

Introduction

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This volume of *Histoire des Alpes – Storia delle Alpi – Geschichte der Alpen* brings together a selection of eleven papers presented at the biannual conference of the International Association for Alpine History (IAAH), *Mountain global: A comparative history of natural sciences about mountains, 16th to 20th centuries*. The conference took place on 3–4 September 2020 at the University of Lausanne, was supported by the Universities of Lausanne and Bern and by the Laboratorio di Storia delle Alpi LabiSAlp (Accademia di architettura-Università della Svizzera italiana, Mendrisio), and attended by some twenty speakers from Europe, the Americas, and Asia.¹ The conference and this special issue, entitled *Histoire naturelle et montagnes. Regards croisés des Andes à l'Himalaya*, have a common objective. Both reflect on the role played by naturalists, but also by different actors (not only the academically trained), in the process of exploring mountains and mountain nature, and of building up knowledge (including practical knowledge) on the use of these resources from a global and long-term perspective.²

Most of the articles presented in this volume focus on the period from the 1700s to the mid-19th century, an era that saw a major development in the study of natural history in Europe, as well as in the Americas and Asia. This development was linked to the process of trade globalisation, which was in turn linked to the increase in European exploration journeys to unknown (from a European perspective) territories and the intensification of colonial presence in these territories.³ Interest in natural history research also involved mountain regions, their flora, fauna, and minerals, and was both scientific and economic/commercial. For the European powers (in particular France, Britain, and the United Provinces) it was a competition to achieve monopoly on trade in certain colonial products, as well as, and first and foremost, a competition for speci-

mens, observations and useful information of all kinds on plant, animal, minerals that could be useful from a medical, craft and commercial point of view (see the paper of Émilie-Anne Pépy).⁴ During the same period, not by chance especially in Europe, a process of development and consolidation of learned institutions can also be observed. Think of scientific academies and societies (the Royal Society in London or the Académie des Sciences in Paris), of the patriotic-economic societies that experienced significant growth throughout the 18th century, but also of botanical gardens or natural history museums, which acquired their own scientific specificity, distancing themselves from the *Kunstkammer/Wunderkammer* of the previous period.⁵ Among the numerous institutions cited in the papers presented in this volume, we can mention the Royal Academy of Sciences and the Royal Society for Agriculture of Turin, the Royal Academy of Sciences in Naples, the *Société d'Agriculture de Chambéry*, the Academy of Udine, the Natural Science Society of Graubünden (*Naturforschende Gesellschaft Graubünden*), the Royal Botanical Gardens in Madrid and in Paris, but also the Asiatic Society of Bengal and the Royal Geographical Society (see the contributions of Fuchs, Bovolo, Lorenzini-Bonan, Guerra, Pépy, Upadhyaya, Vaj and Granet-Abisset). The end of the 18th and more so the 19th century were also shaped by the foundation of several universities and technical colleges, arising from the process of specialisation of disciplines and of professionalisation of research at university level, which have in turn accelerated the process of technicalisation of knowledge.

All these institutions played an important role in the evolution of the scientific approach to mountains from a global point of view and acted as «collection centres» for the vast amount of information on local nature and specimens from all over the world.⁶ They also operated as processing centres for new forms of knowledge and for the definition of a new taxonomy of natural history (after 1750 dominated by Linnaeus' systematisation), a development that, in Europe, has rightly been described as «colonisation of knowledge».⁷ Colonial trading companies, such as the East India Company, were also important in this process, the scientific exploration of different areas (including mountains), as Himani Upadhyaya shows in her article on an East India Company military engineer, Richard Strachey, and his natural science research in the Kumaon Himalaya. In addition to these companies, religious institutions were involved in the process of evangelisation, but also in the process of exploration of (to them) unknown territories: Think, for example, of the international network set up both in Asia and in the Americas by the Society of Jesus, referred to in the contribution by Stefano R. Torres.⁸

All learned societies or academic institutions mentioned, despite their diversity, draw our attention to the mutually supportive role between natural his-

tory, exploitation of natural resources, emergence of the modern states and the colonisation process of mountains in and outside Europe. Indeed, these institutions are linked to diverse state entities, to courts, to different colonial rules, to oligarchic republics or to republics based on strong communal autonomy. Political entities mentioned in the papers include, for example, the Kingdoms of France, of Naples, and of Sardinia, the Duchy of Savoy, colonial India and colonial Americas, but also the Republic of Venice, or the Canton of Grisons in Switzerland.

As well as trying to highlight the similarities (or differences) in the processes of exploring mountain regions in different continents, and in different political systems, the aim of the conference was also to highlight the agency of local actors. Recent scholarship has shown that behind the «great naturalists», if you look closely, there are a myriad of actors who act not only as cultural intermediaries (translation from one language to another), or as guides, but also as suppliers (or not) of specimens and information. In this sense, it may be said that the natural history elaborated in the European centres was the result of complex dynamics of interrelation and exchange, admittedly often asymmetrical, with different actors at every level of the social scale, whether in the Alpine regions or in the Himalayas and the Andes.⁹

Before presenting the three sections of this issue, I would like to draw attention to the strong links that exist between the Alps and the other mountain ranges of the world. In fact, particularly since the arrival of Christopher Columbus in the Americas, mountains have played an important role, and the discovery of these territories has undoubtedly favoured the renewal of the study of local nature in mountain regions as well.¹⁰ When Columbus landed in the Americas, he was particularly impressed by the landscape and the majesty of the mountains. His description of these impressive mountains also shows us how much these territories were seen through the lens of a European. Having landed in Hispaniola, the Genoese navigator described his wonder at these mountains: The «chains of mountains», he wrote in his logbook, were «very high, without comparison with those on the island of Tenerife; they are all beautiful, of a thousand shapes and all passable and full of trees of every type and height, which seem to reach to the sky».¹¹ The year 1492 not only marks the arrival of the Europeans in the Americas, but also the breaking of another taboo: the climbing of a mountain long considered inaccessible and called *Mons inaccessibilis*. This is the Mont Aiguille in the Dauphiné, climbed by Antoine de Ville (c. 1450–1504), advisor and chamberlain to the King of France, Charles VIII (1470–1498), on his orders. This event can be interpreted as an «exploit politisé», analogous to the 1519 ascent of the Popocatepetl volcano by the conquistador Diego de Ordás y Girón (1485–1532) during the conquest of

Mexico led by Hernán Cortès (1485–1547).¹² The comparison with the Americas serves above all to highlight the parallels in the discovery of two *terræ incognitæ* and to show the process of «sanctification», Christianisation and conquest of undomesticated spaces, while also highlighting the symbolic significance of conquering mountains for political power.¹³ This chronological correspondence shows the link between the (to Europeans) unknown «exotic» spaces, which were to become the object of naturalistic-scientific, colonial-commercial and political interest, and the other wild (or undomesticated) intra-European spaces to which the mountain regions also belonged. In his numerous studies on the perception of the (Alpine) landscape, François Walter has repeatedly underlined the relationship between the European discovery of the Americas and the ascent of Mont Aiguille in the Dauphiné, and the link between «grandes explorations océaniques et les expéditions alpestres». This is the sort of imagery with which Horace-Bénédict de Saussure (1740–1799) was also very familiar when he travelled in the Alps and climbed Mont Blanc.¹⁴

The connection between the Americas, Asia and the Alps has been underlined, in different ways and for different reasons, also by some scholars specialised in the Alpine area and in the study of landscape. For example, Jon Mathieu in his work on the discovery of the third dimension has highlighted the central role of the Americas in the development of a different view of nature and (also) of mountains.¹⁵ Indeed, in the first decades of the 1500s the Spanish crown started to request *relaciones* (reports) from sailors, as well as from local officials, to gather information about the nature and people of the newly discovered territories. The goal of these reports was the optimization of the administration in overseas regions. Under the rule of Philip II King of Spain (1527–1598), these questionnaires, called *cuestionarios para la formación de las relaciones geográficas*, were printed. The purpose of these questionnaires was to organise a systematic collection of empirical data on territories still unknown to Europeans, to disseminate knowledge about it, and to achieve a better administrative communication between Spain and the Americas. In these *Cuestionarios*, we can find several queries about the configuration of mountains, their flora and fauna, and agriculture in these areas.¹⁶ Exploration of the Alps began virtually at the same time as the Europeans arrived in the Americas, and seems to have been the local answer to the early form of globalization. It initiated a major flow of information on several animal and vegetable species until then unknown in Europe. This body of knowledge inevitably upset and undermined the old natural order, which relied on the writings of the ancient authors. The discovery of new species from exotic countries triggered renewed interest in the exploration of the local natural environment. This was true especially of botany, given that the virtues of the various plants were often exploited in medicine and handicraft.¹⁷

The new objects (and new knowledge) observed and collected in the Americas or in Asia could only accelerate the crisis of a taxonomy of nature, still based mostly on the writings of ancient authors, from Aristotle to Hippocrates and Galen, from Pliny the Elder to Dioscorides and Theophrastus (for natural history and, especially, botany), which provided information mainly on the flora and fauna of warm and Mediterranean regions. Renaissance naturalists, like those of later centuries, were aware that the natural world was still largely unexplored and hid many secrets to be investigated, many of which were preserved in the mountains.¹⁸ An example of this process of broadening (or should we say of interconnecting) ancient knowledge through the knowledge of the indigenous, but also of the exotic (in the sense of plants from distant countries) may be seen in the commentary published by the physician and botanist Pietro Andrea Mattioli (1501–1578) on the Italian translation of Dioscorides Pedanio's *De materia medica*, a work originally written in Greek and considered a summa of natural medical notions of the time. The commentary, in fact, was not only enriched with information linked to popular tradition, but also contained observations on the therapeutic virtues of hundreds of new plants. These plants were still unknown in Europe as they were imported from the East and the Americas, or collected directly by Mattioli in his herborizations conducted in the regions of Val di Non and Monte Baldo.¹⁹ North of the Alps, too, this process was very much in evidence, thanks in particular to herborizations carried out locally, with particular attention, here too, to mountain areas (already appreciated by Theophrastus for their biodiversity), as corroborated by the botanical research of Conrad Gessner (1506–1565).²⁰

As I have shown, by the 16th century at the latest natural history, and natural history in mountain regions, had become at once local and global. This complex entanglement between research on local natural history and global natural history is clearly visible in a comprehensive bibliography on natural history from the Renaissance to the 18th century, published by the Swiss physician Johann Jakob Scheuchzer (1672–1733), a naturalist who played a leading role in the process of scientific exploration of the Alps.²¹ In this volume, entitled *Bibliotheca scriptorum historiae naturalis omnium Terræ Regionum inservientium* («Bibliography of natural history writers covering all regions of the globe») we can find a list of publications on the topic covering Europe, Africa, Asia, and the Americas. Scheuchzer's idea was to combine the different local natural histories into a natural history of the world. His contribution to a global natural history was his research on the Alps and their fauna, flora, minerals and on the *homo alpinus helveticus*, the Alpine people. A passage from the preface of this volume clearly shows this connection between Alpine/Swiss natural history and the rest of the world: «I know that the natural history of a territory is

related to the natural history of many others, which are sometimes very remote. We cannot investigate one territory without knowing the other ones. I sometimes needed to look for Switzerland in the Indies and for India in Switzerland (Old Swiss Confederacy).»²²

And he continues with this observation: «if commerce can create a link among people all over the world, why not Nature, which is the same everywhere?» This quotation helps us highlight two central topics of our volume: the global turn, i.e., the linkage between local and global natural history and the importance of improving a comparative approach to understand the progress of natural sciences about mountains in different regions of the world. The *Bibliotheca scriptorum* shows how Scheuchzer contextualised the discovery of the Alps and his research into the natural history of his homeland from the perspective of global expansion, of the discovery of the «exotic», aware of the importance of the role of the Ibero-American world in this process. It was not by chance that Scheuchzer dedicated to Spain the first chapter covering the different European countries, calling it the *caput* (head) of Europe. His relationship with the Hispanic world was twofold: intellectual and personal. Intellectual because, in the chapter devoted to the Americas, he not only highlighted the vastness of the country and the fertility of the lands that remained (according to him) to be explored, but also mentioned some forty authors of naturalistic texts on this Continent.²³ Personal because Scheuchzer maintained personal relations with the plenipotentiary of King Philip V of Spain (1683–1746) in Switzerland (Lucerne), Lorenzo Verzuzo Beretti-Landi (1651–1725), marquis of Castello Scazzoso, to whom he dedicated his *Bibliotheca scriptorum*, apologising for the short chapter on the natural history of Spain and Portugal and citing – as an extenuating circumstance – his own ignorance on the subject.²⁴

While Scheuchzer plays a pioneering role as the first to undertake scientific journeys in the Alps, equipped with a thermometer, barometer, and hygrometer, noticeably mountain regions throughout the world were the object of a great deal of attention during the 18th and 19th centuries. The Andes, the Alps and the Himalayas were once more a central focus of nature researchers, as the journey of the Jesuit Ippolito Desideri (1684–1733) to Tibet, the trips to the Alps by Horace-Bénédict de Saussure (1740–1799), and the Chimborazo expedition by Alexander von Humboldt (1769–1859) prove.

The papers presented in this issue of *Histoire des Alpes* must be contextualised in the global expansion process and are intended to promote a comparative reflection on natural history research in mountainous regions and on the use (including political) of the mountains and their resources in Europe, in the Americas and in Asia. The volume is organised in three sections. The first section, entitled *Naturalist mountain research in the Americas, Europe and*

Asia, 18th–19th centuries, contains three papers dedicated to the study of natural history (botany and zoology) and geography through different types of actors (scholar, but also non-academic trained persons) active in dissimilar institutions (universities, academies) and in different political contexts (Valais, Piedmont, the Kumaon Himalayas). Madline Favre's contribution highlights the role played by various actors in botanical research at local level in Valais, their relationship with the territory and their local intermediaries (priests, for example), as well as the dynamics of their contacts with other scholars and/or scientific societies and academies at trans-regional level. Himani Upadhyaya's paper, on the other hand, concentrates on botanical and glaciological researches of Richard Strachey (1817–1908), a British military engineer who travelled in the Kumaon Himalayas, showing the influence of contemporary European writings on the Alps and the Himalayas, but also the impact on Strachey's research of interactions with the local knowledge of the Bhotiya. Carlo Bovolo, for his part, focuses on the activities of several professors at the University of Turin and directors of the Zoological Museum in recognising the specificities of Alpine fauna in the wake of the reception of Darwinian studies in Italy.

The section *Knowledge and use(s) of mountains, 17th–19th centuries* contains two different groups of contributions. The first two (Torres and Guerra) show the symbolic and ideological-political value of the mountain in two completely different contexts: the first is that of the colonisation of Chile in the 17th century and the second is that of the Napoleonic wars and their impact on Italian territory. In his analysis of the *Histórica Relación del Reyno de Chile* (1646) by the Jesuit Alonso de Ovalle (1603–1651), a work which makes an important contribution to the geographical, historical, and naturalistic investigation of the Andes Cordillera, Torres underlines how Ovalle emphasises the importance of the Chilean Andes as a frontier to justify the creation of an independent Jesuit province in the region. He also interprets Ovalle as an example of a Creole patriotism (or of Chilean proto-nationalism). Corinna Guerra's contribution, on the other hand, highlights the symbolic role of the mountain, in this case Mont Cenis, where, according to Napoleon's intentions, a monument should have been built to celebrate the commitment of the Italian and French populations to the Emperor's success. This was the opportunity for a Neapolitan naturalist, Carmine Lippi (1760–1823), whose research focused on Vesuvius, to propose a colossal hydraulic work. The idea was to link the Atlantic Ocean, the Adriatic Sea, and the Mediterranean by digging a navigable canal through Mont Cenis. In Lippi's view, rather than a dividing element between the different European regions, the Alps were a connecting element.

The other three contributions of the section focus on the use of forest resources (Giacomo Bonan and Claudio Lorenzini), of mineral water springs

(Karin Fuchs), and investigate the link between geological research and proto tourism in the Dolomites (William Bainbridge). Bonan and Lorenzini examine the construction of scientific knowledge on the use of forest resources in the 18th and early 19th centuries in the Venetian Republic. While the debate on mountain forests initially focused on maintaining, if not improving, the supply of oak trees for the Serenissima Arsenal, later the discussion shifted to the question of the usefulness of collective management of mountain forests. In order to answer this question, it became necessary to confront the practical knowledge developed by local actors, village communities, surveyors, technicians or workers in the timber industry, which ended up diversifying the debate around silviculture. Karin Fuchs' paper shows the importance, in the wake of the entry of the Canton of Graubünden into the Swiss Confederation (1803), of the development of research around mineral waters, seen as a fundamental resource of this mountainous canton. This process must be seen in the context of the development of chemistry as a scientific discipline, a process that accelerated during the 19th century, and which was favoured by the presence in the canton of various societies interested in supporting experimental research in the field of medicine and natural history, such as the *Gesellschaft der Ärzte Graubündens* (Graubünden Medical Society) and the *Naturforschende Gesellschaft Graubünden* (Graubünden Natural Research Society). The article of William Bainbridge, for its part, links the emergence of geotourism in the Dolomites to the debate on the origin of the Earth in the 19th century. Further to Marzari Pencati's observations on granite strata near Predazzo, which challenged the then most credited model for explaining the origin of the earth, this village became a centre for geological studies in the early decades of the 19th century. By analysing the guestbook or *Memoriale* of the hotel Nave d'Oro in Predazzo, the author explores the encounter between scientists (Alexander von Humboldt, Theodor Fuchs, Roderick Murchison, and many others) and tourists in the region.

The third section *Comparative perspectives (18th–20th centuries)* opens with Émilie-Anne Pépy's paper on the botanical issues of the voyage to Peru of the *botaniste du roi* Joseph Dombey (1742–1794). Through the expedition of Dombey, Pépy shows the strong interconnection between the exploration of mountains in Europe (the Pyrenees and the Alpes dauphinoises) and the Andes, and highlights the development of economic botany in the second half of the 18th century. In an exemplary manner, Dombey, who postulated an equivalence between the mountains of the world, proposed to introduce into the Alps crops and plant conservation techniques inspired by Andean farmers. A similar global and comparative perspective is investigated by Daniela Vaj, in her contribution devoted to the study of the relationship between altitude and

health in the 19th century. The author convincingly clarifies how the process of medicalisation of many Alpine regions depended not only on the circulation of knowledge and debates generated by scientific research carried out in Europe, but also on investigations in Asia and Latin America. In fact, from 1850 onwards, Latin America became a sort of open-air experimental laboratory for the study of the high-altitude climate from a medical point of view; research of this kind, however, involved both European and Asian territories. In the last paper of the volume, Anne-Marie Granet-Abisset proposes a reflection from the 18th century to the present day on the role played by walking as a fundamental element of academic and social distinction for naturalists, but also as an element that produces a particular way of approaching, perceiving and exploring a territory.

As may be seen, many themes are addressed in the three sections. The aim of this issue of *Histoire des Alpes* is not only to shed new light on the role played by natural history research on the exploration of the mountains globally, but also to reflect on the role played by different institutions (universities, academies, societies) and actors (including local ones) in the construction and circulation of (practical) knowledge of the use of mountain resources. In this way, we hope to contribute to the development of a social history of knowledge about mountains and their resources, with the ambition to achieve a comparative approach on a global scale, highlighting the asymmetries of knowledge and power that characterised the early modern era and continue to do so today.

In opening: «Plate consisting of three figures representing specimens of alpine plants. Fig. 1 show the *Absinthium Seriphium montanum candidum* (White mountain absinthe), Fig. 2 the *Allium montanum*». Viatimages / Bibliothèque cantonale et universitaire de Lausanne.