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0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

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[More information](#)

Introduction: anthropology, historical demography and the study of mountain societies

The question of the relations between the physical environment and human social organization is a very old one. It has fascinated many generations of scholars and stirred up acrimonious debates. And in the course of these debates, as Lucien Febvre remarked in his *Geographical introduction to history*, the advocates of environmental primacy have constantly placed a strong emphasis on 'the influence of mountains on man, and the special characters which they imprint on mountain societies – characters in every respect dissimilar to those of societies on the plains, being affected by a natural environment peculiarly oppressive and tyrannical'.¹

This was particularly the case in the late nineteenth and early twentieth centuries, when the laudable attempt to counteract the dangers of racial determinism led some of the pioneers of human geography to espouse a no less extreme form of environmental determinism. The method associated with the names of Friedrich Ratzel and Ellen C. Semple consisted in comparing peoples of different ethnic stocks but living under analogous geographical conditions. If these peoples were found to display similar social and economic features, then it seemed legitimate to infer that such similarities were due to environment rather than to race.² The fact that similarities in economic and social organization appeared to be especially marked in mountain areas was taken as evidence that virtually no alternative was available to people inhabiting regions in which the beauty of nature belies extraordinarily difficult living conditions. Indeed, Semple had little hesitation in arguing that upland populations all over the world were bound to be culturally and intellectually backward, for the mountains are just 'regions of much labor and little leisure, of poverty to-day

¹ Febvre, *Geographical introduction to history*, p. 194.

² See Ratzel, *Anthropo-Geographie*, and Semple, *Influences of geographic environment*.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

and anxiety for the morrow, of toil-cramped hands and toil-dulled brains'.³

Ratzel's determinism soon came under attack in France, where the geographer Paul Vidal de la Blache warned his colleagues not to underestimate the human ability to affect and modify the natural environment and urged them to concentrate their studies on what he called the 'reciprocal exchanges' between geographical conditions and social facts.⁴ These ideas exerted a powerful influence on some key figures in French human and historical geography, including Philippe Arbos, one of the founding fathers of Alpine human geography, and Febvre, an historian with a deep interest in geography who became the most trenchant critic of environmental determinism. Vidal and his followers would not deny that upland populations displayed similar economic and social arrangements, but feared that Ratzel's emphasis on similarities could obscure the existence of significant differences and therefore the historical originality of the various mountain areas. Differences were in fact believed to be far more revealing, since they demonstrated that human populations were not faced by inescapable environmental imperatives but rather by a range of possibilities.

In the period between the two world wars this doctrine (which is generally known as 'possibilism', in opposition to Ratzel's 'environmentalism') was dominant on both sides of the Atlantic. By 1950, however, a reaction against it was already apparent. Ironically, in history such a reaction is perhaps most evident in the work of Febvre's best-known pupil, Fernand Braudel, whose notions of '*longue durée*' and 'geographical time' border on environmental determinism.⁵ But a similar swing of the intellectual pendulum can also be detected in the writings of geographers and anthropologists, who felt that Febvre's epigrammatic statements ('Des nécessités, nulle part. Des possibilités partout')⁶ were in the long run stultifying and distracted

³ Semple, *Influences of geographic environment*, p. 20. Cf. Ratzel, *Anthropo-Geographie*, vol. 1, pp. 199–204.

⁴ Vidal de la Blache, 'Les conditions géographiques des faits sociaux', pp. 21–2.

⁵ Braudel's penchant for environmental determinism is particularly clear in his well-known 1958 article on the *longue durée*, where he emphasizes the role of geographical constraints and writes that 'l'homme est prisonnier, dès siècles durant, de climats, de végétations, de populations animales, de cultures, d'un équilibre lentement construit, dont il ne peut s'écarter sans risquer de remettre tout en cause'. Braudel, 'Histoire et sciences sociales', p. 731. However, the notions of *longue durée* and 'geographical time' (discussed in Chapter 2 below, pp. 35–8) had been proposed by Braudel a few years earlier, in the first edition of his *Méditerranée* (1949). It is interesting to note, in this respect, that in his otherwise highly complementary view of Braudel's book, Febvre warned against the dangers of 'une sorte de permanence géographique qui confinerait à l'éternité'. See Febvre, 'Un livre qui grandit', p. 220.

⁶ Febvre, *La terre et l'évolution humaine*, p. 284.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)*Introduction*

3

attention from the fact that the range of possibilities greatly varied from one milieu to another, and in some circumstances could be very limited indeed.⁷

As the geographer A. F. Martin noticed in 1952, the older determinists had oversimplified the physical as well as the human world and had been apt to skip several links in the chain of causation by jumping directly from climate to civilization – or even to the genius of the peoples. But it could hardly be disputed, he maintained, that ‘through its control on agriculture climate does have a considerable indirect effect on civilization’.⁸ Important empirical support to this view has come especially from the geocological approach pioneered by Carl Troll, whose work has been – significantly – mainly concerned with upland regions. Geocological research in the Andes and other tropical mountain areas has shown how the interaction of altitude, climate and soil fertility sets upper limits to agriculture and pastoralism and, within the range for agriculture, upper limits on types of crops.⁹ In particular, Troll has argued that ‘the diurnal temperature climate with nightfrost in greater heights was an important factor for the agricultural conquest of the high Andes of Bolivia and Peru’, and has indeed gone so far as to claim that ‘in fact, it was this peculiar climate which was a decisive factor in the history of the Andean civilizations of the Indians’.¹⁰

In anthropology, the possibilist position of such leading scholars as Alfred Kroeber in the United States and Daryll Forde in Britain lost ground to the ‘cultural ecology’ of Julian Steward, whose aim was to determine the extent to which modes of subsistence and, ultimately, forms of social organization were shaped by certain characteristics of the environment.¹¹ The method advocated by Steward was reminiscent of Ratzel’s comparative approach, for Steward too was particularly interested in finding what he called ‘regularities’, or similarities between cultures that recur in historically separate areas and may therefore be explained as a result of similar environmental features. Indeed, some of the criticisms levelled by Vidal and Febvre against Ratzel surely apply to cultural ecology as well. For one thing, there is little doubt that according to cultural ecologists human social and cultural behaviour is to a large extent determined, in a mechanistic

⁷ Cf. Spate, ‘Environmentalism’, pp. 94–5.

⁸ A. F. Martin, ‘The necessity for determinism’, p. 8.

⁹ See especially Troll, *Die tropischen Gebirge*, and Troll (ed.), *Geo-ecology of mountainous regions*.

¹⁰ Troll, ‘The cordilleras of Tropical Americas’, p. 32.

¹¹ The aims and methods of ‘cultural ecology’ are expounded in Steward, *Theory of culture change*.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

way, by the natural habitat. Secondly, it can scarcely be denied that Steward's approach is distinctly ahistorical.

But it should be observed that according to Martin the older determinism of Ratzel and Semple was discredited 'not because its principles were disputed, but empirically, because its examples were disputed'.¹² The comparative studies conducted by Steward and his followers were, on the other hand, based on the far more detailed and reliable empirical evidence collected in the course of intensive anthropological fieldwork. Moreover, although Steward's approach was deliberately ahistorical, it directed attention to a number of functional relations between environmental conditions and forms of economic and social organization which historians are now finding increasingly relevant to their own work.¹³

However, while Ratzel and his disciples had displayed a certain interest in the ways in which especially mountain populations managed to keep their numbers in balance with their resources, cultural-ecological models are conspicuous because of the virtual absence of demographic variables. This may at first sight appear surprising, but is a logical consequence of the fact that cultural ecologists were (and are) essentially concerned with those aspects of social structure and organization that are most closely related to subsistence activities. Such a focus on subsistence patterns and their social-organizational correlates has discouraged a serious exploration of those sectors of social structure which are related not so much to production strategies as to the preservation of a balance between population and resources.

Things have changed dramatically since the 1960s because of the growing popularity which the concept of ecosystem has enjoyed among ecological anthropologists. The term 'ecosystem', initially introduced in the literature on general ecology,¹⁴ designates a biotic community of interrelated organisms together with their common habitat. Two attributes of this concept have proved particularly attractive to anthropologists and other social scientists. The first one is the emphasis it lays on the web of material exchanges and interdependencies among the group of organisms which form the community and the relevant physical features of the setting in which they are found. The second one is that ecosystems in a steady state possess a property of self-regulation which is closely reminiscent of homeostasis in living organisms, of feedback principles in cybernetics and of

¹² A. F. Martin, 'The necessity for determinism', p. 8.

¹³ Cf. Ehmer and Mitterauer, 'Einführung', pp. 10–11.

¹⁴ On the historical development of the notion of ecosystem, see Golley, 'Origins of the ecosystem concept'.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

Introduction

5

the functioning of servomechanisms in systems engineering.¹⁵ The adoption of an ecosystemic approach has led anthropologists, human geographers and archaeologists to a new formulation of ecological problems. On the one hand, as Roy Ellen has noticed, the description of ecological interactions has become more sophisticated, involving computations of carrying capacity and estimates of energy intake, output and efficiency for different groups and activities. On the other, anthropologists especially have developed an interest 'in the way in which cultural institutions might serve to regulate certain systems of which human populations are part'.¹⁶ These problems have been explored through functional analyses designed to specify empirical ranges of tolerance limits within which stability is maintained and to describe the operation of the homeostatic mechanisms which enable a system to preserve an equilibrium state, or to revert to it after a temporary disturbance.¹⁷

The point to be stressed is that in anthropology the adoption of an ecosystemic approach has entailed a shift in the focus of research from a concern with the relations between environmental features and modes of subsistence to the analysis of the relations between population and resources. In particular, the proponents of this approach (which is commonly known as 'neo-functionalism', to distinguish it from earlier forms of anthropological functionalism) have borrowed from biological models of the ecosystem the notion that the successful local population is one which adjusts its numbers in such a way as to maintain local resource stability. The study of population regulation has therefore acquired a crucial importance, and in the past twenty years a large number of anthropological investigations have tried to determine whether social practices ranging from marriage and infanticide to ritual and warfare could be related to the end of maintaining population equilibrium.¹⁸ Yet 'it is paradoxical', as Emilio Moran has recently remarked, 'that ecological anthropological studies have only rarely explored the changing population variable over time given the importance of demographics in population ecology'.¹⁹

This paradoxical situation is largely explained by the fact that most

¹⁵ Cf. Stoddard, 'Organism and ecosystem', pp. 524–8, and Ellen, *Environment, subsistence and system*, pp. 180–1. Indeed, in the jargon of ecosystemic analysis the terms 'regulatory mechanism', 'feedback mechanism', 'homeostatic mechanism' and 'servomechanism' are often used synonymously.

¹⁶ Ellen, 'Ecology', p. 219.

¹⁷ Cf. Collins, 'Functional analyses'.

¹⁸ For a critical discussion of these studies, see Bates and Lees, 'The myth of population regulation'.

¹⁹ Moran, 'Ecosystems research', p. 17.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

ecological anthropologists, like their colleagues in other sectors of anthropology, have mainly relied on ethnographic data collected during their fieldwork. This is best shown by the work which has had the greatest impact on the development of an ecosystemic approach in anthropology, namely Roy Rappaport's study of the Tsembaga people of New Guinea. The demographic data used by Rappaport to test his set of hypotheses only refer to the period covered by his fieldwork (which extended from October 1962 to December 1963) and on a few rough estimates covering the previous fifty years.²⁰ Admittedly, the notion of ecosystem has been very popular also in archaeological anthropology. But for archaeologists it has mainly proved a useful conceptual device which has encouraged them to think in terms of systemic interrelationships. As a concrete unit of analysis, however, the ecosystem has had little role in archaeological research, not least because knowledge of prehistoric populations can be at best circumstantial.²¹

Yet, it is increasingly being recognized that in anthropology ecosystemic models are bound to remain mere 'explanatory sketches'²² unless population dynamics are studied in the long term. Therefore, the efforts of ecological anthropologists are now concentrated on the development of a 'processual' approach capable of overcoming what Benjamin Orlove has called 'the split between the excessively short and long time scales'.²³ There is, in particular, a growing consensus that hypotheses concerning ecosystemic regulation should ideally be tested over periods of two or three centuries and that in order to do so it is necessary to borrow the conceptual and methodological tools of historical demography.²⁴

It is worth noting that, although ecological anthropologists are only now starting to borrow methods and techniques from historical demography, the two disciplines already share a number of major theoretical concerns. An important strand in contemporary historical demography is characterized by a strong interest in the behaviour of demographic systems when population size approaches or exceeds environmental carrying capacity. The question of homeostatic regula-

²⁰ Rappaport, *Pigs for the ancestors*, pp. 14–15, 116.

²¹ Cf. Jochim, 'The ecosystem concept in archaeology'.

²² This term has been used by philosophers of science like C. Hempel and P. Collins to characterize models which are formally valid and specify the relevant laws and initial conditions, but need quantification in order to turn into full-fledged explanations. See Collins, 'Functional analyses', pp. 275–6.

²³ Orlove, 'Ecological anthropology', p. 245.

²⁴ Cf. Adams and Kasakoff, 'Ecosystems over time', and Moran, 'Ecosystems research', pp. 16–19.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

Introduction

7

tion has received considerable attention, and an ecological and quasi-cybernetic approach very similar to that of the anthropologists has been used.²⁵

It is of course true that, when historical demographers discuss the relationships between population and environment, they often refer to the economic rather than to the physical environment. Also, their interest in homeostatic regulation has its roots not so much in the biological models of the ecosystem as in Malthus's notion of marriage as a preventive check.²⁶ But it should not be forgotten that Malthus himself was convinced that a decisive test for his theory would come from the study of the relationships between population and resources in extreme physical environments and predicted that, 'since there is no land so little capable of providing for an increasing population as mountainous pastures', it is in the uplands that 'the necessity of the preventive check should prevail to a greater degree'.²⁷ Indeed, Malthus devised (as we shall see in Chapter 2) a model of demographic and ecological regulation in mountain environments which is strikingly similar to the ecosystemic models proposed by anthropologists. Thus, the terrain seems to be ready for closer collaboration and exchange between historical demographers and the anthropologists engaged in the study of mountain societies. But demographic history requires that the relevant documents survive to be analyzed, and this is not always the case in upland areas.

It is interesting to note, in this respect, that in his *Essay* Malthus remarked that in Tibet 'religious retirement is frequent, and the number of monasteries and nunneries is considerable', and among

²⁵ The term 'homeostatic regime' is used in demography to denote 'the existence of a system of relationships between the fertility characteristics of a community and its socio-economic circumstances such as any movement away from an initial position of equilibrium tends to provoke changes elsewhere in the system which restore the original state'. Wrigley, 'Homeostatic regime', p. 97. Studies testing and discussing the hypothesis that demographic regimes in the past were homeostatically regulated include Ohlin, 'Growth in pre-industrial populations'; Dupâquier, 'De l'animal à l'homme'; Schofield, 'Demographic structure and environment'; Scott Smith, 'A homeostatic demographic regime'; Lesthaeghe, 'Social control'; and Wrigley and Schofield, *Population history of England*, pp. 454–84. A comprehensive survey of the historical-demographic and anthropological literature on population regulation is provided by Coleman, 'Population regulation'.

²⁶ It should be noticed, however, that leading historical demographers like E. A. Wrigley and J. Dupâquier have been strongly influenced (like Rappaport and others in anthropology) by the theory of 'group selection' proposed in 1962 by the zoologist V. C. Wynne-Edwards, who has argued that it is highly advantageous for survival (and thus strongly favoured by selection) for animal species to control their population densities and to keep them as near as possible to the optimum level for each habitat they occupy. See Wynne-Edwards, *Animal dispersion*, pp. 8–9.

²⁷ Malthus, *Summary view*, pp. 213–14.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

the laity 'all brothers of a family without any restriction of age or of numbers, associate their fortunes with one female, who is chosen by the eldest'. It seemed evident to Malthus that 'this custom, combined with the celibacy of such a numerous body of ecclesiastics, must operate in the most powerful manner as a preventive check to population'.²⁸ The survey of the ethnographic literature carried out by Pedro Carrasco in 1959 confirmed that a pattern of polyandry combined with monasticism and with a custom of impartible inheritance had been reported for most parts of Tibet. But the documentation he could use in his survey was, unfortunately, only qualitative. How frequently this ideal pattern was attained in practice remained, he stressed, an open question.²⁹

Very interesting quantitative evidence has now been provided by the American anthropologist Melvyn Goldstein and his associates, who have established that in the Tibetan and Himalayan villages they have studied in the 1970s polyandry was actually the dominant form of marriage. This resulted in a very high proportion of women never marrying. Moreover, age at first marriage for women was also strikingly late by Asian standards. Thus, although marital fertility was rather high, overall fertility was low.³⁰ These findings are of considerable interest for at least two reasons. In a very influential essay published in 1965, John Hajnal demonstrated that for at least two centuries up to 1940 north-western Europe had been characterized by late age at marriage for both sexes and by a high proportion of people never marrying, and argued that this pattern was radically different from any other pattern found elsewhere in the world.³¹ The data collected by Goldstein reveal, on the contrary, that a pattern of late and infrequent marriage can also be found in the high mountains of Asia. At the same time, these data challenge the view that the low oxygen level ('hypoxia') is the main cause of reduced fertility at high altitude.³² What they suggest is that the low birth rates displayed by the populations studied by Goldstein are not caused by hypoxia-induced low fecundity, but are the product of socio-cultural factors leading to low nuptiality and therefore affecting the exposure of females to intercourse.

These findings have encouraged Goldstein to contend that the traditional social organization of Tibet and other parts of the Himalayas

²⁸ Malthus, *Essay on population*, p. 123.

²⁹ Carrasco, *Land and polity in Tibet*, pp. 28–77, 212.

³⁰ Cf. Goldstein, 'Fraternal polyandry and fertility', and 'New perspectives on Tibetan fertility'; and Goldstein *et al.*, 'High altitude hypoxia'.

³¹ Hajnal, 'European marriage patterns'.

³² Cf. Abelson, 'Altitude and fertility'.

Cambridge University Press

0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Century

Pier Paolo Viazzo

Excerpt

[More information](#)

Introduction

9

(and in particular those institutions which, like polyandry, lead to low nuptiality) should be seen as a set of adaptations to a physical environment whose inelasticity severely restricts the potential for increased energy production.³³ This argument, however, and the related one according to which Himalayan populations were traditionally part of a homeostatic system regulated by low nuptiality and impartible inheritance, are unfortunately very difficult to test and prove. As Goldstein himself has emphasized, there is no demographic evidence on traditional Tibet, and the same is apparently true of the rest of the Himalayas as well as of the Andes.³⁴

The case is different for European mountain areas such as the Pyrenees or the Alps. Although the evidence is still far from being fully exploited, a considerable amount of historical-demographic sources are known to exist. What is more, there is probably no better place than the Alps to test the hypothesis that nuptiality functioned as a decisive homeostatic mechanism. As Map 1 shows, the Alps are a mosaic of ethnic and linguistic groups ranging from Provençal speakers in the western sector of the crescent to Slavonic people in the easternmost ranges. Thus, the Alps represent a natural and cultural boundary between civilizations – between transalpine Europe, where Hajnal's 'European marriage pattern' was dominant, and the Mediterranean and Slavonic worlds, where different and distinctive marriage and family patterns are held to have obtained.³⁵

Only a few years ago, broad comparative investigations of these topics would have been impossible. In 1975 Paul Guichonnet had to acknowledge that the historical demography of the Alps was still in its infancy – a statement echoed by Hanspeter Ruesch in 1979 and by Jean-François Bergier in 1980.³⁶ As to anthropology, some interesting studies had already been completed, but they hardly contained any quantitative evidence. In the last few years, however, the situation has changed considerably. A fair amount of data concerning the post-1850 period are now available in the demographic, anthropological

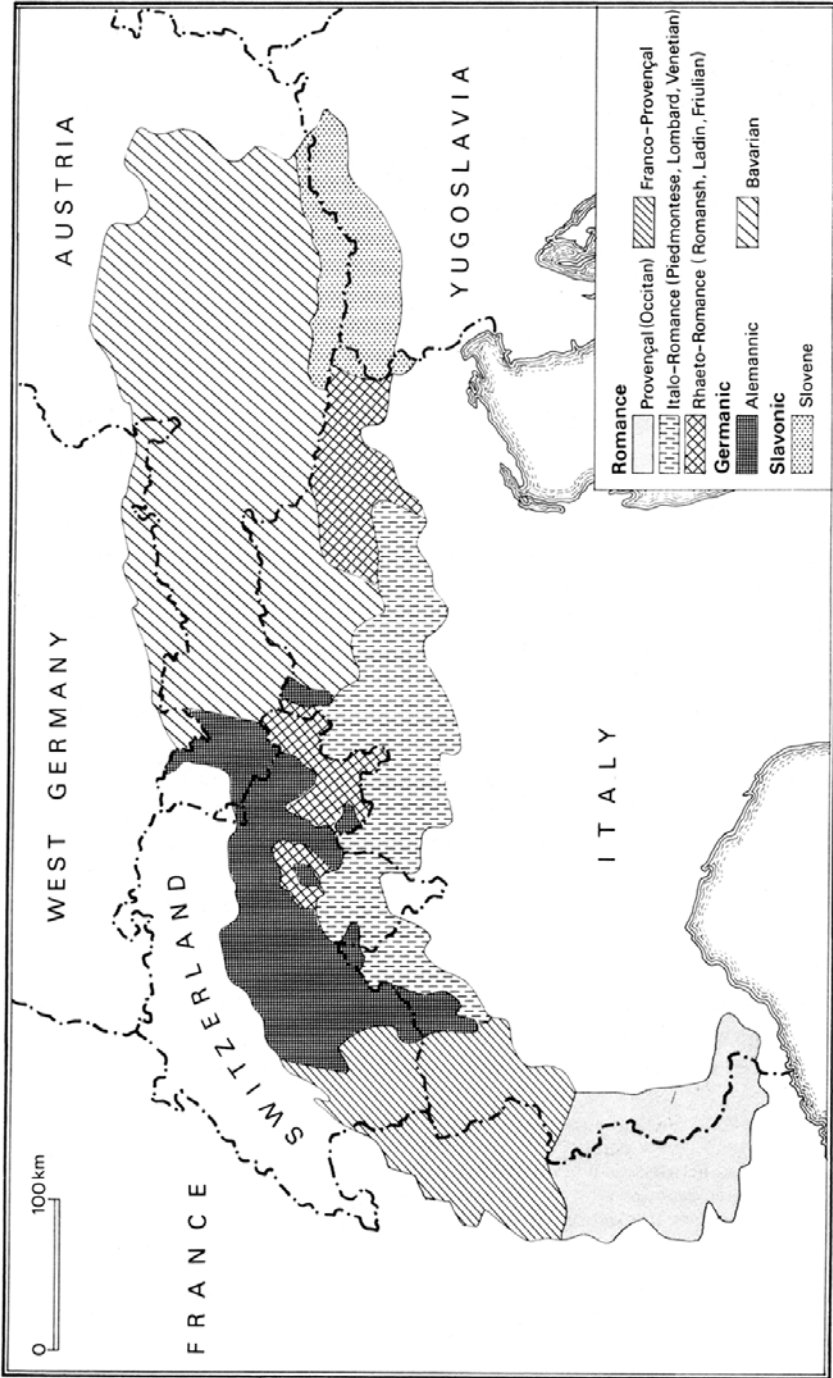
³³ Goldstein, 'Social matrix of Tibetan populations'.

³⁴ Goldstein, 'New perspectives on Tibetan fertility', p. 722. Interesting attempts have been made to assess whether pre-hispanic Andean populations were kept in balance with their resources by a set of 'preventive checks' including celibacy and late marriage. However, existing information on possible pre-Columbian checks on Andean populations is scanty and often contradictory. Cf. Rabell and Assadourian, 'Self-regulating mechanisms', and Cook, *Demographic collapse*, pp. 24–7.

³⁵ On demographic structures and cultural regions of Europe see Hajnal, 'European marriage patterns', and 'Two kinds of household formation'; Macfarlane, 'Demographic structures'; and Laslett, 'Family and household as work group', pp. 516–35.

³⁶ Guichonnet, 'Développement démographique', p. 143; Ruesch, 'Die Demographie der Alpen', p. 178; Bergier, 'Le cycle médiéval', p. 166.

Cambridge University Press
 0521306639 - Upland Communities: Environment, Population and Social Structure in the Alps since the Sixteenth Centur
 Pier Paolo Viazzo
 Excerpt
[More information](#)



Map 1 Main linguistic groups in the Alps