek sense yes (Bisceglia, 2020, *passim*; freely translated).<sup>18</sup>

The continuous breathing of the Earth and its changes, noted and recorded by Man over the centuries, continually emerge from studies on the African continent. The dimensions that can be reached by rivers can, as we



have seen, even confuse ideas, not allowing them to be distinguished from the seas. The "Africa teaching room" is very rich.

Alfred Wegener's own work *Die Entstehung der Kontinente und Ozeane* (1915) is full of suggestions both for the dynamism of the "organism continent", and for the intrinsic emphasis on the absurdity of creating borders: "Since its inception, modern geology has been faced with an important group of problems: explaining parallel formations that are separated by great distances of sea; accounting for isolated life forms in widely separated areas (such as lemurs in Madagascar and India); explaining pre-pleistocene glaciations, and similar problems. The usual explanation has been to assume the one-time existence of land bridges (such as the hypothetical Lemuria) or parallelisms or diffusion with lost intermediary steps. In 1915, however, one of the most influential and most controversial books in the history of science provided a new solution. This was Alfred Wegener's *Entstehung der Kontinente*, which dispensed with land bridges and parallel evolutions and offered a more economical concept. Wegener proposed that, in the remote past, the earth's continents were not separate (as now), but formed one

<sup>18</sup> See also [ioannen.org/atlantide-2021-il-continente-ritrovato/platone-aveva-ragione/](http://ioannen.org/atlantide-2021-il-continente-ritrovato/platone-aveva-ragione/)



supercontinent which later split apart, the fragments gradually drifting away from one another. Wegener created his supercontinent with attractive simplicity by tucking the point of South America into the Gulf of Guinea, coalescing North America, Greenland, and Europe, rotating Australia and Antarctica up through the Indian Ocean, and closing the remaining gaps. Wegener then explained various phenomena in historical geology, geomorphology, paleontology, paleoclimatology, and similar areas of science in terms of this continental drift. To back up his revolutionary theory he drew upon a seemingly inexhaustible find of data. Later editions of his book added new data to refute his opponents or to strengthen his own views in the violent scientific quarrel that arose. Even today this important question remains undecided, and geologists are divided into strongly opposed groups about the Wegener hypothesis. At the moment it seems to be gaining steadily in acceptance. It is one of the two basic theories of earth history, and since it has often been misrepresented in summary, every earth scientist owes it to himself to examine its theories and data” (Biram, 1966).

## 7. Conclusion

In the Didactics of Human Geography, Regional Geography studies represent a fundamental tool. The identification of regions is a very precious trace to generate a path of analysis, since the REGION, in the geographical sense, has an identity that can be both individual and objective at the same time.

To combine the knowledge of territories and their cartographic reading with memory (not just notions), it is also necessary to always refer to the writings of the explorers, to identify the origin of geographical thought about the territories themselves. Furthermore, it is necessary to have “didactic procedures“ that function as a “memory container“, made up of drawers in which to order the layers of thought in time and space. Buache’s thought was used to introduce the regional study of Africa; this made possible to design the container of memory as a large organism (Africa) in which, with great cartographic evidence, a large circulatory system (rivers) stands out. It was considered that the Congo River was the most evident part of this circulatory system, both for its size and for the fact that, in the context of the Congo-Nile Divide, together with the Nile, the Congo River participates in a “reinterpretation”, in a humanistic key, of a geomorphological structure which, despite its name, does not divide but rather unites, it connects two great apparatuses of a great organism. Here, emerges the importance of cartographic trans-scalar reading, but emerges also the importance of the historical reading of geographical thought, starting from the documents of the History of explorations, with their contradictions, but also with their wealth of intuitions and interest. Emerge the innumerable links between disciplines, despite the intellectual barriers between HARD and SOFT SCIENCES. The role of Didactics (and teachers) in teaching the culture of multiplicities is also to break down these intellectual barriers.

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