

Zeitschrift: Histoire des Alpes = Storia delle Alpi = Geschichte der Alpen
Herausgeber: Association Internationale pour l'Histoire des Alpes
Band: 8 (2003)

Artikel: The mountains in urban development : lessons from a comparative view
Autor: Mathieu, Jon
DOI: <https://doi.org/10.5169/seals-9230>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 22.03.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

THE MOUNTAINS IN URBAN DEVELOPMENT

LESSONS FROM A COMPARATIVE VIEW

Jon Mathieu

Résumé

La montagne dans le développement urbain. Enseignements tirés d'une réflexion comparative

Le 25 juillet 2002, des historiens de trois continents se sont rencontrés à Buenos Aires, afin de discuter, dans une perspective comparative, du développement urbain dans les régions de montagne. Leurs études sont réunies dans ce volume. La présente contribution vise à faire ressortir des informations de portée générale et à en tirer quelques enseignements. Contrairement à ce que l'on aurait pu attendre d'un sujet ayant une forte dimension environnementale, les trajectoires ont été plus différenciées autrefois qu'aujourd'hui. Dans les Andes, l'urbanisation précoce a été bien plus prononcée que dans l'Himalaya, les Alpes ou les Pyrénées. Plus tard, le développement moderne a induit une polarisation spatiale, qui s'est produite, dans tous les cas considérés, au détriment des régions de montagne. Malgré leur relégation relative, les villes de montagne ont considérablement grandi au cours des XIX^e et XX^e siècles. Pour la recherche sur la montagne, la question revêt une signification particulière, parce qu'elle démontre qu'il est nécessaire de prendre en considération l'histoire et de ne pas se cantonner dans des positions environnementalistes étroites. Les villes représentent la caractéristique la plus manifestement humaine des paysages de montagne.

A PIONEER SESSION

A short time ago the United Nations' Population Division produced a world map on which one can take in at a glance all the large cities of the present day. Since the map also indicates the altitudes of the earth's surface, they can easily be compared to the mountain areas.¹ Is it a fact that mountain areas are relatively little urbanized, or should one nowadays revise this common view? The global aspect reveals that the view holds true for many regions, but not for all. The situation is unclear, for example, in South America, where there are high-up centres in numbers, apart from the giant cities on the coast. Obviously, the map also gives an idea of the territorial importance of mountain areas. According to experts, they cover 20–25 per cent of the earth.² Whoever deals with the mountains in urban development, might well include the slightly, or not-at-all, urbanized areas among them. About half the world population nowadays dwells in cities. Their economic, political and cultural weight has become so important that rural regions more than ever are subject to the influence of the urban concentrations. In addition, the non-existent urbanization of one region also tells us something of the conditions under which this historical process took place in another region. Only comparison reveals what led to the divergent development.

On July 25, 2002, a group of historians from three continents met in Buenos Aires with the aim of discussing the mountains in urban development in such a comparative perspective.³ Their studies are assembled in this volume; the object in the following article is to provide some general information and to draw some lessons from the studies and the discussion. First of all, one must stress the fact that the Buenos Aires session was of a certain pioneer character, for there has been little comparative research on mountain urbanization so far, either from the urban or from the mountain side. Two prominent examples may be sufficient as an illustration:

– Paul Bairoch's long and useful study on *Cities and Economic Development. From the Dawn of History to the Present*, first published in French in 1985, goes widely into problems of unequal development and urbanization on the global scale. Yet, except for the one sentence that very cold climates and very steep lands are an impediment to urban growth, it does tell us nothing about the mountain issue.⁴

– A recent collective work on the *Mountains of the World. A Global Priority*

(1997) provides an overall discussion and many valuable insights into particular aspects of the upland problematics. It contains detailed chapters on resources, natural risks, forestry, agriculture, tourism, political conflicts, and so on, yet there are only incidental and scattered hints at urbanization. One author states that “mountains are obviously rather unsuitable for the development of urban centres with extensive hinterlands”.⁵ This raises the following questions: Is the statement valid for all periods and areas? Doesn't research have to explain what common sense takes for obvious? And how can rural upland areas be studied without considering the changing contexts of lowland urbanization?

Of course, the present state of research is only so unsatisfactory at this general level. For individual mountain systems and continents, and, even more so, for individual countries and cities, one often disposes of a rich literature, or, at least, of very promising beginnings of serious research.⁶ The idea of our session in Buenos Aires consisted in the very fact of bringing together these important contributions, and thus arriving at new insights. Within the theme of mountain urbanization, the session paid special attention to two topics: (1) urban growth and political power structures, (2) the role of cities in interregional exchange systems. If possible, the highland-lowland interactions should be included for both topics.

It was clear, right from the beginning, that we had to proceed in a selective way and could consider only a restricted number of historical case studies. Yet there are selections which are better suited to clarifying a problem than other ones. I think the sample in this volume gives a good choice under different aspects. The volume contains studies concerning large cities that developed at various times in mountain areas, such as Cuzco or Potosí in the Andes and Srinagar in Kashmir; in addition, it contains examples of mountain areas that were slightly, or not-at-all, urbanized, but which at various times came under urban influence, such as the Pyrenees or the Andean highland of Jujuy; finally, the sample contains even studies that separate the “mountain character” of cities from their geographical location, or discuss it under different premises, here for the examples of Milan and Grenoble. The spectrum of the examined situations is thus wide enough to deal with the problematics of urbanization in a differentiated manner.

What goes for the number of case studies, relates to the number of examined mountain systems, too: we had to proceed in a selective way. Our

selection concerns the Andes, the Himalayas, the Alps and the Pyrenees, and, thus, a classical sample of well-known upland areas. This classical aspect, however, should perhaps cause us to be careful. One expert has lately warned against using freely the prominent mountain ranges of the world as a comparative framework, for many subjects were not mountain-specific and many upland areas were too different from each other to be studied together in a sensible fashion, the similarities being often more of a symbolical than of a real character.⁷ We shall have to question, therefore, whether the objections also concern our subject of inquiry. The first two sections give some general information and evidence on mountain urbanization; the third section refers to political and economic forces affecting the process; and the last one deals with the highland-lowland problematics. Whether the comparison is more symbolical, or of real use, can only be measured by its results.

HISTORICAL CONTACTS AND DELIMITATIONS

It may be useful to recall in the first place that the mountain systems considered share a history beyond the common upland experience. The contacts between Europe and Asia, and thus between parts of the Alps/Pyrenees and the Himalayas, go back far in time. In an indirect manner, during the early modern period, and especially since the 19th century, the contacts intensified rapidly, since the British happened to expand in both directions. If the British “conquest” of the Alps was restricted to alpinism and tourism and should not be overestimated with respect to urbanization, British rule over India was certainly a major phenomenon with important consequences for the development of the Himalayas. The Indian contributions to this volume make it clear from quite different perspectives.⁸ Spanish rule, on the other hand, provided certain links between the Alps/Pyrenees and the Andes. In the early 16th century, the Spaniards took over Milan, including its alpine parts, and for some time played a title-role on the political stage of the entire mountain region. The early 16th century, of course, was also the period of the Spanish conquest of Latin America. Similar to the case of British India, the Spanish intrusion turned out to be much more important for the Andes. In fact, there might be few examples in history when a change in ruling classes and peoples exerted an impact of this magnitude on urban patterns. The

Andean cities, after conquest, shifted dramatically in number, size and location. The contribution on Potosí in this volume gives some idea of the amplitude of the change.⁹

Geographically, the mountain systems selected show huge differences in position, extension and height. The Andes stretch for 7250 kilometres and, at their highest peak, reach nearly 7000 metres above sea-level; the Himalayas, in a broad definition, span 2500 kilometres, with the top mountain at 8850 metres; the Alps extend for 1200 kilometres only, and their highest point measures 4800 metres, whereas the Pyrenees are still less conspicuous (450 kilometres and 3400 metres). The ranking between the mountain systems is not that steep, if we look at population. The Alps, in our times, belong to the world's most densely populated mountain regions. One author gives the following estimates for upland dwellers: Andes 26 million, Himalayas 33 million, Alps 11 million. Such figures, of course, depend on the delimitation used for the respective mountain areas and cannot be objectivized in any facile way.¹⁰

In historical research, this question of delimitation has another aspect than in geography, and it is probably not accidental that, in the contributions to this volume, it is dealt with tacitly in various ways. For historians, flexibility can turn out to be more productive than a strict geographical delimitation, and it is sometimes important to go deliberately beyond mountain borders, in order to include the surrounding areas as a comparative standard and to investigate the respective particulars. *René Favier* shows, in his contribution on Grenoble, that the perception of the mountainous character of a city undergoes historical change. In the 17th and 18th centuries, the fact that Grenoble lay in an alpine environment had hardly been taken notice of in geographical descriptions. Even in some pictorial representations, the city appeared without the impressive mountain ranges that surround it. It was not until the 19th century, and mainly after 1850, that the image of Grenoble as an alpine city began to confirm itself in the minds of the people and nowadays, for example, post-cards label it the "Capital of the Alps". *Luca Mocarelli* proceeds in his contribution on Milan from the thesis that this city in the North-Italian plain was, during the early modern period, in a certain manner an alpine city. This qualification cannot be taken geographically, but relates to the intense connections with the nearby mountain valleys. Such a socio-economic network of relationships went beyond geographical

borders and was determined by alpine factors to a certain extent. According to the author, this close connection to the mountain area loosened in the 19th century with the rise of the national state and industry, whereby Milan lost some of its “alpine” character. If we agree with this thesis, almost contrary transformations would have taken place during the period. Grenoble, a city in the mountains, became in perception an alpine city, whilst Milan, a city in the plains, lost its alpine character in economic and social respect. So, the “correct” delimitation of the mountains is not considered a problem by the authors in this volume. Quite a few of them, on the other hand, tackle the question how one should best define cities. This definition, of course, belongs to the long-term issues of the historical agenda. *Henrique Urbano* reminds us, in his contribution on Cuzco, that the problem is to be considered also from the perception-side. Only by an act of speech can a space become a social space, only this talk about the city lends it form and sense at the level of consciousness. Thus seen, the definition of the city changes constantly. In the early days of Cuzco the author discovers three discursive “city-foundations”, which all differ from the ideas that circulate today about the early history of this famous Inca-capital. *Chetan Singh* deals in an especially thorough way with the problem of city definition. He observes that the pre-colonial towns in his Western Himalayan study-region often had not many more inhabitants than larger villages. How can one, in such a region, distinguish effectively town from village? With reference to the research literature, the author names two important criteria: the power differences between the settlements and the local perception. Both criteria, however, are to be seen in a wider context which includes the agricultural surplus, the organization of exchange and trade, and the structure of political and religious power. “It is obvious then – the author concludes – that while the relative size of its population certainly helped a settlement to be categorized as an urban centre, there were several other factors that went into the making of a town. By implication therefore, it is possible that in a predominantly rural society a settlement with a small number of inhabitants could have functioned as a town.” *Andrea Bonoldi* ascertains, in this contribution on some alpine regions, that historians, nowadays, often do without a “strong” definition of city, and rather use partial criteria in a case-to-case manner. The very complexity would probably form a large part of the fascination that the city exerts on research. For generalized studies, on the other hand, it is essen-

tial to make a choice and use simplifications, which reduces precision, but raises comparability. For his own analysis, the author selects an economic function usually attributed to cities: the function as a place of trade. He looks at different forms of exchange in the 18th and 19th centuries, and also points to the importance of the institutional settings.

COMPARATIVE EVIDENCE ON MOUNTAIN URBANIZATION

Whoever wants to compare mountain urbanization in quantitative terms, has to resort to such simplifications. The aforementioned authors are surely correct in stressing that urban size is a relative criterion, yet they would agree that it is an important criterion and that it is one which can be outlined for many parts of the world. Quantitative evidence on urban growth has been gathered and processed during the last decades by quite a few scholars. Table 1 (p. 22) restricts itself to some indicators for the period 1500–2000 in our sample of upland and lowland areas and shows, first of all, that the empirical efforts have to go on. There are still a certain number of missing data, and there are too many unreliable data. Nevertheless, the table gives some clues to a comparative discussion of mountain urbanization.

On the one hand, the figures suggest that the historical context or stage was not very diverse in the early modern period. For the years around 1700, the urban population in each, South America, India and Europe, is estimated at 11–13 per cent of the total population. Urbanization rates drifted apart only later, and in 1900 the range was as wide as 9–38 per cent. During the 20th century, both the urban population and the disparity increased rapidly. Today, the range is from 20–79 per cent, and Europe has lost its forerunner position to South America. On the other hand, the figures indicate that urban development in the Andes followed a trajectory very different from the one in the Alps/Pyrenees and in the Himalayas. The number of South American big cities in 1500 may be over-estimated, it seems certain, however, that in the 16th century all these cities were to be found in the Andean area. This situation began to change in the subsequent century, and since 1900 the majority of the South American big cities lie outside the Andean area. Despite this relative loss of importance, the Andes are by far the most urbanized mountain system of our times.¹¹ If large-scale urbanization in this

Table 1: *Urbanization in mountain areas and adjacent lowlands, 1500–2000*

Area	Indicator	1500	1600	1700	1800	1900	2000
Andes	C20/100	20/0	7/1	11/0	11/0	28/4	–/100
South America	C20/100	20/0	7/1	14/0	19/0	82/12	–/375
	UP	–	–	13	15	20	79
Himalayas	C20/100	1/0	1/0	2/1	4/0	6/2	–/5
Indian Subcontinent	C20/100	–/5–10	–	–/10–32	–	256/30	–/363
	UP	–	–	11–13	9–12	9–11	28
Alps	C20/100	0/0	0/0	1/0	1/0	4/0	–/3
Pyrenees	C20/100	0/0	0/0	0/0	0/0	0/0	–/0
Europe	C20/100	95/4	117/11	130/11	182/18	1009/121	–/737
	UP	11	12	12	12	38	74

Indicators: C20: number of cities with 20,000 and more inhabitants, including the C100 cities. C100: number of cities with 100,000 and more inhabitants. UP: urban population as percentage of total population. The data for 2000 relate to the latest available censuses, mostly from the 1990s. –: no estimates and data available.

Areas: Andes: Bolivia, Chile, Colombia, Ecuador, Peru. Himalayas, Alps and Pyrenees: without mountain foot cities like Jammu, Dehradun, Siliguri, Chambéry, Verona, Salzburg etc. Europe: without Russia.

Main sources: Paul Bairoch, *Taille des villes, conditions de vie et développement économique*, Paris 1977, pp. 24, 42; Ibid., *La population des villes européennes de 800 à 1850*, Genève 1988, pp. 15–21, 23–31; Ibid., *De Jéricho à Mexico. Villes et économie dans l'histoire*, Paris 1996 (2^e édition corrigée), pp. 182, 203, 282, 452, 453, 496, 499, 513, 522, 538, 542; Tertius Chandler, *Four Thousand Years of Urban Growth. An Historical Census*, Lewiston (N. Y.) 1987, pp. 41–43, 367, 375, 391, 392, 399, 432; Jon Mathieu, *Geschichte der Alpen 1500–1900. Umwelt, Entwicklung, Gesellschaft*, Wien 1998, pp. 77, 216; *Census of India 1911*, vol. I, part I, pp. 16–21; United Nations (ed.), *Demographic Yearbook 1999*, New York 2001, table 8; UN Statistics, *World Urbanization Prospects. The 1999 Revision*, Annex Tables.

case started in the mountains and went down to the lowlands, the alpine development was almost opposite, as indicated by the quite reliable figures given in the table. Urbanization in this area has to be labelled scarce and retarded with respect to the adjacent lowlands. The same applies to the Himalayas, although some of its cities probably reached remarkable sizes at an early date.¹²

Another way of comparing the mountain systems relates to their role in trade

interaction with and between surrounding areas. The interaction was linked to the urban potential in these areas during particular periods and is partly reflected in the indications above. It seems useful to make a tripartite distinction for this purpose: Whereas the Andes, for a long time, found themselves in a kind of insular situation (with little urban trade potential in the surroundings), the Himalayas represented a peninsular pattern (with large cities on one side of the mountains), and the Alps a continental pattern (with urbanized lowland areas on both sides). Some important aspects of trade relationships seem to have varied according to these historical backgrounds. Andean scholars, for instance, highlight various forms of exchange between rural areas at different altitudes of the mountains, the so-called “vertical archipelago”.¹³ In other cases rural exchange was accompanied by voluminous trade between different urban destinations. In the Himalayas, the major trade routes ran parallel to the mountain chain: the Ganga-Indus connection to the south, the silk road to the north.¹⁴ In the Alps, on the other hand, there were also major routes leading from south to north right across the mountains. One could, of course, relate this to low altitude, yet, if urban development had been lacking on one side of the range, the reasons for trans-alpine trade would have been much more limited.¹⁵

So, in general, we can expect that the volume of long-distance trade in the considered mountain systems varied strongly. The most astonishing case is the Andes, where one finds early tendencies towards large-scale urbanization, and this, moreover, in an “insular” situation, with little urban trade potential in the surrounding lowlands. Thus, the question as to the accelerating and retarding factors in mountain/urban development arises on a new, more complex level. How can one explain the diverging experiences?

POLITICAL POWER AND ECONOMIC EXCHANGE

For a discussion of particular driving forces, it seems advisable to start with a general urbanization model. We can assume that the possibility of urban concentration increases with increasing population density, and that the activities of urban centres develop according to a certain pattern. Deviations from that pattern can then be considered important factors for the case under study. Yet we are not forced to attribute unique functions to individual cities,

which could easily lead to artificial, if not ideological, classifications. It is unlikely that urban life and urban growth, in any period, depended on one function or one factor, not on several of them. As mentioned above, our session in Buenos Aires paid special attention to two topics: urban growth and political power structures, and the role of cities in interregional exchange systems. The topics opened up a set of specific and far-reaching questions:

(1) Urban growth and political power structures: How, and to what degree, did state-building affect urban organization and growth? How did urbanization, reversely, affect state-building, and to what extent? Was upland/lowland urbanization a factor determining political boundaries, and thus the development of dependent or independent mountain states? What importance can be given to respectively military and religious forces in urban development?

(2) The role of cities in interregional exchange systems: How, and to what degree, did long-distance exchange affect urban growth, as compared to political and other factors? Did urban growth, reversely, affect the volume and direction of long-distance exchange, and in what measure? How did urban supply systems work and develop at different altitudes?

Elements for the answering of this set of questions can be found in most of the articles of the session. *Franz Mathis*, in his contribution on trade and urban growth in the Austrian Alps from the Middle Ages to the present times, argues in an especially basic manner. He considers cities as the most dynamic and important factor in the development of regions and regional societies. Whoever looks for the more profound causes of urbanization will find a whole series of economic and political conditions, in the last instance, however, one could trace them all back to population growth. For the creation of towns in the Austrian alpine area during the Middle Ages the author attributes great importance to the interregional and regional trade. Further urban growth was then borne by the administrative activities of the state, and since the 19th century also by industrialization. Altogether, the development in the Austrian Alps is supposed to be less determined by the climate than by the aforementioned factors, which, on a deeper level, were connected with population growth. For a comparative reading of contributions from quite varied contexts, this analysis is very useful. It demonstrates that the relative significance of political power and economic exchange in urban development could vary over time. In the Austrian example, trade proved to be particu-

larly relevant in a first period, when cities remained rather small. Moreover, by the attention given to population levels, the analysis provides a framework for the understanding of apparently disparate and unrelated situations. I think we can make more sense out of the contributions to the Buenos Aires session, if we bear that in mind.

The study on roads and human mobility between Northern Argentina and Chile, authored by *María Esther Albeck*, *Viviana E. Conti* and *Marta Ruíz*, offers a fascinating case in point. It concerns a territory with extreme ecological differences, enhanced by the dryness of this section of the Andean highlands (which reaches into the famous Atacama desert). The settlement of the region started in an early period, yet the number of people remained at a modest level. With this background, the authors are able to observe for long periods, and up to the present time, a way of life characterized by mobility and exchange between ecological zones, especially on the east-west axis. Signs of incipient urbanization appear already before the 15th century; on the whole, however, the mobility of the small human groups was a phenomenon averse to city formation and state control. With the expansion of the Incas and the subsequent power-takeover by the Spaniards, there began a period in which the north-south axis became the dominant one. Along this axis there came about, from the 16th century, a politically induced urbanization. Politically induced were also the later urbanization processes within the framework of post-colonial nation-building, which now, more than previously, concerned the highlands, but, for the time being, transformed the old mobility patterns only partially.

In the Himalayas one finds many regions where the development up to the 19th and 20th centuries was stamped by a scarce population density. The contribution by *Rattanlal Hangloo* on Ladakh, a very high-up region in the West of the mountain system, stresses the importance of religious power factors and long-distance trade for city formation. The urban population, however, remained within narrow limits. Up to the 20th century, the capital of Ladakh amounted to a few thousand stable inhabitants. Apart from them, one could see numerous caravans passing through, accompanied by tradesmen and menials, with goods from Kashmir, India and the places on the other side of the Karakoram range. The impetus for the creation of semi-urban or urban settlements came from Buddhism in the form of lamaistic monasteries, that spread out over the country from the 12th century onward.

The monasteries also served as state institutions, they possessed considerable power over the material resources, and the monks invested property of their own in long-distance trade. In Sikkim, a rather small region in the East of the Himalayas, that is dealt with by *Shrawan Kumar Acharya*, lamaistic Buddhism was only able to establish itself institutionally in the 17th century. When the region later on came under the domination of eastern, western and southern neighbours, the trade relationships with Tibet went on. In 1901 there were, in Sikkim, only 8 persons per square kilometre, but in the course of the 20th century, by immigration and natural growth, the population multiplied almost by ten times. In the second half of the century the urban population also grew speedily, namely from 3000 to 60,000 persons. It seems worth noting that this first real wave of urbanization set in at a time when the official long-distance trade with Tibet collapsed for political reasons (closing of the border by China).

Perhaps it is possible to draw, from these and other contributions, some tentative conclusions as to the importance of long-distance trade for early mountain urbanization. In the region of Northern Argentina and Chile the exchange between various ecological zones led only to beginnings of urban settlements. Modest, but generally more pronounced than in this dry Andean region, was city formation in the Himalayan regions. There is little doubt that long-distance trade could be of particular importance on the level of such socio-economic formations, if other conditions were favourable. For that, the trans-Himalayan trade did not even have to reach great proportions. It would be interesting to compare the traffic flows in various regions quantitatively. Indications suggest that in the Himalayas they were clearly below the level achieved in the Austrian example. As mentioned before, the urban pattern in Asia may be called “peninsular”, with large cities on one side of the mountains, whilst the “continental” pattern in the Alps, with lowland urbanization on both sides, increased the trade potential. A technical aspect fits in with this general layout. In the Himalayas, the traffic was, until the 20th century, dominated by caravans, in which human beings and animals carried the goods over the mountains. In the Austrian Alps, on the other hand, vehicles had been in use since the Late Middle Ages.¹⁶

HIGHLANDS AND LOWLANDS

The question as to the urban supply systems is of special interest for mountain areas because it concerns a factor which could contribute to the delay of urban development. In general, two economic conditions are considered as basic for the supplying of cities with rural goods: the production of an agrarian surplus and the possibility of its transportation. While the latter point is little cause for theoretical debate, the conditions of surplus production are controversial. Paul Bairoch follows an older view and considers agrarian technology as the decisive factor. Under traditional conditions, such is his argument, the productivity of a rural worker, and thus the surplus potential, was restricted. This fixed a certain ceiling for urbanization which only could be surpassed by a technical revolution in agriculture. Ester Bose-rup, on the other hand, suggests that, not the surplus of the single worker, but the available total surplus was decisive. Depending on population density, respectively on agrarian intensity, the available total surplus could vary strongly under pre-industrial conditions. Thus urbanization, already as far as the agrarian conditions were concerned, depended not so much on the technical level, but on population growth. Instead of proceeding from the problematic idea of a fixed ceiling, this argument makes variations of intensity, at comparable technological levels, the central concept. This fits in well with the differences of density between the mountains and their surroundings, as one discovers in many places.¹⁷

Such differences, however, should not be taken as historically constant and geographically universal. We know, for example, that population density in the Alps and the adjacent lowlands varied much less at the beginning of the modern period than later on. In the course of the agrarian intensification and other developments, since the 18th century, the highland-lowland differences grew rapidly.¹⁸ At this point we can get back to the interesting case of the Andes. Still in the mid-20th century, the demographic distribution over various heights was very different in South America than in Asia, in Europe, and on the global scale. Whilst in most regions the population decreased with increasing altitude, in South America it was precisely the mountain sites that were densely populated. On the level here of 0–1000 metres only 7 persons were counted per square kilometre, on the level of 3000–4000 metres, however, two and a half times as many (table 2, p. 28). The literature that I

Table 2: *Population density by altitude in three continents and on the global scale, 1958*

Altitude (metres)	Persons per square kilometre of productive area			
	South America	Asia	Europe	Global
4000–5000	2.7	0.1	0.0	0.8
3000–4000	17.5	5.9	0.0	9.1
2000–3000	12.8	7.0	0.0	9.8
1000–2000	14.8	19.7	14.5	12.2
0 –1000	7.1	50.2	63.7	26.8

Source: Hermann Hambloch, *Der Höhengrenzsäum der Ökumene. Anthropogeographische Grenzen in dreidimensionaler Sicht* (Westfälische Geographische Studien 19), Münster 1966, p. 44.

am aware of explains this distribution by pointing to geographical conditions, such as the large part of the tropical zone on the continent, which valued the highlands for economic reasons and devalued the lowlands for medical reasons. Whether these static and one-sided environmental explanations are satisfactory in a historical perspective, must be doubted.¹⁹

No matter how the distribution came about, it had consequences for city formation and created the background to the fact that urban development in the Andes followed a trajectory very different from the other mountain systems in our sample. The most spectacular case is Potosí, a city 4100 metres above sea-level, which at the end of the 16th century added up to about 120,000 inhabitants, and thus belonged to the large cities of the world. The contribution by *Heraclio Bonilla* sums up the essential results of research into this particular place and region. The rapid growth of the city was a consequence of the discovery of its huge silver ore in the middle of the 16th century and of the importance attached to silver in the European economy. Potosí generated a large demand for labour, food and capital goods, and created thereby a vast market area. To satisfy the demand, numerous South American and, especially, Andean regions had to restrict their self-sufficiency and produce surpluses. The fact that such a development was at all possible, points to the impressive basis of human and economic resources. At the same time, we are faced with an unusual example of the problems to be solved by a pre-indus-

trial urban supply system in the mountains. The low agrarian intensity had to be compensated by transport labour: human beings with loads on their backs, or with llamas, mules and other animals, moved over thousands of kilometres in order to supply Potosí.²⁰

Whilst the medieval and early modern cities depended heavily on supplies from the agrarian hinterland, which could exert a basic impact on their regional distribution, this dependence loosened during the transport revolution of the 19th and 20th centuries. In general, urbanization now developed more pronounced dynamics of its own.²¹ What did that mean for mountain areas? *Alejandro Benedetti's* contribution concerns a region south of Potosí, the urban centre of which, San Salvador de Jujuy, was founded in the 16th century by the Spanish crown as a stronghold on the way to the Atlantic. We have already touched upon this Andean region above (contribution by Albeck, Conti and Ruíz), here we look at the modern development since the 19th century. This period brought about a considerable, yet unequally distributed, population growth: In the upland it was ten times smaller than in the lower-down valleys surrounding the provincial capital. The formation of new population concentrations and urban settlements was stimulated by the railway, by administrative and military establishments, and by the growing agro-industry. An important driving force for change was the political incorporation of the province into the state. So in the end, this part of the Andes, which once had been the most populated region of present-day Argentina, became a marginal border region of the nation. In the Pyrenees the marginalization seems to have been even more pronounced. In the region of Aragon, the recent history of which is analyzed by *Vicente Pinilla*, the mountain population decreased between 1860 and 1991 by more than half, whilst in the Ebro Valley the cities increased considerably. The change was a result of migration, which led many mountain dwellers to Zaragoza, and to more distant cities, such as Barcelona. The attraction of the large centres grew with industrialization. Mountain agriculture was not competitive within the developing large markets, and, despite attempts at adjustment, found itself in a lasting crisis. The few little centres in the Aragonese Pyrenees, too, were not able to prevent the downward trend. Paradoxically, the revenue per head in these depopulated areas does not seem to have to dread comparison with that in the developing urban areas.

Modern development led to a spatial polarization, and there is little doubt

that the polarization mostly disadvantaged the mountain areas. The statistical data, presented above, support this view: In all three continents the total number of large cities in the 20th century grew faster than the number of their mountain cities (table 1). But it should not be forgotten that the polarization also took place within the mountain areas, and that the absolute size of population and urban centres usually expanded. Srinagar, the capital of Kashmir, at 1600 metres above sea-level, had 125,000 inhabitants at the beginning of the 20th century, nowadays the official figure amounts to 586,000.²² *Sharika Kaul* describes the modernization of urban industry in this Himalayan region during the period of British colonialism. The presence of the British affected not only the political structure, but had important economic consequences. The linking of the economy with the world market weakened the monopolistic control of the native rulers. The industrial production expanded, and the re-organization of the agriculture increased the surplus for the urban market, where the demand was stimulated by the growing population. This, again, increased the social mobility and the interaction between city and countryside. At the same time there came about a new political and social consciousness, that supported anti-feudal struggles, and finally led to anti-colonialism. The fact that the region lies in the mountains made the modernization of transport more difficult and delayed development, but did not stop it.

CONCLUSIONS

Mountains and mountain systems often possess a strong symbolic attraction, and, in the International Year of the Mountains 2002, one was especially inclined to stress their common features. The lessons which the Buenos Aires session can offer for urban development are, however, more than symbolic, and point to the usefulness of such a comparative enterprise. They demonstrate both similarities and differences and, even more important, they outline their chronology. Otherwise than one might suppose with a theme related to the environment, the historical trajectories differed more strongly in the past than in recent times. The Andes, in early urbanization, surpassed each, the Himalayas, the Alps and the Pyrenees by far. Later on, modern development led to a spatial polarization that disadvantaged the mountain

areas in all the cases examined. Despite this relative loss of position, the number and size of upland cities grew considerably during the 19th and 20th centuries.

In urban studies, port cities and other city categories have been a particular research field for a long time. It would be in their own interest to pay more attention to the upland cities; after all, the upland areas cover a fifth to a quarter of the earth's surface. For mountain studies, the theme is of special importance, because it quite definitely points to the necessity of including human history, and thus going over one-sided environmental approaches. Cities are probably "the most obviously permanent man-made feature" of mountain landscapes.²³ Of course, the lessons from the Buenos Aires session would then be particularly useful, if they generated questions and ideas for further examination. Comparative research is not a top-down process which merely consists of filling a questionnaire. The single case has its own dignity and must have the chance to display its scientific potential. So we hope that other researchers will be attracted by the topic both relevant in history and neglected for a time too long.

NOTES

- 1 www.un.org/Depts/unsd/demog/gifs/globcity.gif, read on 7/2/2002; the map shows the cities with over 500,000 inhabitants and the capital cities. – I would like to thank Luigi Lorenzetti and Chetan Singh for helping me with the statistical work for this article.
- 2 B. Messerli, J. D. Ives (eds.), *Mountains of the World. A Global Priority*, New York 1997, pp. 2–8; V. Kapos et al., "Developing a map of the world's mountain forests", in: M. F. Price, N. Butt (eds.), *Forests in Sustainable Mountain Development: a State of Knowledge Report 2000*, pp. 1–9; it is advisable to link the definition of mountains to specific problems; a mountain system need not cover precisely the same area for a scholar interested in, say, hydrology or forestry; this is even more true for delimitations in history (see below).
- 3 The session was organized by the *Association Internationale pour l'Histoire des Alpes* within the XIII World Congress of the International Economic History Association; part of the original contributions to the session are available on the official CD-Rom of the congress.
- 4 P. Bairoch, *De Jéricho à Mexico. Villes et économie dans l'histoire*, Paris 1985, p. 633 (*Cities and Economic Development. From the Dawn of History to the Present*, Chicago 1988).
- 5 Messerli/Ives (as note 2), p. 30.
- 6 Studies in urbanization of continents, e. g.: R. M. Morse (ed.), *The Urban Development of Latin America, 1750–1920*, Stanford 1971; R. P. Schaedel et al. (eds.), *Urbanization in the Americas from the Beginning to the Present*, The Hague 1978; B. Bhattacharya, *Urban Development in India (since Prehistoric Times)*, Delhi 1979; K. Ballhatchet, J. Harrison (eds.), *The City in South Asia, Pre-modern and Modern*, London 1980; J. de Vries, *European Urbanization 1500–1800*, London 1984; incipient research into urbanization of a particular mountain system: *Ville et montagne / Stadt und Gebirge* (*Histoire des Alpes*, 5, 2000; *L'avenir*

- des villes des Alpes en Europe* (Revue de Géographie Alpine, 87/2), Grenoble 1999; A. Borsdorf, M. Paal (eds.), *Die "Alpine Stadt" zwischen lokaler Verankerung und globaler Vernetzung*, Wien 2000; Manfred Perlik, *Alpenstädte – Zwischen Metropolisation und neuer Eigenständigkeit*, Bern 2001; there are very few cultural studies comparing different mountain systems; interesting, yet with little attention to cities, is B. S. Orlove, D. W. Guillet (eds.) *Convergences and Differences in Mountain Economies and Societies. A Comparison of the Andes and Himalaya* (special issue of Mountain Research and Development, 5/1, 1985).
- 7 U. Müller-Böcker, *Himalayas and Alps: Comparing Apples and Oranges?*, Conference at Alpbach, Austria 2002, forthcoming in the Forum Alpinum-series, see www.alpinestudies.ch.
 - 8 Compare the different approaches to British colonialism for instance in the contributions by Chetan Singh and Sharika Kaul.
 - 9 Bairoch (as note 4), pp. 492–495.
 - 10 The figures from Messerli/Ives (as note 2), p. 17; for very different estimates see P. B. Stone (ed.), *The State of the World's Mountains. A Global Report*, London 1992, pp. 95, 225–227; O. Dollfus, *Territorios Andinos. Reto y Memoria*, Lima 1991, p. 18; W. Bätzing, *Der sozio-ökonomische Strukturwandel des Alpenraumes im 20. Jahrhundert. Eine Analyse von "Entwicklungstypen" auf Gemeinde-Ebene im Kontext der europäischen Tertiarisierung*, Bern 1993, p. 47.
 - 11 The South American figures for 1500 are taken from Bairoch, who qualifies them as "très approximatifs" (Bairoch, as note 4, p. 499); it is not excluded, on the other hand, that these cities exceeded 100,000 inhabitants in particular cases (for Cuzco see: M. Barnes, D. J. Slive, "El Puma de Cuzco: ¿plano de la ciudad Ynga o noción europea?", *Revista Andina*, 11/1, 1993, p. 84; J. Caceres Macedo, *The Prehispanic Cultures of Peru*, Lima 1998, p. 150); since available long-term data concern national territories, the delimitation of the Andes is political, and cannot exclude the coastal cities; this over-estimation is more important for the present situation than for the past; it is clear, however, that today's mountain area includes an impressive series of big cities, the biggest one being Bogotá with 6,261,000 inhabitants, see United Nations (ed.), *Demographic Yearbook 1999*, New York 2001, p. 240.
 - 12 Srinagar and Lhasa are reported to have sheltered respectively 125,000 and 80,000 inhabitants in 1700 (T. Chandler, *Four Thousand Years of Urban Growth. An Historical Census*, Lewiston [N. Y.] 1987, pp. 392, 432).
 - 13 See the contributions by H. Bonilla and M. E. Albeck, V. E. Conti and M. Ruiz; Orlove/Guillet (as note 6), pp. 8–15, 20–27, 48–55, 82–92, provide more information on the exchange and the scholarly debate; a summary in R. Romano, "Les Andes: montagne et histoire", in: M. Körner, F. Walter (eds.), *Quand la Montagne aussi a une Histoire. Mélanges offerts à Jean-François Bergier*, Berne 1996, pp. 177–184.
 - 14 T. Raychaudhuri, I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, Cambridge 1982, pp. 334, 414.
 - 15 J.-F. Bergier, "Le trafic à travers les Alpes et les liaisons transalpines du haut moyen âge au XVII^e siècle", reprinted in: *Ibid.*, *Pour une histoire des Alpes, Moyen Âge et Temps modernes*, Hampshire 1997.
 - 16 For Austria and especially for the important Brenner-route, see the contributions by F. Mathis and A. Bonoldi; it would also be interesting to re-examine the thesis that long-distance trade was more important in the Himalayas than in the Andes (Orlove/Guillet [as note 6], pp. 11, 76).
 - 17 Bairoch (as note 4), e. g. pp. 636–639; E. Boserup, *Population and Technology*, Oxford 1981, pp. 63–75, 95–97.
 - 18 J. Mathieu, *Geschichte der Alpen 1500–1900. Umwelt, Entwicklung, Gesellschaft*, Wien 1998, pp. 35–43.
 - 19 The most interesting critical discussion I am aware of is by Dollfus (as note 10), e. g. pp. 16, 21, 51, 53, 56, 114, 166.

- 20 It should be considered that the Andes experienced a severe population set-back in the early colonial period.
- 21 Mathieu (as note 18), pp. 85–97; *Ibid.*, “Landwirtschaft und Städtewachstum im Alpenraum, 1500–1800”, *Histoire des Alpes*, 5, 2000, pp. 157–171.
- 22 Demographic Yearbook 1999 (as note 11), p. 255.
- 23 The expression is used by C. Singh in his *Natural Premises. Ecology and Peasant Life in the Western Himalaya 1800–1950*, Delhi 1998, p. 41.

Leere Seite
Blank page
Page vide