



## Pioneers in the history of cartography: the Geneva map collection of Élisée Reclus and Charles Perron



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### Abstract

In recent years, researchers have rediscovered the important cartographic collection of Élisée Reclus (1830–1905) and Charles Perron (1837–1909), containing more than 10,000 maps of all kinds from the sixteenth to the twentieth century, including several reproductions of early maps from Antiquity and the Middle Ages. This paper explores the contribution of these two geographers to the history of cartography as a critical discipline, analyzing the construction of the Reclus–Perron cartographic collection. It considers examples of the social and political uses of the collection at the beginning of the twentieth century within the Cartographic Museum of Geneva (1907–1922). These materials provided the basis for an original social interpretation of the history of cartography as a critical discipline endowed with a social utility, as well as an opportunity to explore a different way of conceiving maps and geography, diverging from the uncritical hagiographies of geographical discoveries and cartographic accuracy which were typical of the time.  
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In the nineteenth and the twentieth centuries, map collections were assembled for a variety of social, cultural and political purposes. In this paper, I present the rather special case of a cartographic collection built and made available to a wide public by geographers who were also radical militants, namely the anarchists Élisée Reclus (1830–1905) and Charles Perron (1837–1909).

These two geographers worked together for twenty years to edit Reclus' encyclopedic *Nouvelle Géographie Universelle* (hereafter NGU)<sup>1</sup> which was written almost completely in Switzerland, where Reclus was in exile following the 1871 Paris Commune, and where he participated in political networks of anarchists and internationalists, Swiss and exiles, also including Perron, who was based in Geneva. During this time they collected abundant cartographic materials which eventually they wished to make available for public betterment and knowledge.

Reclus' and Perron's entire cartographic collection was bequeathed to the City of Geneva where it is still held today, in the *Département de Cartes et Plans* of the public library. Today, it comprises more than 10,000 maps of all kinds (still not completely cataloged), including the raw materials, preparatory drawings, proof copies and notes for the nineteen volumes of the NGU. We find in this collection maps from the sixteenth to the twentieth

century collected by Perron and Reclus, including several nineteenth-century facsimiles of maps from Antiquity and the Middle Ages. Some 350 pieces, collected over a decade and a half, formed the collection of the Cartographic Museum of the City of Geneva, which had been opened by Perron in 1907, but closed in 1922 following a gradual decline after the death of its founder in 1909.

From the publications accompanying the Museum's opening, it is quite apparent that Perron saw the history of cartography as an open and inclusive field, one not limited to certain techniques or confined within specific times. In his essay *Les Mappemondes* (Maps of the World), Perron stressed the historical importance of the images that every civilization builds of the world: '[Though] these general documents do not give detailed information about the diverse phases in the life of peoples, they outline the general view of the grandeur and the decline of civilizations.'<sup>2</sup> His generous vision of the field recalls some of Brian Harley's claims concerning the evolution of the field and especially the criteria by which certain kinds of documents were not even considered to be maps at all. According to Harley, 'in many cultures crude, distorted, plagiarized, ephemeral, oversimplified, and small-scale maps have been neglected. Such scientific chauvinism dictates that they are often

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<sup>1</sup> E. Reclus, *Nouvelle Géographie Universelle*, Paris, 1876–1894, 19 Vols.

<sup>2</sup> Ch. Perron, *Une étude cartographique. Les Mappemondes*, Paris, 1907, 5. All translations from the French works are those of the author.

dismissed as not maps at all or labeled as mere oddities or cartographic curiosities.<sup>3</sup>

Analyzing primary sources, including the archives and printed works of these geographers and the documents now comprising the map collection of the City of Geneva, this paper seeks to interrogate the cartographic interventions of Reclus and Perron in relation to contemporary debates over the field. What was the idea of cartography held by these geographers who were at the same time scholars and radical political activists? How did they inform the development of the Cartographic Museum? To what extent did they anticipate the emergence of the history of cartography as a scientific discipline? And what were the political and social uses of the cartographic collection in the Swiss and international context of the time?

In the first part of the paper, I consider the role of Charles Perron as a politically engaged geographer, inserted in a network of anarchist scientists exiled in Switzerland at the end of the nineteenth century; in the second part, I approach the relation between the cartographic collection and the general theories of its founders regarding geography and cartography; in the third part, I focus on the significance of the Geneva Cartographic Museum and its contributions towards a progressive pedagogy.

### Charles Perron: cartography and politics

Born into a socialist family in 1837 in Petit-Saconnex, near Geneva, Charles-Eugène Perron was professionally trained by his father as a draughtsman and an enamel painter. His first contacts with geographers took place at the end of the 1860s, when Élisée Reclus went to Switzerland to participate in the 1868 Berne Congress of the League of Peace and Freedom, and to take part in the secret International Brotherhood promoted by Bakunin.<sup>4</sup> In these years, Perron played an important role in the foundation of the international anarchist movement, co-founding with Reclus the Vevey section of the *Fédération Jurassienne* in 1876.<sup>5</sup> In 1894, together with his sons Henri and Georges, he was still classified as an anarchist by the Geneva police, who claimed that he was ‘in constant touch with anarchists in Geneva and abroad, like the Reclus brothers. His door is always open to foreign anarchist visitors, including the most dangerous subjects’.<sup>6</sup>

Perron started his career as a cartographer in 1876–1877, by drawing maps for Reclus’ NGU. While both Reclus and Perron were severe critics of the cartography of their time (as discussed below), they nevertheless included more than 6000 maps in the nineteen volumes of the NGU, which were intended to follow the discourse developed in the text though not to impose their semantic codes.<sup>7</sup> To this end, they produced the kind of cartography now called

‘thematic’, depicting specific features of population, language, religion, climate and topography on the map.

In order to facilitate the production of the greys and the chiaroscuros necessary for this kind of cartography, Perron adopted a technique called *panicographie*, invented by Firmin Gillot,<sup>8</sup> which allowed the draughtsmen to transfer their images directly to typographic molds, removing the need for engraving. In the nineteenth century, the adoption of wood engraving instead of the old copper engraving had had very important consequences in the map trade.<sup>9</sup> Innovations like Gillot’s favored the further diffusion of iconographic systems in geographical publishing of the end of the century.<sup>10</sup> Before the adoption of *panicographie*, according to Perron, ‘the main difficulty, for this kind of cartography, was the engraving of good shades’ necessary to depict thematic features.<sup>11</sup>

One of the best examples of this approach is a map drawn by Perron (Fig. 1) to illustrate a text published by Reclus in the *Bulletin de la Société Neuchâteloise de Géographie*,<sup>12</sup> where anarchist geographers tried to counter the contemporary application of Thomas Malthus’ principles as proposed in his 1798 *Essay on the Principle of Population*. Using scientific tools to express political concepts, Perron represented the area which would be taken up by all humankind, if the 1.5 billion people estimated at that time could meet all together in a fraternal meeting (assuming that four people standing would occupy a square meter). This area was juxtaposed to the map of Paris, a city of great symbolic value from a political standpoint given memories of the revolutions of the eighteenth and nineteenth centuries.<sup>13</sup> Using arguments which resonate even today, Reclus sought to demonstrate that the problem of resource shortages was not due to the growth of human populations, but to the organization of the global economy and to unequal distribution of wealth. This map anticipated the idea of the Paris ‘Great Globe’, understood as a symbol of human brotherhood, discussed in the next section.

### A cartographic collection and the third dimension of the world

In order to understand the value of the cartographic collection of Reclus and Perron, we must first see it in its historical context, as well as in relation to the broader scientific concerns of these authors. As Harley and Woodward have pointed out, the word cartography ‘is a neologism, coined by Manuel Francisco de Barros e Sousa, Viscount of Santarem, in the mid-nineteenth century in particular reference to the study of early maps’.<sup>14</sup> In fact, many great editorial works containing reproductions of maps from antiquity and the Middle Ages were published in Europe during the nineteenth century, including those of Jomard, Lelewel, Desjardins and Nordenskjöld.<sup>15</sup> These works provided key reference points for

<sup>3</sup> J.B. Harley, The map and the development of the history of cartography, in: J.B. Harley, D. Woodward (Eds), *The History of Cartography*, Vol. 1, Chicago, 1987, 4.

<sup>4</sup> J. Guillaume, *L’Internationale. Documents and souvenirs*, Vol. 1, Paris, 1985.

<sup>5</sup> P. Jud, *Élisée Reclus und Charles Perron, Schöpfer der ‘Nouvelle Géographie Universelle’: Ein Beitrag zur geographischen Wissenschaftshistorie des 19. Jahrhunderts*, Zürich, 1987, 127–192.

<sup>6</sup> Berne, Schweizerisches Bundesarchiv, Bestand 21, dossier 7564. Le Conseiller d’État chargé du Département de Justice et Police à Monsieur le Procureur de la Confédération Suisse, 29 mai 1894.

<sup>7</sup> F. Ferretti, *Il mondo senza la mappa, Élisée Reclus e i geografi anarchici*, Milan, 2007, 101–103.

<sup>8</sup> F. Gillot, *Album de gravure panicographique et photogravure*, Paris, 1875.

<sup>9</sup> M. Sponberg Pedley, The map trade in Paris, 1650–1825, *Imago Mundi* 33 (1981) 33–45.

<sup>10</sup> D. Mendibil, Essai d’iconologie géographique, *L’Espace Géographique* 28 (1999) 327–336.

<sup>11</sup> J. Brunhes and P. Girardin, Conceptions sociales et vues géographiques: La vie et l’œuvre d’Élisée Reclus, *Revue de Fribourg* (1908) 362.

<sup>12</sup> E. Reclus, À propos d’une carte statistique, *Bulletin de la Société Neuchâteloise de Géographie* 5 (1889–1890) 122–124.

<sup>13</sup> F. Ferretti, Comment nourrir la planète: a propos d’une carte statistique, in: P. Rérat, E. Piguet (Eds), *La pensée du monde: une société de géographie au tournant du XXème siècle*, Neuchâtel, 2011, 111–116.

<sup>14</sup> J.B. Harley and D. Woodward, Preface, in: J.B. Harley, D. Woodward (Eds), *The History of Cartography*, Vol. 1, Chicago, 1987, xvii.

<sup>15</sup> E.E.A. Desjardins, *La Table de Peutinger, d’après l’original conservé à Vienne*, Paris, 1869–1874; E.F. Jomard, *Les monuments de la géographie; ou Recueil d’anciennes cartes européennes et orientales (Atlas)*, Paris, 1842–1862; J. Lelewel, *Géographie du Moyen Age*, 4 Vols, Brussels, 1852–1857; A.E. Nordenskjöld, *Periplus: An Essay on the Early History of Charts and Sailing-Directions*, Stockholm, 1897.



Fig. 1. Perron's demographic map, originally exhibited in the Geneva Cartographic Museum (Bibliothèque de Genève, Département de Cartes et Plans).

Perron in his designs for the Cartographic Museum, and many of the reproduction maps displayed in the museum were drawn directly from these sources.

Moreover, Perron's evolutionary conception of the history of cartography as a field was designed to lead the reader/observer inexorably towards its most recent stage, specifically the project realized by Perron and Reclus themselves at the end of the nineteenth and the beginning of the twentieth century, which they called *Cartographie nouvelle*. This initiative revolved around the construction of three-dimensional cartographic objects, considered to be more 'true' than the flat Map, whose nature, according to these geographers, was essentially to lie. In order to make good the deficiency of conventional maps, Reclus proposed to build a Great Globe, 127 meters in diameter, for the Universal Exposition of 1900. Its scale of 1/100,000 would allow for the representation of altitudes in relief at the same scale as the horizontal dimension (for example, a mountain of 1000 meters would have a material altitude of a centimeter upon the globe's surface). According to Reclus,

the globe outdoes the map by nature of its truthfulness: it represents the planet in its true structure, it varies exactly according to the real contours, whereas maps, increasingly false as they are applied to greater parts of the planetary surface, can only deceive the viewer regarding the relative

dimensions of different regions [while] on the curvature of an artificial globe it is impossible to err with regard to the relative area of the various terrestrial entities.<sup>16</sup>

There is already a rich literature on this celebrated project. Although in the end, the project for a Great Globe failed for political and financial reasons, it nonetheless generated a debate which still impassions researchers.<sup>17</sup> Here, it is sufficient to consider the connections between Reclus' idea and the critical remarks of Carl Ritter, who asserted that 'a geographer, who wants to study the world only on maps, makes the same mistake as a physiologist seeking to study the living body only on a corpse.'<sup>18</sup> This critique of conventional maps was readily adopted by anarchist geographers such as Reclus, Kropotkin and Perron, who already were critical of the near-monopoly enjoyed by governments and the military in the making of topographical maps. If the art of making globes, already quoted in Strabo's *Geography*,<sup>19</sup> belongs to a long cultural tradition of representing the whole world which was particularly evident in the nineteenth century,<sup>20</sup> the originality of Reclus' project was its symbolic charge in representing the principles of human unity and universal brotherhood, as clearly evident in the Belgian socialist journal *L'Humanité Nouvelle*, which first published the proposal.

One problem frequently raised by Reclus was the proportion of the world's different regions represented on flat maps and atlases.

<sup>16</sup> É. Reclus, *Projet de construction d'un globe terrestre à l'échelle du cent-millième*, Paris, 1895, 3–4.

<sup>17</sup> S. Alavoine-Muller, Un globe terrestre pour l'Exposition universelle de 1900. L'utopie géographique d'Élisée Reclus, *L'Espace Géographique* 31 (2003) 156–170; G. Dunbar, Élisée Reclus and the great globe, in: G. Dunbar (Ed), *The History of Geography*, New York, 1996, 12–22; Ferretti, *Il mondo senza la mappa* (note 7), 191–214; N. Jankovic, Introduction, in: É. Reclus (Ed), *Projet de globe au 100.000*, Paris, 2011, 7–41.

<sup>18</sup> C. Ritter, *Géographie générale comparée*, Bruxelles, 1837, 19.

<sup>19</sup> Strabon, *Géographie*, Vol. II, Paris: Les Belles Lettres, 1969, 93.

<sup>20</sup> D. Cosgrove, *Apollo's Eye. A Cartographic Genealogy of the Earth in the Western Imagination*, Baltimore, 2001; J.M. Besse, *Face au monde: Atlas, jardins, géoramas*, Paris, 2003.

In 1891, he had already proposed a *Uniform Atlas*, representing the whole surface of the earth, in 38 sheets at the same scale and with the same deformation, where 'at every point of the Atlas equivalent surfaces of the Map represent equivalent surfaces on the earth.'<sup>21</sup> This questioning of conventional atlases, which clearly anticipates the problematic developed nearly a century later by Arno Peters,<sup>22</sup> suggests a critique of Eurocentrism, a term yet to be devised.

This utopian perspective was clearly evident in the geographical debates of the time. While promoting his *Uniform Atlas*, Reclus was directly in dialog with the protagonists of another 'universal' cartographic project: the Million-Scale International Map of the World, proposed in 1891 by Albrecht Penck at the Fifth International Geographical Congress (IGC) in Berne.<sup>23</sup> According to Alastair Pearson and Mike Heffernan,

the idea can be traced back to the mid-nineteenth century when several cartographers, including Sir Henry James, the Director of the British Topographical Department, raised questions about the practical value of an ever-expanding archive of maps produced by rival national cartographic agencies using differing conventions.<sup>24</sup>

After Penck's paper, 'an IGC Commission of prominent geographers and cartographers was duly established to investigate the idea, including Penck, Ferdinand von Richthofen, Eduard Brückner and Alexander Supan from Germany, John Scott Keltie and Ernst G. Ravenstein from Britain, Franz Schrader from France, and John Wesley Powell from the United States.'<sup>25</sup>

Many of these authors had direct links to Reclus, namely Schrader, who was his cousin and a collaborator of the NGU as part of the geographical networks linked to the publisher, Hachette,<sup>26</sup> and John Scott Keltie, who was a friend of Reclus and Kropotkin,<sup>27</sup> supporting their participation in the activities of the Royal Geographical Society. Penck corresponded in these years with Reclus, who proposed a collaboration between the *Uniform Atlas* and the International Map projects. In an 1891 letter to Perron, Reclus wrote:

I have read Penck's proposition: as it seems to be conceived honestly and in a pure scientific spirit, I would have shame and bad conscience in doing anything without alerting him and proposing to him a collaboration. We would have great advantages: 1. He is a true geographer, and a strong worker; 2. He is German, and by our alliance we could escape from this dishonorable and awful impasse of 'French science and German science' [...] We will have surely troubles and difficulties but I think that acting in a different way will be worse.<sup>28</sup>

In 1897–1898, Penck and Reclus worked together on the project for a bilingual (French–German) *Geography of Switzerland*, promoted by the Swiss Association of Geographical Societies.<sup>29</sup> In the absence of direct evidence, we can infer that the failure of such a proposition was due to the substantial difference between their respective conceptions of a 'World Map'. On the one hand, Reclus and Perron's endeavor was based on voluntarism and 'disinterested science' (that is, science not serving state or imperial purposes), aiming to advance the principle of universal brotherhood. On the other hand, the One Million Map project stressed another kind of universalism, working with topographical offices and engaging colonial states, far from the 'pure scientific spirit' to which Reclus aspired. Nevertheless, the two projects were not entirely separate: as David Livingstone has noted, anarchist geographers like Reclus and Kropotkin sought to utilize essentially the same scientific instruments as the contemporary geographies of power, though for opposite political purposes.<sup>30</sup>

The Great Globe was clearly an extension of ideas developed in the *Uniform Atlas*. In this context, it is important to note that Perron, based in Geneva, worked to build the first pieces of the Globe, namely a relief model of Switzerland, in plaster, at the scale of 1/100,000, reproducing the terrestrial curvature underlying the country. In correspondence with Perron, Reclus alluded to various other projects under consideration at the time, including a relief of Scotland (unaccomplished) which was to be directed by Patrick Geddes (1858–1932).

What a fine fragment of our globe Switzerland would be [...]. This from now on will be the centerpiece of our drive [...] If that map of Scotland begins, without doubt with the small Edinburgh-Glasgow section, it will bear, if it doesn't seem to you premature, the acknowledgement: Globe fragment projected by E.R., Ch. P. and P.R.<sup>31</sup>

With the assistance of Kropotkin and Scott Keltie, Geddes duly obtained the support of the Royal Geographical Society,<sup>32</sup> which had discussed the project in one of its sessions in 1898.<sup>33</sup>

In this period, Perron was the main international advocate of large-scale reliefs (from 1/500,000 to 1/5000), as opposed to small-scale reliefs which necessarily exaggerate altitude to make them perceptible. Such models drew on a well-established Swiss tradition<sup>34</sup>: as William Pearson and Martin Schaefer have shown, the terrain models of Joachim Eugen Müller (1752–1833) were among the first attempts to build large-scale reliefs (1/40,000 and 1/60,000) of Swiss alpine regions. According to Pearson and Schaefer, Müller's works clearly had a 'lower level of accuracy in the vertical axis of the model' than later representations based on the topographical maps of Switzerland made by General Dufour (between

<sup>21</sup> G. Guyou and E. Reclus, D'un atlas à l'échelle uniforme, *Bulletin de la Société Neuchâtoise de Géographie* 9 (1896–1897) 163.

<sup>22</sup> A. Peters, *Atlas of the World: The Earth in True Proportion for the First Time*, Harlow, 1989.

<sup>23</sup> Albrecht Penck, Die Herstellung einer einheitlichen Erdkarte am Massstabe von 1:1,000,000, in: *Compte Rendu du Vème Congrès International des Sciences Géographiques tenu à Berne du 10 au 14 août 1891*, Berne, 1892, 191–198.

<sup>24</sup> A. Pearson and M. Heffernan, The American Geographical Society's Map of Hispanic America: million-scale mapping between the wars, *Imago Mundi* 61 (2009) 215–243 [215].

<sup>25</sup> Pearson and Heffernan, The American Geographical Society's Map of Hispanic America (note 24), 216 (2009).

<sup>26</sup> F. Ferretti, Les Reclus et la Maison Hachette: La première agence de la géographie française ?, *L'Espace Géographique* 39 (2010) 239–252.

<sup>27</sup> F. Ferretti, The correspondence between Élisée Reclus and Pëtr Kropotkin as a source for the history of geography, *Journal of Historical Geography* 37 (2011) 216–222; G. Kearns, *Geopolitics and Empire: The Legacy of Halford Mackinder*, Oxford, 2009.

<sup>28</sup> E. Reclus, *Correspondance*, Vol. III, Paris, 1925, 100–101.

<sup>29</sup> Bibliothèque de Genève (from now on BGE), Fonds de la Société de Géographie, Ms. Fr. 8021/7, Fédération des Sociétés Suisses de Géographie/Verband der Schweizer Geographischen Gesellschaften.

<sup>30</sup> D. Livingstone, *The Geographical Tradition*, Oxford, 1992, 254–259.

<sup>31</sup> BGE, Dép. des Manuscrits, Ms. Suppl. 119, E. Reclus to C. Perron, 1 December 1895 [P.R. are the initials of Paul Reclus, engineer and nephew of Élisée, who was charged of the technical part of the project].

<sup>32</sup> Royal Geographical Society with Institute of British Geographers (RGS-IBG), Department of Manuscripts, CB7, P. Kropotkin to J. Scott Keltie, 29 January 1896.

<sup>33</sup> P. Geddes, J.B. Jordan, and H.F. Brin, A great globe: discussion, *The Geographical Journal* 12 (1898) 406–409.

<sup>34</sup> S. Grieder and T. Mair, *Symbiose von Wissenschaft und Kunsthandwerk, mit Schweizer Reliefkatalog*, Bern, 2006.

1832 and 1864) and Hermann Siegfried (between 1870 and 1926), which, among other sources, were available to Perron for his work.<sup>35</sup> Nevertheless, Perron did not cite Müller, perhaps because there were theoretical differences between their two approaches. According to Thomas Mair and Susan Grieder, Müller's reliefs served to make better flat maps,<sup>36</sup> like the *Atlas Suisse* by Johann Rudolf Mayer and Johann Heinrich Weiss. In contrast, Perron's reliefs were designed to be autonomous objects, outdoing the best of maps in their proximity to 'nature'.

In 1894 Perron won the endorsement of the Geneva Geographical Society for his plan to assemble a first relief of Switzerland at the scale of 1/500,000 for the national exposition to be held in the city two years later. As this support was merely 'moral',<sup>37</sup> Perron took part in the exposition only as chairman of the cartographic section, while starting work on the 1/100,000 version, refining a set of standards for a new relief-based cartography:

1. Reliefs have as their object the depiction of the configuration of the ground just as it is. 2. They should not allow any of the conventions used in geographical maps. 3. Nothing should be represented that is not to scale. 4. Reliefs representing all or part of the earth's crust should replicate the exact curvature. 5. Reliefs should be constructed according to rather precise mechanical procedures so as to achieve mathematical exactitude. 6. Reliefs pertain to the domain of the exact sciences, where art enters only as a secondary consideration.<sup>38</sup>

These guidelines were presented in 1900 at the Berlin International Geographic Congress by Arthur de Claparède, the Secretary of the Geneva Geographical Society, who added that:

The great advantage of the relief is to complement maps by showing the surface of the earth according to its true form, which the latter cannot do with the numerous conventions which by nature they admit. It is in this way that, from the point of view of the greatest geographers, they instill erroneous ideas, which reliefs are called upon precisely to eliminate or prevent.<sup>39</sup>

After the abandonment of the Great Globe project, Perron had difficulty finding financial support for the completion of his relief model of Switzerland, which he hoped to display independently at the 1900 Paris World Fair. He initially obtained a subsidy of 1,500 Francs from the Swiss Federal Council, but this was suddenly revoked after the intervention of a group of Zurich cartographers including Albert Heim, who contested the award. The controversy appears to have arisen for political reasons: given that the relief of Switzerland was considered to represent the 'figure of the

Nation',<sup>40</sup> the fact that its design was entrusted to an anarchist would in itself have posed some difficulties. But the dispute was also shaped by the conflict between French-speaking and German-speaking geographers, as evident in the numerous pamphlets and articles which appeared at the time. In this debate, a vocal section of the Geneva and Lausanne scientific community gave full support to Perron, though their efforts proved in vain.

From a letter sent by Perron to his friend Daniel Baud-Bovy, we know that the cartographer received a grant of 5000 Francs from the chocolate-maker Suchard, enabling him to start his work.<sup>41</sup> Reclus, living in Brussels at this time, was unfailing in his encouragement of his friend. 'Although your undertaking may be held back, it doesn't seem to me that it will be buried: of course, you will have to pursue it with unwavering perseverance.'<sup>42</sup> Perron's relief model eventually made it to Paris, where it won a Gold Medal, and afterward it was exhibited in Geneva, winning full honors. As discussed in the next section, Perron's newly-won celebrity played a key role in enabling him to open the Cartographic Museum. Although the official poster for the exhibition reproduced the most classical Helvetic stereotypes of mountains and alpinism (Fig. 3), Perron's relief model is actually a rare case of a national image of Switzerland which does not include its boundaries (Fig. 2). Rather, it follows the tradition of 'natural region' geography, in which regions are defined independently of political power.<sup>43</sup>

Following Reclus' departure from Switzerland, he attempted in the final years of his life to realize another project aiming at the three-dimensional representation of the world: the *Spherical Atlas*, presented in 1902 at the Berlin *Gesellschaft für Erdkunde* (Geographical Society) and in 1903 at the London Royal Geographical Society, when the most famous Anglophone geographers of the day, including Mackinder, Herbertson and Ravenstein, took part in the discussion.<sup>44</sup> This Atlas aimed to represent the whole world on 46 curved sheets of aluminum at the uniform scale of 1:5,000,000, without altitude in relief but incorporating an 'exact' terrestrial curvature (Fig. 4).

In contrast to the Great Globe, these objects had to be rather small, in order to be suitable for didactic use in the classroom. In fact the teaching of geography was a key priority for Reclus as well as for his anarchist colleagues, recalling Pestalozzi's affirmation of the importance of didactic excursions.<sup>45</sup> In this context, too, they proposed alternatives to the use of flat maps in the classroom. During the 1903 RGS meeting, for example, Reclus asserted that flat maps should be 'completely banished' from primary education.<sup>46</sup> In the same years, Reclus worked with the Barcelona *Escuela Moderna*, founded by Francisco Ferrer y Guardia (1859–1909), to construct several small cardboard globes designed to show children the real features of the Earth.<sup>47</sup> However, only one sheet of the spherical

<sup>35</sup> A.W. Pearson and M. Schaefer, A cartometric analysis of the terrain models of Joachim Eugen Müller (1752–1833), using non-contact 3D digitizing and visualization techniques, *Cartographica* 44 (2009) 111–120.

<sup>36</sup> Grieder and Mair, *Symbiose von Wissenschaft und Kunsthandwerk* (note 34), 36.

<sup>37</sup> Bibliothèque de Genève (BGE), Département des Manuscrits, Ms. Fr. 7996/2, Société de Géographie, Procès-verbaux des séances du Bureau, 1890–1897, séance du 4 avril 1894 and 15 mai 1994.

<sup>38</sup> Ch. Perron, *Des reliefs en général et du relief au 100.000<sup>e</sup> de la Suisse en particulier, mémoire adressé au Jury de la Cartographie à l'Exposition universelle de 1900 à Paris*, Geneva, 1900, 7–8.

<sup>39</sup> A. De Claparède, Un nouveau procédé de construction des reliefs employé par M.C. Perron, Cartographe à Genève, in: *Sonderabdruck aus den Verhandlungen des VII Internationalen Geographen-Kongresses in Berlin, 1899*, Berlin, 1900, 941.

<sup>40</sup> F. Walter, *Les figures paysagères de la nation, territoire et paysage en Europe (16<sup>e</sup> – 20<sup>e</sup> siècle)*, Paris, 2004, 329.

<sup>41</sup> BGE, Département des Manuscrits, Archives Baud-Bovy 270/4, ff. 146–148, C. Perron to D. Baud-Bovy, 5 February 1901.

<sup>42</sup> Institut Français d'Histoire Sociale (IFHS), 14 AS 232, Correspondance d'Élisée Reclus, É. Reclus to C. Perron, 17 July 1897.

<sup>43</sup> F. Farinelli, *I segni del mondo*, Firenze, La Nuova Italia, 1992.

<sup>44</sup> É. Reclus, P. Kropotkin, Mr. Mackinder, Mr. Ravenstein, Mr. Herbertson, Mr. Andrews, and Mr. Sanderson, On spherical maps and reliefs. Discussion, *The Geographical Journal* 3 (1903) 299.

<sup>45</sup> P. Elliot and S. Daniels, Pestalozzi, Fellenberg and British nineteenth-century geographical education, *Journal of Historical Geography* 32 (2006) 752–774.

<sup>46</sup> É. Reclus, On spherical maps and reliefs, *The Geographical Journal* 3 (1903) 290.

<sup>47</sup> Bibliothèque Nationale de France, Département des Manuscrits Occidentaux, Nouvelles Acquisitions Françaises, Dossier 22914, f. 126–128.



Fig. 2. Photograph of Perron's relief model, taken by Fred Boissonnas and signed by the author (Geneva, Centre d'Iconographie Genevoise, Fonds Boissonnas).

Atlas (representing the Western Mediterranean) was completed, though several impressions of this were fabricated in Brussels by Emile Patesson. Three of these were sent to Perron in Switzerland, to be used as the last piece of his chronological exhibition, representing the so-called 'cartography of the future'.

#### A cartographic museum: geography and popular education

The Cartographic Museum of the City of Geneva, open from 1907 to 1922, was the result of the initiative and persistence of Charles Perron. When Reclus departed from Switzerland in 1891, he left behind more than 6000 maps of all kinds which had been used as sources and preparatory material for the 19 volumes of the NGU.<sup>48</sup> This encyclopedic work had been realized by Reclus during his 20-years exile in Switzerland with the collaboration of a network of scientists, many of whom were also anarchists and members of the Swiss section of the first International Workers Association: Perron, Pëtr Kropotkin, Léon Metchnikoff, and Gustave Lefançais, among others. The advocacy of public, secular and popular education was

central to their political discourse, and it was in the work of the Internationalists in Switzerland that we encounter the earliest expressions of the movement known as 'liberation pedagogy'.<sup>49</sup>

Perron was one of the forefathers of this movement, writing in the 1868 pamphlet *De l'obligation en matière d'instruction* that 'Ignorance, here is the organic social vice, the foremost cause of disorder! It is here that it is necessary to strike, and strike hard, because if we can make this cancer disappear, the truth, the final revolution will be accomplished.'<sup>50</sup> In 1876, Reclus and Perron had founded the Vevey section of the *Fédération Jurassienne*; in its journal, they advocated the establishment of independent schools, arguing that: 'We are quite far from being assured the instruction that we need to have the upper hand in our struggle against oppressors. By a bloody irony of fate, it is of them that we must ask what we [can] learn.'<sup>51</sup>

Notwithstanding the common portrayal of Anarchists as dreamers and utopians, these militants were very pragmatic in making alliances with other progressives, such as Liberals and Republicans, in the cause of promoting public and secular popular

<sup>48</sup> F. Ferretti, *Anarchici ed editori, reti militanti, editoria e lotte culturali attorno alla Nuova Geografia Universale di Élisée Reclus*, Milan, 2011; Jud, *Élisée Reclus und Charles Perron, Schöpfer der 'Nouvelle Géographie Universelle'* (note 5); Ph. Pelletier, *Élisée Reclus, géographie et anarchie*, Paris, 2009.

<sup>49</sup> P. Avrich, *The Modern School Movement: Anarchism and Education in the United States*, Princeton, 2006; F. Codello, *La buona educazione: Esperienze libertarie e teorie anarchiche in Europa da Godwin a Neill*, Milan, 2005.

<sup>50</sup> C. Perron, *De l'obligation en matière d'instruction*, Geneva, 1868.

<sup>51</sup> J. Guillaume, *L'Internationale, documents et souvenirs*, Vol. IV, Paris, 1985, 147.



Fig. 3. Poster for the public exhibition of Perron's relief model in Geneva (Bibliothèque de Genève, Département des Affiches).

education. This is evident, for example, in the collaboration between anarchists such as James Guillaume and Paul Robin (members of the *Fédération jurassienne*) and the liberal free-thinker Ferdinand Buisson in the editing of the imposing *Dictionnaire de Pédagogie*, creating the foundations for subsequent French policy in public education.<sup>52</sup>

In Geneva, Perron worked in a similar way: he proposed to the local administration a project following his idea of secular and rational scientific education which also coincided with some of the purposes of the state's public cultural institutions, including its museums. In this task, Perron found support among several local

administrators, such as the counsellor Piguet-Fages, and the geographer and radical politician William Rosier (1856–1924), who dedicated a great part of his career to public education. One recent analysis has noted that when Rosier served his party on the Council of State, from 1906 to 1918, 'his great victories were linked to the improvements of the most egalitarian school'.<sup>53</sup> Rosier based his teaching at the University of Geneva firmly on the Perron–Reclus cartographic collection, so much so that a 1908 municipal document affirmed that the collection could be considered the 'laboratory of the Geography Chair of the University'.<sup>54</sup>

<sup>52</sup> P. Dubois, *Le Dictionnaire de pédagogie et d'instruction primaire de Ferdinand Buisson: répertoire biographique des auteurs*, Paris-Lyon-Rouen, 2002.

<sup>53</sup> C. Fischer, C. Mercier, and C. Raffestin, Entre la politique et la science, un géographe genevois: William Rosier, *Le Globe* 143 (2003) 17.

<sup>54</sup> Archives de la ville de Genève, *Mémorial des séances du Conseil Municipal de la Ville De Genève*, Séance du 27 novembre 1908, 446.



Fig. 4. Spherical map of the Western Mediterranean (Bibliothèque de Genève, Département des Cartes et Plans).

In 1891, Perron described the collection as holding the ‘maps, diagrams and topographic reliefs which served the preparation of the sixteen volumes of the *Nouvelle Géographie Universelle* already brought to light’, explaining further that ‘this unique collection comprises more than 6000 maps. There is little in it that would be a historical or bibliographic curiosity; yet they are generally the best modern maps that we possess, which have a great value for practical geographers. Then the merit of this collection is further enhanced by the presence of a great number of original sketches or collections sent directly to Mr. Reclus.’<sup>55</sup>

Marianne Tsioli, the current curator of the Geneva cartographic collection, recounts the story of Perron’s gift to the city as follows:

in 1893, Perron deposited the six thousand eight hundred and thirteen maps united in forty three portfolios at the library, where they became the map collection. In 1902, he added two hundred and forty-eight maps, eighty

photographs and forty-one reliefs. Perron and Reclus joined to this gift numerous works of geography and atlases, toward promoting the study of geography.<sup>56</sup>

But, as mentioned earlier, it was only after his success at the Paris 1900 exhibition that Perron gained full institutional recognition for the cartographic collection. In 1903 he was officially named curator of cartographic collection, whereupon he ‘undertook the methodical classification and cataloging of the collection, and [...] obtained a special allocation of funds [...] In 1905, the map collection of the City of Geneva was installed in the Building at Bastions.’<sup>57</sup>

In those years, the Administrative Council of the City of Geneva launched a call for donations and Perron was gratified with the response. ‘This appeal was a complete success. It was in this way that in 1902 and 1903 the map collection grew to more than a thousand maps, numerous atlases, wall maps, etc., coming mostly

<sup>55</sup> C. Perron, La bibliothèque cartographique de M. Élisée Reclus, *Le Globe. Organe de la Société de Géographie de Genève* 30 (1891) 162.

<sup>56</sup> M. Tsioli-Bondenmann, Cartes et Plans, in: *Patrimoines de la Bibliothèque de Genève*, Geneva, 2006, 191.

<sup>57</sup> Tsioli-Bondenmann, Cartes et Plans (note 56), 191.





Fig. 5. First section of Perron's map catalog (Bibliothèque de Genève, Département des Cartes et Plans).

from donations.<sup>58</sup> In 1904, the cartographer could describe the *mappothèque* as follows:

One finds there for each country, in addition to the administrative or other general maps, numerous regional maps, city plans, etc., as well as maps relating to archeology, ethnography, politics and war. Still others related to geology, the natural production of the soil, agriculture, industry commerce, transportation routes, statistics, etc. A rather large number of maps bear annotations by Mr. Reclus, which in no way diminishes their value [...] Our map collection additionally contains other documents, among these there are found, in significant numbers, special maps with dedications by their authors, unpublished maps by explorers; still others, similarly manuscripts, by known cartographers such as Vuillemin, by celebrated engravers such as Collin; in other words, some rare works.<sup>59</sup>

The criteria by which the collection was classified were mainly geographical: in his handwritten inventory, Perron cataloged the maps according to the regional organization of the NGU and added only a section of world maps, a section of wall maps and a section of Atlases. If this kind of organization and size had some similarities with other great cartographic collections of that time, like those of Jomard,<sup>60</sup> Nordenskjöld<sup>61</sup> and Roland Bonaparte,<sup>62</sup> we can nonetheless recognize some original features in Perron's work. Firstly, this ensemble was not designed to be a private collection: it was based on work materials gathered not for their own value, but for their utility as sources for scientific knowledge, namely for the realization of the NGU. Only during a second period, after receiving donations from Genevan citizens and members of the Geneva Geographical Society, did the collection begin to include a relevant amount of 'rare', 'ancient' and 'original' pieces according to collectors' standard of the time. Secondly, the main aim of the project was

<sup>58</sup> Ch. Perron, Collection Cartographique de la Bibliothèque Publique, *Le Globe. Organe de la Société de Géographie de Genève* 43 (1904) 41.

<sup>59</sup> Perron, Collection Cartographique de la Bibliothèque Publique (note 58), 39.

<sup>60</sup> E.-F. Jomard, *De la Collection géographique créée à la Bibliothèque royale, examen de ce qu'on a fait et de ce qui reste à faire pour compléter cette création et la rendre digne de la France*, Paris, 1848.

<sup>61</sup> A.E. Nordenskjöld, *Fac-simile-Atlas to the Early History of Cartography: With Reproductions of the Most Important Maps Printed in the XV and XVI Centuries*, Stockholm, 1889.

<sup>62</sup> A. Fierro, La Bibliothèque et les archives de la Société de géographie, *Acta Geographica* 52–53 (1982–1983); F. Duclos, Un collectionneur, sa bibliothèque et la Société de géographie: Roland Bonaparte (1858–1924), *Acta Geographica* 107 (1996) 61–67.

the utilization of maps for a social and public goal: namely, making them truly available to anyone (Fig. 5).

Although Perron was satisfied to see the map collection secured within the library and archives of the city of Geneva, he nonetheless maintained a broader vision for the role of maps in popular education, and with this end in mind he vigorously pursued the creation of a Cartographic Museum. On November 14, 1907 the museum opened with a public ceremony attended by Perron (Reclus having died in 1905), Rosier, Piguët-Fages, and De Claparède,<sup>63</sup> aiming to ‘interest a wide public [...] while facilitating scientists’ work.<sup>64</sup>

The exhibition showed only a sample (some 350 items) of the immense collection, and was organized in six parts: world maps (176 items); the ‘history of cartographic drawing’ (55 items); maritime maps (30 items); maps of Switzerland (50 items); maps of the Canton of Geneva (30 items), and, finally, ‘other maps’ (10 items). Within each section, the order of the exhibition was chronological. Perron’s idea of cartographic ‘accuracy’ was surely influenced by the Positivism of the time, whereas today we have a somewhat different vision, being aware, as Matthew Edney writes, of the ‘delusional nature of the promise of cartographic perfection engendered by detailed mapping of extensive territories and, more recently, digital computers and satellite imagery. We can now see that this perfection entails a significant redirection of the cartographic impulse to control the world.’<sup>65</sup> Nonetheless, I would argue that Perron’s position was inserted in a debate where anarchist geographers explicitly criticized the positivistic philosophy of authors such as Comte and Spencer,<sup>66</sup> sharing some of their secular and ‘progressive’ assumptions but challenging their idea of linear progress.<sup>67</sup> In the case of cartography, Perron and Reclus considered as their main goal not the realization of greater accuracy, but the building of new representations of the world and giving them a social use as in initiatives like the Great Globe, the Cartographic Museum and their collaboration with popular schools and university extensions. In questioning existing conventions, they stressed what today we would call ‘the limits of representation’.<sup>68</sup>

Moreover, Perron’s presentation of the history of cartography in the museum was quite innovative for his time, especially when compared to other contemporary museums designed to mythologize the nation and its historical roots, or to demonstrate European ‘superiority’ over ‘exotic’ or ‘primitive’ peoples.<sup>69</sup> First, the collection was to be used to emphasize a unifying vision of the world, as demonstrated by the numerical priority given to world maps. Second, its vision of the world embraced extra-European representations, including for example reproductions of a dozen Hebrew and Arabic world maps from antiquity and the Middle Ages, and two ancient maps from Nubia and Mesopotamia which opened the section on the history of cartographic drawing.<sup>70</sup> Thirdly, both the collection and the Museum were shaped by the case made in favor of three-dimensional representations of the world, presenting the ‘cartography of the past’ as succeeded and

bettered by the so-called ‘cartography of future’: as noted above, the exhibition concluded with a display of the first aluminum sheet of the Spherical Atlas provided by Reclus, who had insisted in a 1902 letter to Perron that ‘the Earth is round, and consistent maps also should be.’<sup>71</sup>

Perron also experimented with new photographic techniques to simulate aerial photographs made from various heights, using relief models. The example shown in Fig. 2 was a map simulating a spatial vision of Switzerland from the height of 180 km,<sup>72</sup> anticipating the modern satellite image while expressing the nineteenth-century taste for drawn and painted panoramas and dioramas which, according to Denis Cosgrove, had anticipated ‘physical flight’.<sup>73</sup>

The relative scarcity of extra-European images in the museum probably owed more to their rarity than to any ideological choice. A survey of the present cartographic archive, including an interesting collection of Asian maps, suggests that the majority of such materials were acquired only through more recent donations. On the other hand, the collection does include some long-held documents which were obvious apologies for colonialism, including disparaging figures treating the other ‘races’. Such materials were not included in the exhibition, and it can be assumed that this was an ideological choice: as we have seen, Reclus and the anarchist geographers were early and radical opponents of colonialism, racism and European hegemony.<sup>74</sup> The founder of the Cartographic Museum was aware of the ideological roles which maps could play. Addressing the transition from Antiquity to the Middle Ages, he stated ironically that the transformation of cartography in late Antiquity took place because ‘Christian culture considered the science of the pagans (Greeks and Romans) as false and very dangerous for the health of souls’.<sup>75</sup> Nevertheless, according to Perron, that was not a reason to avoid exploring this period in the history of cartography.

In addition to the catalog, another publication accompanied the 1907 opening of the Museum, namely a history of maps of the world: *Les mappemondes: une étude cartographique*. By means of a short history of representations of the world, Perron made his case for the establishment of cartographic museums:

I would like to succeed in bringing out, at least in part, the importance that cartographic museums could hold for scientific studies as well as for public education. Indeed, it is not sufficient to be [merely] aware that there exist old documents in the history of cartography; it ought to be that, as with the canvases of art galleries, they are available to all. Stored in boxes, their utility is most limited, since we only remove them, one by one, when by chance some scholar requests them. This isn’t good enough. What products, other than those of analysis, can the consultation of isolated documents yield? Comparative studies allowing their simultaneous viewing would certainly also have their value. Then

<sup>63</sup> BGE, Département des Manuscrits, Biographies Genevoises, 1909, Charles Perron.

<sup>64</sup> Ch. Perron, *Catalogue descriptif du Musée cartographique/Dépôt des cartes de la Ville de Genève*, Geneva, 1907, 3.

<sup>65</sup> M.H. Edney, Mapping parts of the world, in: J.R. Akerman, R.W. Karrow Jr. (Eds), *Maps: Finding Our Place in the World*, Chicago, 2007, 156.

<sup>66</sup> P. Kropotkin, *Modern Science and Anarchism*, London, 1912.

<sup>67</sup> E. Reclus, *Évolution, Révolution et l’idéal anarchique*, Paris, 1898.

<sup>68</sup> F. Farinelli, G. Olsson, and D. Reicher, *Limits of Representation*, Munich, 1994.

<sup>69</sup> J.-F. Staszak (Ed), *L’Exotisme, Le Globe* 148 (2008), special issue; T. Mitchell, Orientalism and exhibitionary order, in: N.B. Dirks (Ed), *Colonialism and Culture*, Ann Arbor, 1992, 289–317; S. Reubi, *Gentlemen, prolétaires et primitifs: Institutionnalisation, pratiques de collection et choix muséographiques dans l’ethnographie suisse, 1880–1950*, Bern, 2011.

<sup>70</sup> Perron, *Catalogue descriptif du Musée cartographique* (note 64), 8–24, 47–48.

<sup>71</sup> BGE, Département des Manuscrits, Ms. Suppl. 119, E. Reclus to C. Perron, 9 November 1902.

<sup>72</sup> Perron, *Catalogue descriptif du Musée cartographique* (note 64), 63.

<sup>73</sup> Cosgrove, *Apollo’s Eye* (note 20), 206.

<sup>74</sup> F. Ferretti, They have the right to throw us out: Élisée Reclus’ Universal Geography, *Antipode* 45 (2013), <http://dx.doi.org/10.1111/anti.12006>; F. Ferretti and P. Pelletier, Sciences impériales et discours hétérodoxes: La géographie d’Élisée Reclus et le colonialisme français, *L’Espace Géographique* 42 (2013) 1–14.

<sup>75</sup> Perron, *Catalogue descriptif du Musée cartographique* (note 64), 13.

again, in our century of democratic instruction, shouldn't we bring to light this human endeavor which is perhaps the greatest and most important of all, that which, beginning in the remoteness of centuries past, is still pursued with passion today: the discovery of the Earth?<sup>76</sup>

If Perron's thinking owes much to nineteenth-century traditions, I would argue that his notion of cartographic history nonetheless diverged from some prevailing concepts of an age when (in Harley's words) 'the history of cartography was not studied as an independent subject but remained primarily a handmaiden to the history of geography defined as the history of geographical discovery and exploration.'<sup>77</sup> Perron's advocacy of cartographic museums seems consistent with the idea of cartographic history as an independent and inclusive field of study. The Geneva Geographical Society backed Perron in his initiative, and entrusted him with presenting the proposal at the 1908 International Geographical Congress. Archival materials from the Society's central Bureau have recently become available at the Geneva Library, and institutional memoranda from the time reveal the Society's interest in 'making copies of the rare and ancient maps to preserve them and allow the opening of new Museums.'<sup>78</sup>

The International Geographical Congress accepted the proposal, asking Perron and others to study the conditions by which the 'cartographic monuments of humankind' could be made available to the public. Among the resolutions and wishes voted upon and approved at the Congress was the following:

The Ninth International Congress of Geography expresses the wish that the geographical societies truly seek to interest the governments of their respective countries to conserve the cartographic monuments of antiquity, the Middle Ages and the Renaissance, documents of great scientific value, and which time threatens to destroy. The Congress names MM. Nordenskjöld, K. Miller, G. Marcel E. Oberhummer and C. Perron members of a Commission with a mandate to centralize the results obtained in this vein, to present to the next Congress a catalogue giving the general state of repair of old maps in facsimile, and to determine in order of importance the old cartographic documents whose conservation would be especially desirable. The Commission will be able to add, by nomination, members belonging to the various countries possessing cartographic documents.<sup>79</sup>

Although Perron died in 1909, the Museum remained open under the direction of Charles Schöndelmayer. Without its indefatigable animator, however, the institution declined, the number

of visitors diminished, and the city of Geneva finally decided to close it in 1922 'as a measure of economy'.<sup>80</sup>

## Conclusion

The historical works of Charles Perron and Élisée Reclus found today in the Geneva cartographic collection anticipate some features of our present conception of the history of cartography as a scientific and critical discipline. An inclusive notion of cartography permitted Reclus and Perron to organize a collection and develop a public discourse which was not constrained by preconceived chronological or technical limits. This broad conception is evident, for example, in their recognition of the limitations of flat maps, which led them to experiment with other forms of spatial representation, including globes, reliefs and three-dimensional objects which then entered into the field of the history of cartography and into the frame of map collections in all their rich diversity.

The Cartographic Museum founded by Perron and the proposals for others of its kind presented at the 1908 International Geographical Congress represented early efforts to produce a critical discourse on cartography. They were also an affirmation of the social and pedagogical value of maps at a time of intensifying interest in the educational potential of public and cultural institutions in Europe. For geographers who were also anarchist activists, this endeavor had a strategic value in that it allowed them to advocate the expansion of popular, secular and rational education for both children and working-class adults. In an epoch when the great cartographic collections were held in private collections or in libraries not easily accessible for a wider public, the idea of opening up cartographic museums was relatively advanced. Finally, the museum and collection provides a further instance of the scientific and political strategy of anarchist geographers as Reclus and Perron who sought to utilize the tools of contemporary science to improve their project of social transformation, working on the construction of secular non-dogmatic knowledge, making available science for the masses while criticizing the ideological limitations of more conventional maps.

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<sup>76</sup> Perron, *Une étude cartographique* (note 2), 44.

<sup>77</sup> Harley, *The map and the development of the history of cartography* (note 3), 14.

<sup>78</sup> BGE, Département des Manuscrits, Ms. Fr. 7996/3 Société de Géographie, Procès-verbaux des séances du Bureau 1907–1916, Séance du 5 juillet 1907.

<sup>79</sup> Neuvième Congrès International de Géographie. Genève, 27 juillet – 6 août 1908, *Résolutions et vœux votés par l'assemblée des délégués le lundi 3 août et le jeudi 6 août 1908*, Genève, 1908, 22–23.

<sup>80</sup> Tsioli-Bondenmann, *Cartes et Plans* (note 56), 192.