

Zeitschrift: Itinera : Beiheft zur Schweizerischen Zeitschrift für Geschichte = supplément de la Revue suisse d'histoire = supplemento della Rivista storica svizzera

Herausgeber: Schweizerische Gesellschaft für Geschichte

Band: 5-6 (1986)

Artikel: Population, resources, and homeostatic regulation in the Alps : the role of nuptiality

Autor: Viazzo, Pier Paolo / Albera, Dionigi

DOI: <https://doi.org/10.5169/seals-1077679>

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: 08.02.2026

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

POPULATION, RESOURCES, AND HOMEOSTATIC REGULATION
IN THE ALPS: The role of nuptiality

by

Pier Paolo Viazzo

Dionigi Albera

We are grateful to M. Dossetti and A.M. Jones for permission to quote from their unpublished works and for helpful discussion. The figures concerning Entracque contained in this paper have been worked out on the basis of data collected by R. Bassani and available at the Department of History, University of Turin. - Our interest in the topics dealt with in this paper was first stimulated by anthropological field research carried out in three communities of the high Varaita Valley (see Albera 1982) and in Alagna, a Walser colony in the high Sesia Valley (see Viazzo 1983a).

Recent work in historical demography has demonstrated that pre-industrial Europe displayed a number of demographic systems which were very different in their causes, formal properties, and historical consequences. It has also suggested that nuptiality played a central role in the population history of the European continent. Of special relevance is the hypothesis that it was basically through the functioning of the marriage system that a 'low-pressure' or, alternatively, a 'high-pressure' régime were maintained and different balances of population and resources achieved. The comparative study of marriage

patterns now appears to be one of the most important tasks not only of historical demography but also of a number of related disciplines or sub-disciplines (Wrigley 1981).

We would suggest that the neo-Malthusian hypotheses concerning the role of nuptiality are particularly intriguing for anthropologists working on the Alps. Writing of family size in a village of East Tyrol, one anthropologist (Heppenstall 1973: 144) stated some years ago that "the contrasts are spatially and chronologically startling. Within a single generation and within a quarter of a mile, the average family size has swung from the eight-ten child 'labour-accumulating' farming family to an approximate ideal of two or three ... an outlying hamlet a quarter of a mile from the main village, equally near the road but as yet untouched by tourist development, shows no change from earlier generations". This passage, which implies the existence of a close correlation between economic transformations and shrinking family size, is typical of what is probably the main stream in Alpine anthropology. One basic reason why anthropologists and other social scientists have been attracted by the Alps is that the Alpine world looks like a reliquary of old customs and ways of life which have only recently started to change. Social anthropologists have only rarely dealt with the demography of the villages where their fieldwork was conducted, but most of them seem to take it for granted that in the past the Alps displayed a 'primitive', high-fertility demographic régime and that the fairly modest family size to be found today is to be seen as an obvious aspect, and consequence, of social change and modernization.

It should be noticed, however, that another major reason why anthropologists have been attracted by the Alps is that in the Alps, as in other mountain areas, economy and social structure appear to be largely dominated by inflexible environmental constraints. Are high levels of nuptiality and fertility compatible with these constraints? Interestingly enough, it was Malthus himself who suggested, on the basis of evidence from a

Swiss mountain parish, that since "there is no land so little capable of providing for an increasing population as mountainous pastures", it is in the Alps that "the preventive checks must have been unusually great" (1830: 261). In the second and later edition of his Essay, Malthus granted a privileged position to Switzerland, whose distinctive demographic features provided the best illustration of the general principles of his work. The available body of evidence indicated that in the eighteenth century mortality had considerably improved throughout the country, but this had produced different effects in the various natural regions: "Though the population (...) in the flat parts of Switzerland has increased during the last century", Malthus writes, "there is reason to believe that it has been stationary in the mountainous parts" (1803: 210). The cause is, for Malthus, almost self-evident. The limits to population growth are, in upland regions, "strikingly obvious", and highlanders must either control fertility by delaying and restricting marriage or starve. An excellent example was offered by the pastoral village of Leyzin, in the Pays de Vaud, where fixed resources and improving mortality had led to a decline of nuptiality and fertility. The data collected by Jean-Louis Muret, one of the pioneers of Swiss demography, showed that towards the middle of the eighteenth century the population of Leyzin had apparently become stationary, with crude birth and death rates in the region of 20 per thousand.

Ecological anthropologists will obviously find Malthus's model, where nuptiality acts as an 'adaptive' homeostatic mechanism, very appealing. Environmental constraints being largely the same, it would be reasonable to expect marriage patterns to be very much the same all over the Alps. But we should not forget that through the Alps "runs one of the great cultural frontiers of Europe, the zone of contact between the cultural sphere of the Mediterranean and the transalpine cultures to the north" (Wolf 1962: 1). In particular, the Alps represent a natural and cultural boundary between 'western' Europe, where

Hajnal's (1965) European marriage pattern was dominant, and the Mediterranean world, where different and distinctive marriage and family patterns are held to have obtained (Laslett 1983: 516-35; cf. Viazzo 1984: 20-5). We owe to Eric Wolf, and to his junior colleague John Cole, a major anthropological exploration of this cultural frontier, based on fieldwork in two adjacent villages in South Tyrol. Particularly in an article of 1962 Wolf brings out a series of homologous contrasts between German-speaking St. Felix and Romance-speaking Tret. In St. Felix he found a typically Germanic dispersed settlement, emphasis on lineality of descent, a classic stem-family of the Austrian kind; in Tret, nucleated settlement, wider networks of affinal relations, and nuclear neolocal families. Patterns of social stratification were also strikingly dissimilar. All these differences are elegantly explained by Wolf as generated by a basic contrast between the system of impartible inheritance of St. Felix, which he regards as a legacy of a pristine Nordic civilization, and the system of partibility of Tret. Wolf believes that impartibility is, ceteris paribus, more adaptive to Alpine and other marginal environments than is partibility, because it keeps the estates undivided. But the fact that contrasting systems of inheritance are found in two villages which have to cope with the same environmental imperatives indicates that the maintenance of different inheritance systems is ultimately determined by fidelity to opposed cultural heritages.

Wolf's contention (partly revised in later works) raises a number of stimulating questions. Were traditional marriage patterns basically the same all over the Alps, or did they differ because of differences in the inheritance systems? Were they more strongly affected by ecology or by culture and ethnicity? A discussion of data mainly derived from the anthropological literature sheds, as we shall see presently, some light on these problems. But there is another central question. Did marriage really act as a homeostatic mechanism? An answer to this question can only come from an historical

investigation. The second part of this paper will therefore consider some comparative evidence concerning a period which provides an ideal test for this hypothesis, namely the late eighteenth and early nineteenth centuries.

Alpine Marriage patterns: the evidence from the anthropological literature

Although they have only exceptionally provided direct data on fertility, the anthropologists who have worked in the Alps have often discussed at some length one of its major determinants, namely age at marriage. Thus, some quantitative information is available on this subject. Unfortunately, periods of observation, statistical measures and methods of tabulating the data are not homogeneous, but a general picture does nonetheless emerge both for the first half of our century and for the years after the Second World War. Even if the localities listed in Table 1 cannot by any means be regarded as a random sample of Alpine villages, the figures contained in this Table strongly suggest that in the first half of our century marriage tended to be very late throughout the Alpine crescent. Table 2, on the other hand, seems to indicate that after the war marriage age, though remaining rather high, has somewhat declined for both men and women.

Roughly the same is apparently true for permanent celibacy. In Alagna, the formerly German-speaking village in the Italian Western Alps where one of us did his anthropological fieldwork, it is now quite unusual for people over thirty years of age to be single. Permanent celibacy is no longer part of the Alagnese experience. But in the period between the two World Wars about one-fourth of all women and one-sixth of all men failed to get married. Comparative evidence shows that these proportions were far from being exceptional. The combined celibacy rate for men and women ranged, in the first half of the century, from about 20 per cent in Festiona (Destro 1984: 171) and approximately 30 per cent in Törbel, Tret and St. Felix (Netting 1981: 132; Cole & Wolf 1974: 162-3) to even

higher figures in such districts as the Val Maggia in the Swiss Canton Ticino, where in the 1930s almost 50 per cent of all women did not marry (van de Walle 1975: 456). In several localities - Alagna is a good example - the incidence of permanent celibacy has now greatly declined, but in others it remains very substantial: in the 1970s the rate was still as high as 30 per cent in Kippel (Friedl & Ellis 1976: 34) and approximately 40 per cent in the Fersental (Sellan 1979: 57).

Fragmentary as they are, these figures are extremely interesting. For one thing they appear unmistakably to point, especially for the period before the Second World War, to a pronounced version of Hajnal's European marriage pattern and, consequently, to the existence of a low-pressure demographic régime. How can these figures be reconciled with the image of a 'traditional' Alpine pattern of high fertility proposed, for instance, by a leading geographer such as Paul Guichonnet (1975: 157-8) and supported by a number of anthropological writers? One solution consists of course in simply dismissing the latter view as grossly unreliable because of its impressionistic and largely anecdotal character. Yet there are reasons to believe that the contradiction is, to some extent at least, more apparent than real and that it is due to a confusion between marital and overall fertility.

In this connection, Livi-Bacci's analysis of the Italian censuses of 1881 and 1911 is particularly instructive. These two censuses are very precious because they are the only ones to provide data not simply by province but also by circondario, a smaller and geographically far more homogeneous administrative unit. This gives a much more precise idea of the geography of Italian fertility, all the more so for the Alps, whose distinctive demographic features tend to be obscured by aggregate figures for provinces. Indeed, the most striking finding to emerge from Livi-Bacci's (1977) map representing the index of marital fertility I_g in the 284 Italian circondari in 1881 is that the whole range of Alpine districts forming the Ita-

lian border from the west to the east stands out because of its relatively high I_g , always above 0.600 and quite often above 0.700. High legitimate fertility was, however, coupled with a very low propensity to marriage, measured by I_m . In 1881 the Alpine districts were no less outstanding because of an I_m which was often below 0.450 and in some instances below 0.400 (Livi-Bacci 1977: 153-74; for a definition of the fertility and nuptiality indices, see Coale 1965).

As Livi-Bacci himself remarks, this reveals the existence of "a particular type of Alpine high fertility" (1977: 153). On the basis of the data emerging from the Italian censuses of 1881 and 1911 it seems reasonable to assume that this Alpine pattern was characterized, by and large, by an I_g in the region of 0.700 and by an I_m in the region of 0.400. Of course, legitimate fertility could be much higher, and we also know that levels of illegitimate fertility could vary quite considerably. Table 3 proposes three simple models. Model A is very closely approached by the Swiss Canton Ticino in 1870, whereas Model B is presumably close to the experience of many parts of the Austrian Alps, where illegitimacy is known to have been very high in this period (Mitterauer 1979). Canton Uri in 1870 offers, on the other hand, a nice empirical example of Model C ('Very high legitimate fertility, low nuptiality, low illegitimacy'). These models suggest that in the Alps overall fertility could vary quite substantially from one district to another. On the whole, however, overall fertility could be expected to range from very low (Model A) to fairly low (Model C).

As one can easily see, this general conclusion is quite consistent with the data on age at marriage and celibacy rates derived from the anthropological literature. But there is another reason why the data reported in Tables 1 and 2 are of considerable interest. It has been repeatedly argued that impartible inheritance, which maintains a fixed number of openings on the land, logically limits the number of marriages

(which will also tend to be late) and leads to slow population growth. Partible inheritance, on the other hand, is expected to result in high nuptiality and rapid population growth (Habakkuk 1955; Berkner & Mendels 1978: 213; Brennan, James & Morrill 1982). Interestingly enough, of all the localities in Tables 1 and 2, only St. Felix, St. Georgen and the Eastern Sattnitz had impartible inheritance. It seems remarkable that in the Alps, where land scarcity is especially acute and environmental pressures are strongest, a high frequency of celibacy and a high age at marriage for both men and women were apparently ubiquitous whatever the inheritance system. This finding brings support to the view that a marriage pattern can be shaped more effectively by environmental constraints than by the formal properties of inheritance systems.

It is tempting to conclude, at this point, that since in mountain areas environmental constraints are (or have been until recently) basically unchanging, then late marriage and high celibacy rates must have been typical of the Alps for a very long time. What data we possess on marriage age in the second half of the nineteenth century do not enhance our confidence, however (cf. Table 4). Although still within the limits of the European marriage pattern, marriage ages were, in several villages, lower than in the first half of our century. In some localities, including Alagna, they were even lower than in the years after the Second World War. The data for the Austrian village of St. Georgen, which have been included in Table 4 even if they belong to an earlier period, suggest that if anthropologists were able to dig more deeply into the demographic history of their villages, a number of surprising findings would probably emerge. It is clearly of critical importance that Alpine anthropologists avoid the pitfall in which fell, to quote a classic example, Arensberg and Kimball (1940) in their famous and influential study of the Irish stem family, when they failed fully to realize that the tradition they were discussing was scarcely a hundred years old at the time of their research (cf. Brody 1973: 5).

Unfortunately, the determination of, say, marriage age before 1850 may often prove a very hard task even for the historically minded anthropologist. In some exceptional cases some data may be directly available, as in St. Georgen. In general, however, it is necessary to proceed to family reconstitution, a time-consuming effort not all anthropological investigators can afford. Nevertheless, an exploration of the Alpine past remains indispensable if some major hypotheses about marriage and the family are to be tested and the extent and direction of social and demographic change are to be correctly assessed.

Population growth in the Alps, 1700-1850

a) Törbel

It may well be that the historical demography of the Alps is no longer in its infancy. In the last few years a number of useful studies have been published and others are in progress. Most researchers seem, however, to be more interested in estimating the population size of the various Alpine districts at different points in time than in exploring the working of the main demographic variables. One remarkable exception is, of course, Robert Netting's monograph on Törbel, a village in the German-speaking part of the Swiss Canton Wallis/Valais. Netting's book provides an ideal starting-point for our discussion not simply because it is one of the few adequate analyses of population dynamics in the Alps, but also because its author is one of the few anthropologists who have been courageous or patient enough to venture beyond the Pillars of Hercules represented by family reconstitution. Moreover, his work is perhaps the most accomplished attempt to demonstrate that in the Alps the balance between population and resources was homeostatically regulated by a set of social servo-mechanisms - nuptiality predictably being the most important among them.

Netting writes in his book that the narrow range of fluctuations in growth experienced by Törbel's population and the long periods of stability "suggest the operation of finely

tuned homeostatic mechanisms in the local ecosystem" (1981: 112). Homeostasis, however, does not mean unchanging equilibrium. In the first three-quarters of the eighteenth century the population of Törbel remained virtually constant. This, Netting remarks, "is just what one might expect if the local community had arrived at a kind of equilibrium with its environment and limited productive resources" (1981: 96). But in the last quarter of the century the village population starts to grow. In less than one hundred years it more than doubles, from 280 inhabitants in 1775 to 590 in 1867, at an annual growth rate of 8 per thousand.

The main factor behind this growth was, if Netting's analysis is correct, falling mortality. The crude death rate dropped from about 28-30 per thousand in the mid-eighteenth century to just 20 per thousand in the first half of the nineteenth century. Quite interestingly, this decline in mortality was accompanied by an increase in both the celibacy rate and the average age at marriage, particularly for women. The old socioeconomic regulators were apparently still at work. But although they acted as a brake on population growth, they could not stop it altogether. Falling mortality caused an increase in the average duration of marriages, which in turn led to an increase in the mean number of children per marriage, from 3.8 in the first half of the eighteenth century to 4.9 one hundred years later. What is more, there were also signs of increasing fertility within marriage, a change which Netting chiefly attributes to improvements in the mothers' diet.

Such improvements are, according to Netting, one of the effects we should expect from an event of capital importance for Törbel, namely the introduction of the potato, which took place in the late eighteenth century and brought about a dramatic, "even revolutionary change in the local environment" (Netting 1981: 159). The introduction of the potato and the consequent expansion of local resources is, for Netting, the

ultimate cause of the growth of Törbel's population, which simply adjusted to the ecosystem's increased carrying capacity. The worsening of nuptiality did not stop this adjustment process, but made it quite gradual and so helped prevent any serious degradation of the environment or any major deterioration of living standards.

Although he is obviously aware that we cannot expect to find in a single mountain peasant community the same causal factors that powered the rise of population in a whole continent, nevertheless Netting stresses the fact that "the general shape of population growth in many parts of Europe is not unlike that of Törbel" (1981: 97). Indeed, the case of Törbel invites a number of interesting comparisons. Netting mentions, first of all, the English case. Rather than of England, however, Törbel is in some ways reminiscent of France, where in this period falling mortality was initially counteracted by an increase in both marriage age and celibacy rate. As in Törbel, in France too this 'traditional' homeostatic mechanism proved insufficient fully to control population growth (Wrigley 1985). But whereas in France it apparently became imperative to resort to family limitation, in Törbel Netting finds no evidence of birth control: thanks to the beneficial effects of the 'potato revolution', the Törbjers could afford to retain unlimited fertility within marriage. It is well worth noting that Törbel also departs, in spite of significant similarities, from the classic Irish model: in Törbel the introduction of the potato caused no abrupt decrease in age at marriage or proportion of celibates.

Broad comparisons of this kind are no doubt suggestive, but it is perhaps more relevant to observe that Törbel's population curve looks quite similar to that of Alpine Switzerland as a whole. The new estimates most recently communicated by Markus Mattmüller (1985) indicate that the eighteenth century was a period of very slow growth, followed by a rapid acceleration of the rate of growth in the first half of the nineteenth

century. These estimates for the Central Alps appear to support the widely held notion, largely based on data for the Western Alps, that a two-phase development of this kind was characteristic of the whole Alpine area. If we add that many students of the Alps have little doubt in regarding the introduction of the potato as the prime mover, we see that there are good reasons to believe that the process observed and analyzed by Netting is, to a very large extent, representative of the demographic history of the Alps in the eighteenth and early nineteenth centuries. Is this true?

b) The Swiss Hirtenland

In order to answer this question it is important to notice, first of all, that Törbel is presented by Netting as an almost ideal-typical case of closed peasant community practising what is usually designated in the literature as 'mixed mountain farming' - an exceedingly complex agro-pastoral system based on a delicate equilibrium between the exploitation of arable land on the one hand and of high-altitude pastures on the other. We cannot be totally sure that in the eighteenth century Törbel was characterized by such an economy, but this is at least very likely, since we know that agro-pastoral communities of this kind - the 'autarkic' communities of Swiss economic historians - were quite numerous in Wallis. But in the eighteenth century the dominant type of community in the Swiss Alps was purely pastoral in orientation. Fields were almost entirely devoted to the production of hay, and the cultivation of rye and barley was mainly a thing of the past. Although the so-called 'autarkic' villages were not completely self-sufficient, nevertheless they tended to be economically closed - more closed, at any rate, than the villages of the Hirtenland, the pastoral region, which heavily depended on the commerce of livestock or dairy products and on the purchase of grains.

Swiss economic historians have strongly emphasized the significance of the transformation, in the seventeenth and eigh-

teenth centuries, of many 'autarkic' communities into pastoral villages. As pastoralism was less labour-intensive than mixed farming, this resulted in a marked tendency towards unemployment. Mattmüller (1985) believes that in the eighteenth century the Hirtenland was on the verge of suffering a substantial loss of population through massive emigration of people who could not find work in the mountains, when two all-important changes occurred. The first change was the penetration of cottage industry, stimulated by the state of overpopulation of the Hirtenland and by the consequent availability of cheap labour. The second change was, as in the 'autarkic' zone (and, indeed, rather earlier in the eighteenth century), the introduction of the potato, whose role of staple food in the Swiss highlanders' diet was no less important in the proto-industrial communities than in those villages that remained essentially pastoral.

What were the demographic consequences of the rapid increase in food supply and other economic resources brought about by cottage industry and by the cultivation of potato? The main general consequence was, of course, that instead of stagnation or decline Alpine Switzerland witnessed a period of unprecedented population growth. But it seems clear that considerable differences must have existed between the various types of communities. We may presume, for instance, that many Swiss communities experienced those major changes in nuptiality - i.e. earlier and more frequent marriage - that have been taken by writers like Rudolf Braun (1978) as a crucial distinctive feature of proto-industrialization in Switzerland and elsewhere. In the pastoral villages, on the other hand, nuptiality apparently worsened. A recent reconstitution study of Andermatt, a high-altitude pastoral community in Canton Uri, reveals, as far as marriage age is concerned, basically the same pattern as in Törbel. The brides' age at their first marriage gradually increased from about 24 years in the first half of the eighteenth century to 27.3 years in the early nineteenth century (Zurfluh 1982). No data on celibacy are

available for Andermatt, but the evidence concerning pastoral villages collected by Ruesch (1979) suggests that in the early decades of the nineteenth century permanent celibacy was rising - an increase that Ruesch himself interprets as an attempt to control population growth.

A more detailed discussion of the Swiss material than is possible here would show that several dark areas still remain and that further research is needed. However, this sketchy discussion allows us to conclude that Törbel, though not fully representative of the Swiss Alpine world, nevertheless experienced a process of demographic growth which is quite similar - not only in its general shape but also, as far as we can see, in its dynamics and underlying causes - to that of most upland communities. There is some evidence, both from Netting's study and from other works, that in the late seventeenth century the crude birth and death rates were rather high, perhaps in the region of 38-40 per thousand. It seems certain, however, that towards the middle of the eighteenth century (when Muret collected the data which formed the basis of Malthus' reflections on Switzerland) much of Alpine Switzerland had actually approached a stationary state characterized by low mortality, low nuptiality, and fairly low overall fertility. But in the early nineteenth century, when Malthus was writing his chapter on the checks to population in Switzerland, the population of the Swiss highlands had already started to grow.

c) The Austrian Alps

The body of received wisdom about Alpine historical demography - and in particular the notion that the eighteenth century was for the Alps a period of slow growth followed by a rapid acceleration in the first half of the nineteenth century - is still largely based on such works as Wilhelm Bickel's Bevölkerungsgeschichte der Schweiz, published in 1947, and Raoul Blanchard's monumental study of the Western Alps, completed in 1956. No comparable work exists for the Eastern Alps, but

until a few years ago there seemed to be no reason to doubt that the course of population history had been essentially the same all over the Alps and that the potato had played the same pivotal role in the eastern districts, where it was introduced towards the end of the eighteenth century, as in the other sectors of the Alpine crescent.

Thanks to Kurt Klein's (1971, 1973) systematic efforts to assemble all the available evidence on the history of the Austrian population before 1850, we are now able to see that the Austrian Alps display, in fact, quite a different picture from the Swiss highlands. To be sure, as far as the eighteenth century is concerned there are important similarities. In both Austria and Switzerland the Alpine areas grew at a much slower pace than the adjacent lowlands. But in the first half of the nineteenth century growth is definitely much weaker in the Austrian Alps than in Switzerland. In such regions as Carinthia or Upper Austria the rate of growth was very modest, and in Salzburg and Tyrol there is hardly any sign of growth at all. In the first half of the nineteenth century only Vorarlberg and Styria, of all Austrian Alpine Länder, saw a sizable increase in their population: 35.9 per cent in Vorarlberg, 22.5 per cent in Styria. Intraregional differences were, however, both remarkable and revealing (Klein 1971: 51-5; Pickl 1985), and constitute - in the last analysis - the best demonstration that the population of mountainous districts was growing much more slowly than either in the Austrian lowlands or in Alpine Switzerland (cf. Table 5).

What are the causes of these notable regional and intraregional differences? Migration played a part, but Austrian scholars agree that the decisive factor was the distinctive Agrarverfassung of the mountain areas. In the lowlands a combination of institutional and economic factors - that is partible inheritance and the recent introduction of new forms of intensive cultivation (viticulture, in particular) - provided the basis for fast population growth. In the mountains, on the

other hand, impartibility was the rule - with the significant exception of Vorarlberg and of parts of Western Tyrol, which were, in this respect, closer to Switzerland than to the rest of Austria. Impartibility, it is emphasized (Klein 1973: 100-1; Mitterauer 1973: 218-9; Findl & Helczmanovszki 1977: 23), entails late and infrequent marriage, and this in turn explains the lower fertility of the highlands and their slower rate of growth.

It should be noted that overall fertility was not necessarily lower than elsewhere in the Alps. As is well known, illegitimacy levels were very high. And we suspect that age-specific fertility rates were higher in Austria, where breast-feeding was unusual (and infant mortality very high), than in the Western and Central Alps. Unfortunately, the evidence on fertility in the Austrian Alps before 1850 is, as far as we can see, rather sketchy. But nuptiality was so low that it can safely be assumed that overall fertility too must have been pretty moderate. The most interesting point is perhaps that both marriage ages and celibacy rates, which were already high in the eighteenth century (higher, it would seem, than in the previous century), apparently climbed throughout the first half of the nineteenth century (cf. Mitterauer 1979: 168-75). The population pyramids derived from the listings collected by Michael Mitterauer and his associates (e.g. Schmidtbauer 1977) suggest that during this period I_m declined from values in the region of 0.350-0.400 to values of 0.300 or less.

The Austrian case offers a fascinating variant of the pattern observed in Törbel, where changes in nuptiality had proved insufficient to stop population growth. Whether in Austria marriage operated as a homeostatic mechanism is, however, open to question. At times Austrian scholars seem to imply that impartibility actually prevented mountain populations from adjusting to the new opportunities created by the introduction of the potato, which in some places had made it possible "to feed between three and four times as many people from the same

acreage of land" (Mitterauer & Sieder 1982: 125). The impression is that impartibility was rigidly enforced not so much because local communities had reached the ceiling of their resources, but in order to assure the reproduction of the existing pattern of social and economic stratification. This vindicates the importance of inheritance systems and, more generally, of social structure in affecting population growth. The practice of impartibility was perhaps obeying imperatives which were more social-structural in nature than environmental.

d) The Western Alps

As we have said, the widespread opinion that the demographic history of the Alps was characterized by slow growth in the eighteenth century and then by a tumultuous population increase until about 1850 owes much to Raoul Blanchard's 13-volume regional study of the French and Piedmontese Alps (1938-1956). In fact, we have just seen that the Austrian Alps departed quite considerably from this allegedly all-Alpine pattern. But it is our impression that the population history of the Western Alps, too, should be carefully reconsidered.

To be sure, for the eighteenth century Blanchard offered a rather chequered picture, marked by divergent trends in the three major regions covered by his study. A comparison between the celebrated consegna of 1734 and later censuses seemed to establish beyond doubt that the eighteenth century had been, for the Piedmontese Alps, "un siècle d'expansion démographique" (1952: 319-30). He believed, on the other hand, that in the same period the Southern French Alps had experienced stagnation or even decline, whereas the Northern French Alps had apparently displayed a contrast between the growth of the low valleys and the basic stability of the population of the high valleys. During the first half of the nineteenth century, however, growth had been general all over the Western Alps, as Table 6 shows.

Some important limitations of Blanchard's pioneering study are well known. From an historical-demographic point of view, it is especially relevant to stress that it rests on very uneven evidence, particularly as far as the eighteenth century is concerned: while for the Piedmontese Alps he was able to rely on the 1734 census, which was generally deemed to be of the highest quality, and to some extent also on a later census taken in 1774, his documentation on the population of the French Alps is flimsy. If we add that Blanchard's interest in demography greatly increased from the 1930s, when he wrote the first volumes of his work, to the early 1950s, when he published the two volumes on the Piedmontese side, we can understand why his analysis of the population history of the Piedmontese Alps is much more detailed and informative than the sections on the demography of the French Alps, which remain rather impressionistic. In a different vein, it should also be noticed that Blanchard's work, though covering most of the Western Alps, leaves out the Aosta Valley as well as the cluster of Piedmontese valleys south of Monte Rosa which form a transitional zone between the Western and the Central Alps.

In spite of these limitations, Blanchard's main points have been widely accepted, and have indeed received some support from a number of works published in the last thirty years. Bernard Janin's study of the Aosta Valley indicates, for instance, that between 1734 and 1848 the population of this area grew very much in the same way as that of the Piedmontese Alps, although at a considerably slower rate (Janin 1968: 169-71); and the data recently summarized by Bernard Bonnin (1982: 41-3) suggest that in the eighteenth century the population of many villages of the French Alps, and above all of villages situated in the high valleys, tended to stagnate or even to decline. It would, therefore, seem warranted to conclude that Blanchard was right in arguing that the first decades of the nineteenth century had witnessed a turning-point, marked by a rapid acceleration of the growth rate in the Piedmontese Alps and by a shift away from the stagnation of the previous cen-

ture in the French Alps.

There are, however, two important caveats. It is necessary not to forget, for one thing, that the first years of the nineteenth century represent a trough in the population curve of the Western Alps, which were badly affected not only by the ravages of the Napoleonic wars but also by the mortality crises of the 1790s. As Blanchard himself had to admit, the forced adoption of the 1806 census as a basis for comparison inevitably produces a distorted and exaggerated impression of growth (Blanchard 1956: 530-1). Thus one is entitled to suspect that in the French Alps the first half of the nineteenth century may have been more a period of demographic recuperation than one of genuine growth.

In the case of the Piedmontese Alps and of the Aosta Valley, on the other hand, the existence of at least a long-term upward trend would seem undeniable. The data assembled by Blanchard and by Janin indicate, in fact, that between 1734 and 1848 the population of these two regions increased by 67 and 29 percent respectively (see Table 7). But here too there is a big difficulty, for it is now certain (cf. Albera, Dossetti & Ottonelli, in press) that the 1734 enumeration, which was made for taxation purposes and is used as basis by both Blanchard and Janin, severely underestimates the population of many Alpine districts, sometimes by 40 or 50 per cent, whereas the 1774 census, which was taken for military reasons, tends to overestimate the number of the inhabitants of mountain villages. On the whole, distortion was perhaps less serious in 1774 than in 1734, but in some villages it could still be very substantial: to give just one example, the 1774 census overestimates the population of Pontechianale, in the high Varaita Valley, by over 40 per cent. Further research is obviously needed, but the fact that the eighteenth-century censuses are proving less reliable than it was previously assumed strongly suggests that in the period under observation the population growth of the Piedmontese Alps and of the Aosta

Valley, if there was growth at all, may have been much less spectacular than implied by Blanchard and by Janin. The legitimacy of this surmise seems to be confirmed by the recent finding that from the beginning of the seventeenth century to the middle of the nineteenth century the total population of one of the mountainous districts south of Monte Rosa, the large Sesia Valley, remained remarkably stable (Viazzo, in press/a).

Besides making it difficult to chart population growth, the unreliability of the eighteenth-century censuses renders any calculation of demographic rates highly hazardous. Pontechianale provides a telling illustration. In the 1730s the average number of births recorded every year in this locality was just less than 49, whereas the average number of deaths was approximately 42. Since the 1734 census attributes to Pontechianale 1,117 inhabitants, we obtain a crude birth rate of 43.8 and a crude death rate of 38.3 per thousand. In the 1770s the average number of both births and deaths had slightly declined, but according to the 1774 census Pontechianale now numbered no less than 2,045 people! Because of this gross overestimation, the resulting birth and death rates are exceedingly low: only 20.2 and 16.9 per thousand (cf. Albera, Dossetti & Ottonelli, in press). In fact, the data contained in the proceedings of the Pastoral Visitations suggest that both in 1734 and in 1774 the population of Pontechianale consisted of about 1,400 individuals and, consequently, that crude birth rates hovered between 30 and 35 per thousand and crude death rates between 25 and 30 per thousand.

It is worth noting that a research we have most recently conducted on Entracque, a big village in the high Gesso Valley, has revealed for the eighteenth century crude birth and death rates that are quite close to those found in Pontechianale. No less interesting is the fact that these ranges appear to be very much the same as those recorded during the first half of the nineteenth century not only in Pontechianale

(where in 1838 the birth rate was 34.2 and the death rate 25.7 per thousand) but in the whole of the Western Alps, as Table 8 and further data furnished by Eandi (1836: 269-78), Muttini Conti (1962: 135-53), Janin (1968: 172-6) and Blanchard himself (1952: 325-6) make abundantly clear.

These data show, of course, that there existed significant spatial variations. In the French Alps both natality and mortality tended to be lower than in Piedmont. But in the French Alps themselves there were considerable differences between the demographic régimes of, say, the Maurienne or the Tarentaise and the outstandingly low rates of the Ubaye. As to the Piedmontese side, it is evident that birth and death rates were highest in the Maritime Alps and lowest in the Pennine Alps, with the Cottian and the Graian Alps somewhere in between. Perhaps more important is, however, the finding that throughout the Western Alps natality and mortality were consistently lower in the high valleys than in the low valleys, not to mention the surrounding plains. The low levels of mortality are particularly striking. As Blanchard had already noticed, there can be little doubt that "au XIXe siècle on mourait moins en montagne que dans les régions déprimées", mortality being "toujours inférieure à celle des régions basses et parfois dans des proportions extraordinaires" (1956: 543-4). A comparison between the mortality levels of high-altitude villages like Entracque and Pontechianale and those of a lower-altitude village like Martiniana Po, studied by Manuela Dossetti (1970), suggests that this was probably true in the eighteenth century as well. The general impression is, therefore, that in the period under consideration the Western Alps, and especially the high valleys, displayed basically the same demographic system as the other parts of the Alps surveyed in this paper. Yet there is an important difference - an Alpine anomaly, one would be tempted to say. It concerns a variable which most previous studies have overlooked, namely nuptiality.

Ethnographic inquiries made by one of us in the high Varaita Valley had suggested, a few years ago, that in the 'traditional' past this part of the Cottian Alps might have been characterized by rather higher levels of nuptiality than it could be expected in an Alpine area. It appeared that in the years before the Great War both men and women married quite early, and the older villagers were adamant in asserting that permanent celibacy was a highly unusual status for both sexes (Albera 1982: 98-103). Subsequent historical investigation focused on the commune of Pontechianale has corroborated this ethnographic evidence. In the course of the nineteenth century men had tended to get married at 25 or 26 years of age or less, while the brides' mean age at marriage had hovered between 20.5 and 23 years. Furthermore, a listing of inhabitants compiled in 1807 and preserved in the communal archive seems to confirm that in the past permanent celibacy was very uncommon: in that year only 5.7 per cent of all the men of Pontechianale aged over 50 years, and only 8.0 per cent of all women in the same age group, had never been married.

In the light of the admittedly scanty, or crude, bits of information offered by the available literature on the nineteenth century (Eandi 1836: 267-84; Muttini Conti 1962; Dossetti 1970: 101; cf. Livi Bacci 1977: 173) we are inclined to think that the case of Pontechianale, far from being exceptional, is quite representative of nuptiality trends in the Maritime and Cottian Alps. (In the Graian and, even more, in the Pennine Alps nuptiality was apparently lower.) Once again, there is reason to believe that the same trends were already discernible in the eighteenth century. For Entracque, in the Maritime Alps, we have estimated that in 1730 the singulate mean age at marriage (cf. Hajnal 1953) was as low as 23.15 years for men and 20.06 years for women, while celibacy rates were strikingly reminiscent of those found in Pontechianale nearly one century later: 4.9 per cent of all men aged 50 years or more and 8.1 per cent of all women in the same age group. What is more, there is evidence that nuptiality could

be very high, by Alpine standards, also on the other side of the Western Alps. In the village of Montmin, in Savoy, marriage was consistently early throughout the seventeenth and the eighteenth centuries, mean ages ranging between 23.72 and 25.99 years for men and between 21.84 and 24.32 years for women (Jones 1984).

It is obviously very difficult to say whether, and to what extent, nuptiality acted homeostatically. The picture is still too fragmentary. For the time being we can only detect a general tendency for overall fertility to be higher in those regions where nuptiality too was higher. Yet we have seen that even in localities where the brides' age at marriage was very low and celibacy quite infrequent birth rates could remain well below the threshold of 38-40 per thousand. The impression one receives is that in the Western Alps natality was potentially very high, but that this potential often failed fully to be exploited. In Montmin complete progeny accounted for only 65 to 75 per cent of the Hutterite standard schedule (Jones 1984), and in eighteenth-century Entracque, where the reproductive potential of the population was very high indeed, levels of marital fertility were even lower: in 1730 an I_m of 0.751 was matched by an I_g not exceeding 0.570. The latter value, we may observe, is very similar to the one we have calculated for Pontechianale in 1826 ($I_g = 0.559$).

Thus, it seems legitimate to put forward the hypothesis that in many parts of the Western Alps overall fertility ranged from fairly low to moderately high primarily because of mediocre levels of marital fertility. What were the causes of this relatively low fertility? A couple of years ago Anne M. Jones (1983) has indicated breast-feeding, with lactational amenorrhea made even longer by low infant mortality, and the prolonged absence of husbands through migration as two of the factors most likely to reduce the natural fertility of Montmin women. More recently (personal communication) she has also suggested that in areas of individual alp management such as

Montmin - and, indeed, Pontechianale and Entracque - the importance of the period of separation imposed on married couples by the requirements of pastoral activities should not be overlooked. When faced by extreme instances of low fertility (the case of the Ubaye which had so acutely puzzled Blanchard, for example), it is then clear that the possibility of conscious restriction on births cannot be ruled out. An accurate evaluation of the several factors which may be presumed to contribute to lowering natural fertility seems to be particularly urgent in the Western Alps. But it is, more generally, one of the main tasks of Alpine historical demography. In order to further explore some dimensions of this complex and intriguing problem we shall now turn to our last case-study.

e) Alagna

Located at the top of the Sesia Valley, Alagna (German: ds Land) is one of the Walser colonies which occupy the high valleys at the foot of the southern face of Monte Rosa and whose foundation dates back to the second half of the thirteenth century, when these areas were colonized by Alemannic settlers coming from the Oberwallis (Viazzo 1983a: 34-59; cf. Kreis 1966; Zinsli 1976). Alagna is therefore very close to Törbel, the village studied by Netting, not only geographically but also ethnically. Until a few decades ago it shared with Törbel - and also with Andermatt, which is another Walser colony - the same dialect and much the same material culture. Its demographic history was, however, very different.

In the first fifty years of the eighteenth century Alagna offered a clear example of low pressure demographic régime, with birth rates fluctuating between 25 and 30 per thousand and death rates not exceeding 25 per thousand. There were, we think, two main factors accounting for low birth rates. The first factor was nuptiality. Admittedly, the mean age at first marriage for women, though fairly high (24.8 years) was lower than in other parts of the Alps in the same period and - quite remarkably - also lower than it was in Alagna in the years

between the two World Wars. Whereas in many parts of Austria young brides of 20 years of age or less were apparently almost unheard of, in eighteenth-century Alagna they were not that unusual. Several cases of child brides getting married at 13 or 14 are also recorded. But celibacy rates - and here lies perhaps the main difference from such villages as Pontechianale or Entracque - was very high: about one-sixth of all men and, above all, one-third of all women failed to get married. It is celibacy, more than late marriage, that accounts for an I_m which was, in 1738, as low as 0.387.

If nuptiality was low, marital fertility was not, in its turn, very high by eighteenth-century standards, and illegitimate fertility was definitely low: in 1738 the value of the I_g was 0.702 and that of the I_n 0.005. We may note that these values are remarkably close to our 'Typical Alpine' model A, and therefore to the values of Ticino in 1888. Interestingly enough, Alagna was characterized by exactly the same pattern of summer seasonal emigration of men as Ticino (Viazzo 1983b; cf. Guichonnet 1948: 560-1). Francine van de Walle (1975) has argued that the significantly lower marital fertility of Ticino vis-à-vis, for instance, Canton Uri was essentially due to the existence in Ticino of massive seasonal emigration. This probably explains why in the first half of the eighteenth century women were, as Figure 1 shows, less fertile in Alagna than in Törbel or, even more, in Andermatt.

In the second half of the eighteenth century fertility remains lower in Alagna than in Törbel and Andermatt. Figure 2 shows, however, that marital fertility went down in all three parishes, which is rather puzzling. At any rate, as far as Alagna is concerned it is interesting to observe that overall fertility remained very much the same as before, since the decline in marital fertility was offset by improvements in nuptiality. In fifty years the I_m index climbed from less than 0.400 in 1738 to 0.509 in 1788 - a change which is explained not so much by variations in the brides' age at marriage, which were

extremely modest (cf. Table 9), as by a substantial decline of celibacy rates.

It is in the first half of the nineteenth century that Alagna's demography departs markedly from that of Törbel and Andermatt. In these localities, as we have seen, nuptiality worsens but this is more than compensated by considerable increases in marital fertility. In Alagna, on the other hand, nuptiality improves, particularly in the second quarter of the century. In 1838 the I_m has reached the value of 0.565. But marital fertility, as Figures 3 and 4 and Table 10 show, drops to very low levels indeed - so low, in fact, that it is difficult not to explain them as due to family limitation. Though plausible in principle, alternative explanations such as an increasing length of spousal separation due to changes in emigration patterns or a lowering of fecundity due to high proportions of consanguineous marriages (cf. Byers 1982; Logue 1985) are not convincing. Be that as it may, Table 11 shows that in the first half of the nineteenth century the contrast between Alagna and Törbel was striking.

What is also clear is that in Alagna marriage was never as late and celibacy rates never as high as in the period between the two World Wars. Rather than a 'traditional' feature of Alagnese social structure, the low nuptiality of the 1930s appears to be related to a relatively recent deterioration of Alagna's economic fortunes, to the changes occurred in its ethnic and social composition, perhaps to changes in household formation and structure. Nor can the low nuptiality of those years be seen as a response to environmental imperatives typical of the Alpine area. As early as the second quarter of the nineteenth century the old homeostatic mechanism, control over marriage, had been replaced by other means of achieving a balance between population and resources.

Conclusions

The first conclusion suggested by the data presented in this paper is, of course, that in most Alpine regions the demographic régime tended towards the 'low pressure' pole. It seems also sufficiently clear, however, that both overall fertility and mortality were, as a rule, significantly lower in the high valleys than in the low valleys and in the surrounding hills and plains. We believe, therefore, that Anselm Zurfluh (1982: 323) is right in urging Alpine historical demographers to distinguish three rather different patterns: "(1) un modèle spécifiquement haut-alpin, comprenant les localités au-dessus de 800/1000 m; (2) un modèle alpin, englobant les villages des grandes vallées, en dessous de 800/1000 m, mais situés dans la zone des Alpes proprement dite; (3) finalement, un modèle pré-alpin, réunissant les communautés des Préalpes".

The second conclusion is that this low-pressure régime was, predictably enough, mainly pivoted upon nuptiality. But the example of the Western Alps, where natality and mortality were relatively moderate in spite of high levels of nuptiality, shows that other regulatory mechanisms could be at work. We would contend that it is particularly important that the role of emigration within the demographic system of the Alps is reconsidered in this perspective. The notion of emigration as a social and demographic servomechanism is not new in Alpine studies (cf. Netting 1972), but most scholars have regarded emigration as just a safety valve, a device through which Alpine areas got rid of excess population. The ways in which both permanent and seasonal or temporary emigration affected fertility have been, apart from few remarkable exceptions like van de Walle's 1975 paper on Ticino, nearly ignored. Yet it should not be forgotten that in the Alps permanent emigration was mostly a male affair. Thus permanent emigration often resulted in severely unbalanced sex ratios, which were in turn the first determinant of the extraordinarily high rates of female celibacy that represent one of the distinguishing features of Alpine nuptiality vis-à-vis other variants of the

European marriage pattern. The case of the Val Maggia, the Ticinese valley where women could outnumber men by over 150 per cent and female permanent celibacy could exceed 50 per cent (cf. van de Walle 1975: 456; Ruesch 1979: 171), is an extreme but not totally unrepresentative example. If permanent emigration impinged on overall fertility through nuptiality, seasonal and temporary emigration directly affected marital fertility. In places like Alagna or the valleys of Canton Ticino the prolonged absence of husbands concurred to further reduce birth rates which were already kept down by low nuptiality. In such regions as the Maritime and Cottian Alps, on the other hand, seasonal and temporary emigration could offset the potential effects of high nuptiality and was probably the most important check on overall fertility.

The third broad conclusion to emerge from our rapid survey is that nuptiality could vary to a considerable degree from one region to another and over time. The implication is that the picture of traditional Alpine nuptiality derived from the anthropological literature and presented in Section 1 is somewhat deceptive and needs to be revised. The two postulates on which it rested - that similar ecological imperatives must invariably produce similar responses and that the situation had been one of static equilibrium for a very long time - are too rigid and, in the last analysis, untenable.

We suspect that the empirical and theoretical inadequacies of this anthropological construct partly depend on the anthropologists' eagerness to concentrate their attention on regions and villages that appeared to retain many allegedly archaic traits, on the assumption that these traits (and most notably a tendency towards self-sufficiency) had once been typical of all Alpine communities, before being wiped out in most localities by modernization. As a result, the set of anthropological studies which are currently available constitute an insidiously biased sample. Furthermore, and paradoxically, there is little doubt that because of fairly recent transformations

quite a few communities which in the past had been characterized by highly diversified economies have undergone a process of 'peasantization', so to speak, which has made them look much more 'traditional' than they would have appeared only few decades earlier. We believe that the case of Alagna, a village where summer emigration was the backbone of the economy and control over fertility was achieved at an early stage through quite 'modern' means, indicates that students of Alpine village life in the past should not too easily assume that the demography of these communities was geared to a purely peasant economy.

From an anthropological point of view, another important issue to clarify is the role of social-structural factors in affecting demographic behaviour and the relationships between population and environment. Commenting on Wynne-Edwards's theory of animal dispersion, which has influenced some of the leading theorists of nuptiality as a central regulatory mechanism (cf. Wrigley 1969: 39-44; Dupâquier 1972: 181-93), the British social anthropologist, Mary Douglas, has argued that when we deal with human populations and their regulatory mechanisms the focus of inquiry should be shifted from subsistence to prestige, for "the kind of relation to resources that is sought is more often a relation to limited social advantages than to resources crucial to survival" (Douglas 1966: 272). Of special relevance is one of the examples quoted by Douglas, who notes that in order to maintain their social and economic advantages the Nambudiri Brahmins allow only one son to marry, so as the estates are not divided. The similarities between some aspects of what might be called the 'strategies of social reproduction' pursued by this Indian group and, in the Alpine context, by the Austrian Bauern is intriguing, and it seems reasonable to suspect, as we have already hinted, that in the Austrian Alps nuptiality may have been blocked well below carrying capacity so as to permit the perpetuation of a given kind of social structure.

One of the reasons why the Austrian case is particularly fascinating is that it authorizes the hypothesis that a custom prescribing impartibility may make a demographic system less elastic than others in homeostatically adjusting to increased resources. On the whole, however, both the anthropological and the historical evidence reviewed in this paper indicates that students of the Alps should keep a wary eye on the common assumption that systems of partible inheritance necessarily result in high nuptiality and rapid population growth, whereas impartibility would be strongly correlated with low nuptiality and slow growth rates. We are also convinced that the relationship between inheritance systems and family forms is, as far as the Alpine area is concerned, to be carefully reconsidered. Such a complex topic cannot be discussed in great detail in the final pages of an already long paper, but it seems relevant to call attention to at least a few points.

Writing in 1963, the anthropologist Robert Burns had tentatively proposed the stem family as one of the distinguishing features of the Alpine culture area. Later and more accurate studies published in the 1970s (Cole & Wolf 1974; Netting 1979) have shown that stem families were frequent and ideologically normative in areas of impartible inheritance, but have also suggested that in areas of partible inheritance simple-family households should be expected to be dominant. This obviously implies that Burns's early claims must be substantially modified, but his assertion that the Alps have been traditionally characterized by family forms standing "in marked contrast to the joint family of the Mediterranean" (Burns 1963: 143) would seem to be justified. There is, on the contrary, no doubt that in the Alps joint families did exist. In fact, in the eighteenth and early nineteenth centuries Entracque, Pontechianale and Alagna displayed all the marks of what John Hajnal (1983) has recently defined a joint household formation system. In all three villages young couples almost without exception started their married life in households where authority was held by an older couple, or by the survi-

ving parent. Thus marriage was by no means the point in time at which new households came into existence and headship was attained, as Figures 5 to 8 effectively show. A lengthier discussion than is possible here would demonstrate that there was, especially in Alagna, a pronounced tendency for all married sons to live together as long as at least one parent was still alive. The death of the surviving parent often precipitated the fission of the household, but it was not infrequent that married brothers decided to stay together for some more years or, in rare cases, even for decades.

The discovery of joint family household systems in Entracque, Pontechianale and Alagna invites two considerations. The first one is of some theoretical relevance for anthropologists. In all three localities inheritance was partible, but while in Entracque and Pontechianale it was apparently of the kind known to anthropologists as 'patrilineal', in Alagna partibility was of the same kind as in Törbel, that is 'bilateral'. This indicates that contrary to what is usually maintained (cf. Goldschmidt & Jakobson Kunkel 1971) bilateral inheritance is not incompatible with the formation of patrilocal joint families. The second consideration is that the cases of Entracque, Pontechianale and Alagna, in conjunction with other historical and anthropological evidence recently made available for two villages in Savoy (Siddle & Jones 1983) and one community in the Maritime Alps (Saunders 1979: 222-8; Destro 1984: 119), strongly suggest that in the Western Alps joint family systems must have been very frequent. But it should be noticed that other works published in the last few years, though unfortunately failing to provide rigorous quantitative information, nevertheless seem to attest the predominance of joint families also in the Valtellina, one of the largest valleys of the Italian Central Alps (Benetti et al. 1983), and among the Mòcheni, a German-speaking population living on the southern side of the Eastern Alps (Sellan 1979).

It will have been noticed that particularly in villages like

Entracque or Pontechianale, where nuptiality was very high, the total configuration comprising both the marriage pattern and the system of household formation is remarkably close to the 'Mediterranean' type, or tendency, as recently defined by Peter Laslett (1983: 516-35). The possibility that the Western Alps may have been more heavily affected by Mediterranean influences than other parts of the Alps is no doubt worthy of being further explored, but the not too different case of Alemannic Alagna (and, probably, that of the Mòcheni) is a warning that any theory phrased in broad cultural or ethnic terms is unlikely to prove successful. We would rather point out the considerable similarities with the Hungarian pattern described by Rudolf Andorka and Tamás Faragó (1983), who have shown that southern Transdanubia was characterized, in the first half of the nineteenth century, by joint families as well as by very early marriage and low celibacy rates for women. Perhaps the most interesting point made by the two Hungarian demographers is that "contrary to the opinion expressed in demographic literature, the high proportion of extended and multiple households was correlated to a relatively low level of marital fertility" (1983: 306). This correlation reflects, according to Andorka and Faragó, a peasant strategy which allowed young people to marry and live in the parental household and provided them with employment on the parental farm on the condition that marital fertility was kept low, so as to control the number of the members of the household and the ratio between producers and consumers. "The rate of population growth resulting from this strategy", they observe (1983: 307), "was similar to that resulting from the pattern of late marriage, high celibacy, no birth control in marriage, stem families and/or simple-family households that was employed by some western European peasant communities in similar circumstances". As we have seen, marital fertility was relatively low also in Montmin, Entracque and Pontechianale, not to mention Alagna. Andorka and Faragó have proofs that in Hungary low fertility was due to the widespread early practice of birth control. In the Western Alps it might have been due

to the effects of temporary and seasonal emigration, probably in combination with other contributory factors. But the similarity between the two systems is no doubt impressive and instructive.

Once it has been ascertained that in the Alps joint families did exist, it still remains to be explained why. It may be argued, first of all, that joint families tended to contain a higher number of adult members of prime working age than other types of household and that the family estate could therefore be worked without resorting to hired labour, which was presumably more expensive. Moreover, it has been remarked that families of this kind "could also use marginally productive persons (the very young, the elderly, or the handicapped) for household chores, child care, or drudgery, thus freeing the able-bodied for more physically demanding labour" (Saunders 1979: 211). Thus it would seem that in certain circumstances joint families possess a number of organizational advantages, and it has indeed been contended that these advantages should prove especially adaptive in mountain areas, where a greater division of labour is needed in order to exploit varied types of land (Saunders 1979; cf. Siddle & Jones 1983: 29).

This argument sounds plausible, but there are at least two difficulties. For one thing, the contrast between the amount of family labour commanded by joint families and by other types of household should perhaps not be exaggerated. Although some tantalizing evidence from Savoy and the Valtellina invites further investigation (Cholley 1925: 399-400; Benetti et al. 1983; cf. Viazzo, in press/b), Alpine joint families were rather different, as far as we can see, from the very large 'perennial' multiple households of Russian serfs (Czap 1983): mean household size could be fairly small, and most households passed through protracted nuclear phases in the course of their developmental cycle. Secondly, and even more decisively, the general applicability of the argument to the Alps is immediately questioned by the very existence of alternative

forms of family organization.

A comparative examination of the ways in which Alpine populations with different family structures solved largely the same economic and ecological problems (recourse to servants, hired labour, cooperative work, etc.) is a major and largely still unexplored research area both for anthropologists and for social, economic and demographic historians. In this connection, we would like to make a final point concerning a variable whose relationship with family structure has not been so far systematically investigated. It is an anthropological tenet that joint families are, to use Marshall Sahlins's words, "adjusted to working spatially separated resources" (1957: 48). On the other hand, as Sahlins himself has shown in his classic study of contrasting family patterns in Fiji (1957), if resources are not spatially separated joint families have no real *raison d'être*. Alpine agro-pastoral systems provide extreme examples of spatial separation between crucial spheres of activity (the crop fields and the high-altitude pastures), and it is well known that the allocation of labour became highly problematic during the summer, when labour was in greatest demand in both the agricultural and pastoral sectors. If the alps had to be individually managed by each family (Einzelsenneri, petite montagne), then extended households appear to have been the only viable kind of family organization (Vincze 1980). But there was, of course, the widespread alternative solution of having the animals communally tended by small teams of specialists, who relieved the whole community from a series of very time-consuming tasks (cf. Netting 1981: 65-5). It seems no accident that in Törbel, which provides the best documented case of simple-family household organization in the Alps, animals were communally tended, whereas in all the localities where joint family organization has been found the alps were individually managed. Once again, the evidence is still too fragmentary to authorize any confident conclusion. What is more, the hypothesis that different family forms were correlated with different

ways of managing pastoral resources brings us back to a classic and still unsolved riddle in Alpine ethnography and human geography, namely the causes of the highly irregular geographical distribution of individual and communal alp management (Arbos 1922: 415-23, Parain 1969). Nevertheless, it does not seem unwarranted to suspect that family forms - and marriage patterns - which at first sight look typically 'Mediterranean' may in fact be rooted in the distinctive ecological features of the Alpine area.

References

- Albera, D. 1982. I giovani e il matrimonio in una vallata alpina, Dissertation, University of Turin.
- Albera, D., Dossetti, M. & Ottonelli, S. in press. Movimenti migratori dalla Castellata (alta valle Varaita) in età moderna, to appear in AA.VV., Migrazioni attraverso le Alpi Occidentali (proceedings of the international conference, Cuneo 1984), Milan: Angeli.
- Andorka, R. & Faragó, T. 1983. Pre-industrial household structure in Hungary, in R. Wall, J. Robin & P. Laslett (eds.), Family forms in historic Europe, Cambridge: Cambridge University Press.
- Arbos, Ph. 1922. La vie pastorale dans les Alpes françaises, Grenoble: Allier.
- Arensberg, C.M. & Kimball, S.T. 1940. Family and community in Ireland, Cambridge, Mass.: Harvard University Press.
- Arnold, K. 1973. Der Umbruch des generativen Verhaltens in einem Bergbauerngebiet, in: H. Helczmanovszki (ed.), Beiträge zur Bevölkerungs- und Sozialgeschichte Oesterreichs, Vienna: Verlag für Geschichte und Politik.
- Benetti, A., Benetti, D., Dell'Oca, A. & Zoia, D. 1983. Uomini delle Alpi. Contadini e pastori in Valtellina, Milan: Jaca Book.

- Berkner, L.K. & Mendels, F.F. 1978. Inheritance systems, family structure, and demographic patterns in Western Europe, 1700-1900, in C. Tilly (ed.), *Historical studies of changing fertility*, Princeton: Princeton University Press.
- Berthoud, G. 1967. *Changements économiques et sociaux de la montagne. Vernamiège en Valais*, Berne: Francke.
- Bickel, W. 1947. *Bevölkerungsgeschichte und Bevölkerungspolitik der Schweiz seit dem Ausgang des Mittelalters*, Zürich: Büchergilde Gutenberg.
- Blanchard, R. 1952. *Les Alpes Occidentales, Tome sixième (Le Versant Piémontais)*, vol. I, Grenoble/Paris: Arthaud.
- Blanchard, R. 1956. *Les Alpes Occidentales, Tome septième (Essai d'une Synthèse)*, Grenoble/Paris: Arthaud.
- Bonnin, B. 1982. Les migrations dans les hautes terres dauphinoises au XVIII^e siècle, in: AA.VV., *Travail et migration dans les Alpes françaises et italiennes (proceedings of the international conference, Annecy 1981)*, Grenoble.
- Braun, R. 1978. Protoindustrialization and demographic change in the Canton of Zürich, in: C. Tilly (ed.), *Historical studies of changing fertility*, Princeton: Princeton University Press.
- Brennan, E.R., James, A.V. & Morrill, W.T. 1982. Inheritance, demographic structure, and marriage: a cross-cultural perspective. *Journal of Family History*, 7: 289-98.
- Brody, H. 1973. *Inishkillane. Change and decline in the west of Ireland*, London: Allen Lane.
- Burns, R.K. 1963. The Circum-Alpine area: a preliminary view. *Anthropological Quarterly*, 36: 130-55.
- Byers, E. 1982. Fertility transition in a New England commercial center: Nantucket, Massachusetts, 1680-1840. *Journal of Interdisciplinary History*, 13: 17-40.
- Cholley, A. 1925. *Les Préalpes de Savoie (Genevois, Bauges) et leur avant-pays*, Paris, Colin.
- Coale, A.J. 1965. Factors associated with the development of low fertility, an historical summary, *World Population Conference, II*.
- Cole, J.W. & Wolf, E.R. 1974. The hidden frontier. *Ecology and*

- ethnicity in an Alpine valley, New York, Academic Press.
- Czap, P. 1983. 'A large family: the peasant's greatest wealth': serf households in Mishino, Russia, 1814-1858, in: R. Wall, J. Robin & P. Laslett (eds.), *Family forms in historic Europe*, Cambridge: Cambridge University Press.
- Destro, A. 1984. *L'ultima generazione. Confini materiali e simbolici di una comunità delle Alpi marittime*, Milan: Angeli.
- Dossetti, M. 1970. *Aspetti demografici del Saluzzese: la popolazione di Martiniana Po dal 1770 al 1870*, Dissertation, University of Turin.
- Douglas, M. 1966. Population control in primitive groups. *British Journal of Sociology*, 17: 263-73.
- Dupâquier, J. 1972. De l'animal à l'homme: le mécanisme auto-régulateur des populations traditionnelles. *Revue de l'Institut de Sociologie de l'Université Libre de Bruxelles*, 2: 177-211.
- Eandi, G. 1836. *Statistica della Provincia di Saluzzo*, vol. I, Saluzzo.
- Findl, P. & Helczmanovszki, H. 1977. *The population of Austria*, Vienna: Austrian Academy of Sciences.
- Friedl, J. & Ellis, W.S. 1976. Celibacy, late marriage and potential mates in a Swiss isolate, in: B. Kaplan (ed.), *Anthropological studies of human fertility*, Detroit: Wayne State University Press.
- Goldschmidt, W. & Jakobson Kunkel, E. 1971. The structure of the peasant family. *American Anthropologist*, 73: 1059-76.
- Guichonnet, P. 1948. L'émigration alpine vers les pays de langue allemande. *Revue de géographie alpine*, 36: 533-76.
- Guichonnet, P. 1975. Le développement démographique et économique des régions alpines, in: AA.VV., *Le Alpi e l'Europa*, vol. II, Bari: Laterza.
- Habakkuk, H.J. 1955. Family structure and economic change in nineteenth-century Europe. *Journal of Economic History*, 15: 1-12.
- Hajnal, J. 1953. Age at marriage and proportions marrying.

- Population Studies, 7: 111-36.
- Hajnal, J. 1965. European marriage patterns in perspective, in: D.V. Glass & D.E.C. Eversley (eds.), Population in history, London: Arnold.
- Hajnal, J. 1983. Two kinds of pre-industrial household formation system, in R. Wall, J. Robin & P. Laslett (eds.), Family forms in historic Europe, Cambridge: Cambridge University Press.
- Heppenstall, M.A. 1973. East Tyrol, in: F.G. Bailey (ed.), Debate and compromise, Oxford: Blackwell.
- Janin, B. 1968. Le Val d'Aoste. Tradition et renouveau, Grenoble: Allier.
- Jones, A.M. 1983. Extending the Family: family household structures and patriline continuity in Haute Savoie, 1561-1968, paper presented at the seminar on 'Social reproduction: population, family and property' held at the Gulbenkian Institute of Science, Portugal.
- Jones, A.M. 1984. Population dynamics in a marginal area of upland Europe: European or Mediterranean demographic régime?, paper presented at the seminar on 'Family forms and demographic patterns in the Western Mediterranean' held at the Gulbenkian Institute of Science, Portugal.
- Khera, S. 1981. Illegitimacy and mode of land inheritance among Austrian peasants. Ethnology, 20: 307-23.
- Klein, K. 1971. Oesterreichs Bevölkerung 1754-1869. Mitteilungen der Oesterreichischen Geographischen Gesellschaft, 113: 34-62.
- Klein, K. 1973. Die Bevölkerung Oesterreichs vom Beginn des 16. bis zur Mitte des 18. Jahrhunderts, in: H. Helczmanskowski (ed.), Beiträge zur Bevölkerungs- und Sozialgeschichte Oesterreichs, Vienna: Verlag für Geschichte und Politik.
- Kreis, H. 1966. Die Walser. Ein Stück Siedlungsgeschichte der Zentralalpen, 2nd ed., Berne/Munich: Francke.
- Laslett, P. 1983. Family and household as work group and kin group: areas of traditional Europe compared, in: R. Wall, J. Robin & P. Laslett (eds.), Family forms in historic

- Europe, Cambridge: Cambridge University Press.
- Livi Bacci, M. 1977. A history of Italian fertility during the last two centuries, Princeton: Princeton University Press.
- Logue, B.J. 1985. The case for birth control before 1850: Nantucket reexamined. *Journal of Interdisciplinary History*, 15: 371-91.
- Macherel, C. 1979. La traversée du champ matrimonial: un exemple alpin. *Etudes rurales*, 73: 9-40.
- Malthus, T.R. 1803. An essay on the principle of population, 2nd ed. (quotations from the Everyman's Library edition, London: Dent, 1958).
- Malthus, T.R. 1830. A summary view of the principle of population (quotations from the Penguin edition, Harmondsworth 1970).
- Mattmüller, M. 1985. Landwirtschaft und Bevölkerung in den Zentralalpen, 1500-1800, paper presented at the second conference on 'Le Alpi e l'Europa' held in Lugano.
- Mitterauer, M. 1973. Zur Familienstruktur in ländlichen Gebieten Oesterreichs im 17. Jahrhundert, in: H. Helczmanovszki (ed.), *Beiträge zur Bevölkerungs- und Sozialgeschichte Oesterreichs*, Vienna: Verlag für Geschichte und Politik.
- Mitterauer, M. 1979. Familienformen und Illegitimität in ländlichen Gebieten Oesterreichs. *Archiv für Sozialgeschichte*, 19: 123-88.
- Mitterauer, M. & Sieder, R. 1982. *The European family*, Oxford: Blackwell.
- Muttini Conti, G. 1962. La popolazione del Piemonte nel secolo XIX, Turin: ILTE.
- Netting, R.M. 1972. Of men and meadows: strategies of Alpine land use. *Anthropological Quarterly*, 45: 132-44.
- Netting, R.M. 1979. Household dynamics in a nineteenth century Swiss village. *Journal of Family History*, 4: 39-58.
- Netting, R.M. 1981. Balancing on an alp. Ecological change and continuity in a Swiss mountain community, Cambridge: Cambridge University Press.

- Parain, Ch. 1969. Esquisse d'une problématique des systèmes européens d'estivage a production fromagère. *L'ethnographie*, 64: 34-60.
- Pickl, O. 1985. Wirtschaft und Gesellschaft in den Ostalpenländern Kärnten und Steiermark bis zur Mitte des 19. Jahrhunderts, paper presented at the second conference on 'Le Alpi e l'Europa' held in Lugano.
- Ruesch, H. 1979. Die Demographie der Alpen zwischen 1650 und 1850. *Schweizerische Zeitschrift für Geschichte*, 29: 159-80.
- Sahlins, M.D. 1957. Land use and the extended family in Moala, Fiji. *American Anthropologist*, 59. (Now reprinted in Y. Cohen (ed.), *Man in adaptation. The institutional framework*, Chicago: Aldine-Atherton, 1971; quotations refer to this reprint.)
- Saunders, G.R. 1979. Social change and psychocultural continuity in Alpine Italian family life. *Ethos. Journal of the Society for Psychological Anthropology*, 7: 206-31.
- Schmidtbauer, P. 1977. Daten zur historischen Demographie und Familienstruktur (unpublished manuscript in the library of the ESRC Cambridge Group for the History of Population and Social Structure).
- Sellan, G. 1979. Système familial et continuité culturelle: les Mocheni des Alpes italiennes. *Etudes rurales*, 73: 41-68.
- Siddle, D.J. & Jones, A.M. 1983. Family household structures and inheritance in Savoy 1561-1975, *Liverpool Papers in Human Geography*, N. 11.
- Viazzo, P.P. 1983a. Ethnic change in a Walser community in the Italian Alps, Ph.D. Thesis, Department of Anthropology, University College London.
- Viazzo, P.P. 1983b. Popolazione e risorse: nuzialità, fecondità ed emigrazione ad Alagna Valsesia dalla fine del '500 alla prima guerra mondiale, in: G. Marcuzzi & G.B. Pellegrini (eds.), *Atti del Convegno interdisciplinare sulle isole linguistiche tedesche delle Alpi meridionali*, Padova.

- Viazzo, P.P. 1984. Il Cambridge Group e la ricerca storica sulla famiglia, Introduction to the Italian edition of R. Wall, J. Robin & P. Laslett (eds.), Family forms in historic Europe (as *Forme di famiglia nella storia europea*), Bologna: Il Mulino.
- Viazzo, P.P. in press/a. L'evoluzione della popolazione della Valsesia dagli inizi del '600 alla metà dell '800. To appear in the journal *Novarien* (Novara).
- Viazzo, P.P. in press/b. Due nuovi libri di antropologia alpina. To appear in the journal *L'Uomo* (Rome).
- Vincze, L. 1980. Peasant animal husbandry: a dialectic model of techno-environmental integration in agro-pastoral societies. *Ethnology*, 19: 387-403.
- van de Walle, F. 1975. Migration and fertility in Ticino. *Population Studies*, 29: 447-62.
- Weinberg, D. 1975. Peasant wisdom. Cultural adaptation in a Swiss village, Berkeley: University of California Press.
- Wolf, E.R. 1962. Cultural dissonance in the Italian Alps. *Comparative Studies in Society and History*, 9: 1-14.
- Wrigley, E.A. 1969. Population and history, London: Weidenfeld & Nicolson.
- Wrigley, E.A. 1981. Population history in the 1980s. The prospects for population history. *Journal of Interdisciplinary History*, 12: 207-224.
- Wrigley, E.A. 1985. The fall of marital fertility in nineteenth-century France: exemplar or exception? *European Journal of Population*, 1: 31-60.
- Zinsli, P. 1976. Walser Völkstum in der Schweiz, in Vorarlberg, Liechtenstein und Piemont, 4th ed., Frauenfeld/Stuttgart: Huber.
- Zurfluh, A. 1982. Urseren 1640-1830, les populations des hautes vallées alpines: contribution à leur histoire démographique. *Schweizerische Zeitschrift für Geschichte*, 32: 293-323.

Age at first marriage in Alpine localities during the first half of the twentieth century

Locality	Language	Periode	Men	Women
Alagna (W.Ital.Alps)	German	1901-1950 ^a	29.3	26.1
Festiona (W.Ital.Alps)	Occitan	1911-1950 ^a	31.5	26.2
Vernamiège (Swiss Alps)	French	1906-1955 ^b	26.9-28.8	25.4-26.6
Lötschental (Swiss Alps)	German	1910-1939 ^a	33.5	30.1
Kippel (Swiss Alps)	German	1900-1949 ^b	29.9-33.4	27.4-29.7
Törbel (Swiss Alps)	German	1900-1949 ^a	32.6	28.8
Tret (E.Ital.Alps)	Ladin	1900-1949 ^c	38	24
St. Felix (E.Ital.Alps)	German	1900-1949 ^c	34	28
St. Georgen (Austrian Alps)	German	1892-1933 ^b	29.2-31.6	25.5-27.2
O. Sattnitz (Austrian Alps)	Slovene	1900-1949 ^a	33.1	29.3

Key: a = mean; b = range of decennial means; c = median.

Sources: Alagna: Viazzo (1983a); Festiona: Destro (1984: 165); Vernamiège: Berthoud (1967: 219); Lötschental: Macherel (1979: 12); Kippel: Friedl & Ellis (1976: 27); Törbel: Netting (1981: 135); Tret: Cole & Wolf (1974: 254); St. Felix: Cole & Wolf (1974: 254); St. Georgen: Khera (1981: 312); Oest. Sattnitz (Bauern): Arnold (1973: 429-31).

Table 1

Age at first marriage in Alpine localities in the years after the Second World War

Locality	Language	Periode	Men	Women
Alagna (W.Ital.Alps)	Germ./It.	1951-1980 ^a	28.6	24.9
Festiona (W.Ital.Alps)	Occitan	1951-1965 ^a	30.0	25.7
Vernamiège (Swiss Alps)	French	1956-1963 ^a	26.2	25.1
Bruson (Swiss Alps)	French	1969 ^b	29.0	27.6
Lötschental (Swiss Alps)	German	1940-1969 ^a	31.8	28.2
Kippel (Swiss Alps)	German	1960-1969 ^a	27.1	26.0
Törbel (Swiss Alps)	German	1950-1974 ^a	30.6	27.1
Fersental (E.Ital.Alps)	German	1970s ^a	ca.32	ca.25
Tret (E.Ital.Alps)	Ladin	1950-1969 ^c	31	25
St. Felix (E.Ital.Alps)	German	1950-1969 ^c	28	26
O. Sattnitz (Austrian Alps)	Slovene	1950-1968 ^a	31.2	26.3

Key: a = mean; b = SMAM; c = median

Sources: For Alagna, Festiona, Vernamiège, Lötschental, Kippel, Törbel, Tret, St. Felix, and Oest. Sattnitz: cf. Table 1; Bruson: Weinberg (1975: 32); Fersental: Sellan (1979: 55).

Table 2

Components of Alpine overall fertility

Model A: 'Typical Alpine' + low illegitimacy ($I_h = 0.010$)

$$I_g = 0.700; I_m = 0.400; I_h = 0.010$$

$$I_f = 0.286$$

Model A': Ticino in 1888

$$I_g = 0.695; I_m = 0.399; I_h = 0.013$$

$$I_f = 0.285$$

Model B: 'Typical Alpine' + high illegitimacy ($I_h = 0.100$)

$$I_g = 0.700; I_m = 0.400; I_h = 0.100$$

$$I_f = 0.340$$

Model C: Very high legitimate fertility, low nuptiality,
low illegitimacy (Canton Uri 1870)

$$I_g = 0.990; I_m = 0.366; I_h = 0.013$$

$$I_f = 0.370$$

Note: for data on Cantons Ticino and Uri, cr. van de Walle (1975).

Table 3

Age at first marriage in Alpine localities in the second half of the nineteenth century

<u>Locality</u>	<u>Period</u>	<u>Men</u>	<u>Women</u>
Alagna	1851-1900 ^a	27.2	24.2
Festiona	1871-1910 ^a	30.4	24.5
Vernamiège	1876-1905 ^b	26.0-29.8	24.9-26.8
Lötschental	1850-1910 ^a	33.7	30.2
Törbel	1850-1899 ^a	33.4	29.1
Tret	1850-1899 ^c	30	24
St. Felix	1850-1899 ^c	31	30
O. Sattnitz	1850-1899 ^a	30.5	27.8
St. Georgen	1822-1831 ^a	24.0	22.6

Key and sources: cf. Table 1.

Table 4

Population growth in Styria, 1700-1850

Year	Alpine Styria		Non-Alpine Styria	
	Population	Index	Population	Index
1700	155,400	100.0	268,400	100.0
1782	168,645	108.5	347,131	129.3
1850	186,456	120.0	440,600	164.2

Source: Klein 1971: 52.

Table 5

Population growth in the Western Alps, 1806-1848

	<u>1806</u>	<u>1848</u>	
Southern French Alps	424,000	481,600	(+ 13.6 %)
Northern French Alps	477,000	593,600	(+ 24.4 %)
Piedmontese Alps	150,000	340,400	(+ 36.3 %)
Total	1,151,000	1,416,000	(+ 23.0 %)

Source: Blanchard 1956: 530-47.

Table 6

Population growth in the Piedmontese Alps and in the Aosta Valley, 1734-1848

Year	Piedmontese Alps		Aosta Valley	
	Population	Index	Population	Index
1734	203,500	100.0	62,889	100.0
1806	250,000	122.9	72,100	114.6
1822	286,700	140.9	--	--
1838	322,500	158.5	78,110	124.2
1848	340,800	167.5	81,082	128.9

Sources: Piedmontese Alps: Blanchard 1952: 319-46;
Aosta Valley: Janin 1968: 169-71, 542-3.

Table 7

Birth and death rates in the mountainous regions of the Kingdom of Sardinia, 1828-1837

	CBR	CDR
Aosta Valley	32.7	28.8
Maurienne	32.8	28.9
Tarentaise	30.4	24.6
Savoy	32.1	24.5
Piedmontese Alps	35.5	28.9

Source: Commissione di Statistica del Regno di Sardegna (quoted by Janin 1968: 175).

Table 8

Age at first marriage in Alagna, 1700-1980

<u>Period</u>	<u>Men</u>	<u>Women</u>
1701-1750	28.33	24.75
1751-1800	27.57	24.64
1801-1850	27.05	24.38
1851-1900	27.19	24.20
1901-1950	29.31	26.06
1951-1980	28.58	24.91

Sources: 1701-1865: Family Reconstitution;
1866-1980: Alagna Communal Archive, Marriage Registers.

Table 9

Complete progeny (20-44) in Alagna, Törbel and Andermatt

	<u>Alagna</u>	<u>Törbel</u>	<u>Andermatt</u>
1701-1750	8.42	8.84	10.52
1751-1800	6.75	7.90	8.62
1801-1800 (°)	4.52	9.50	9.12

Sources: Alagna: Family Reconstitution;
Törbel: Netting 1981: 145;
Andermatt: Zurfluh 1982: 315.

(°) Andermatt: 1801-30.

Table 10

Some features of completed families in Alagna and Törbel, 1701-1850

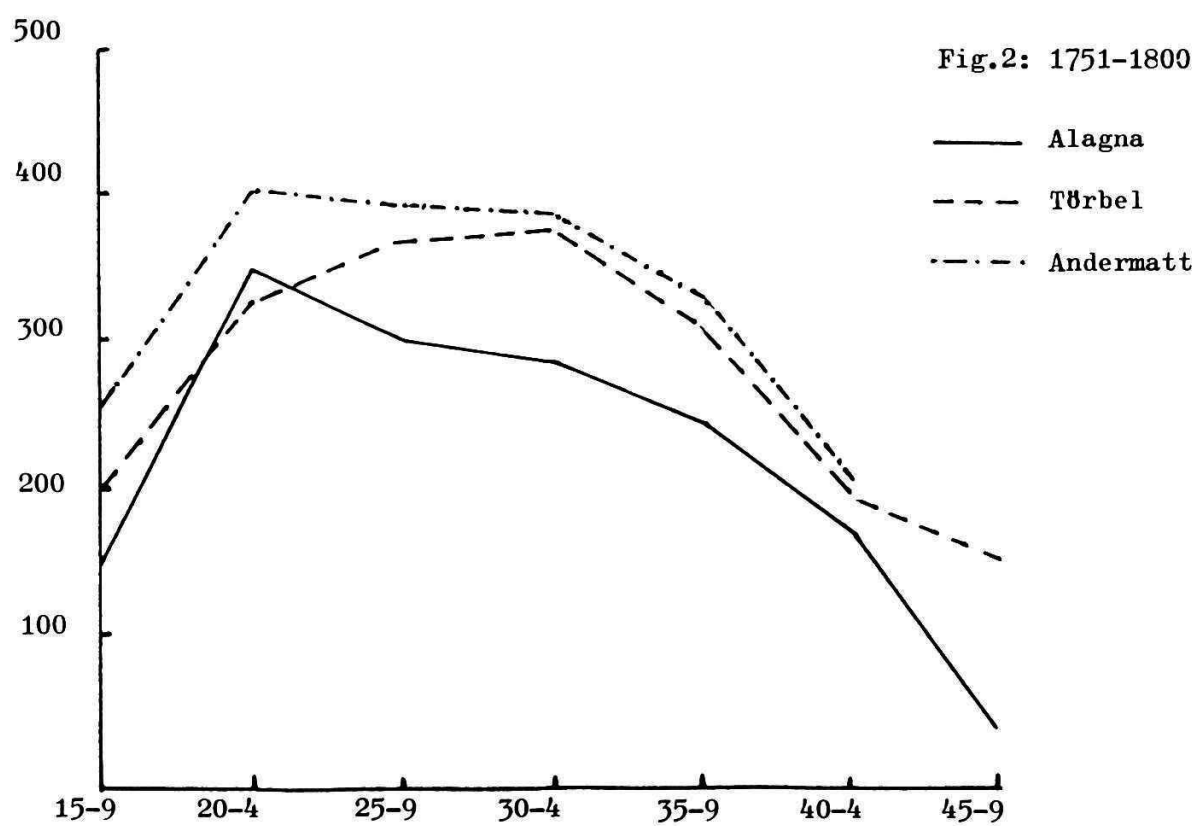
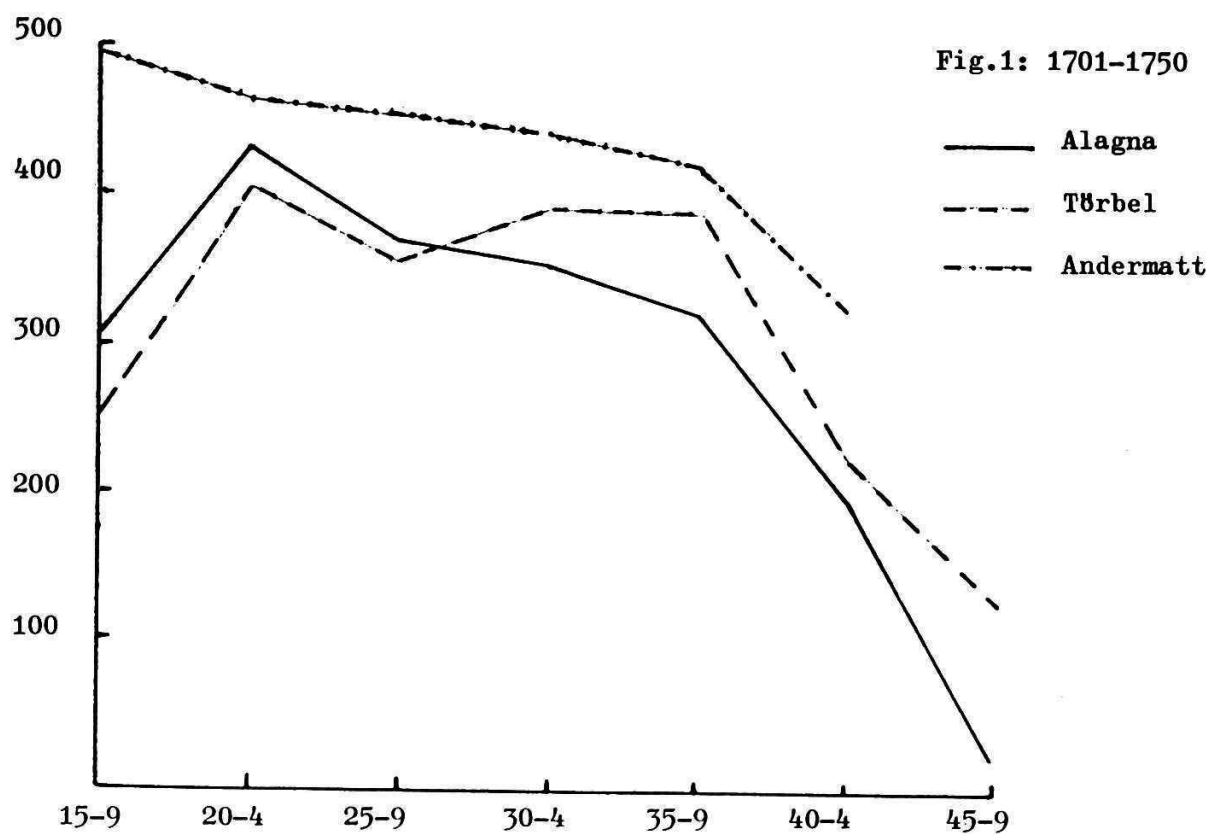
	<u>1701-1750</u>		<u>1751-1800</u>		<u>1801-1850</u>	
	A	T	A	T	A	T
N. completed families	75	30	103	45	112	87
Mean number of births:						
a) completed families	6.7	5.3	5.2	6.0	3.3	5.9
b) reconstituted families	4.8	3.8	3.9	4.7	3.2	4.9
difference	1.9	1.5	1.3	1.3	0.1	1.0
% of completed families with 9 or more births	27	28	18	22	3	24
Mean age of mothers at birth of last child	41.4	42.4	40.0	42.7	36.7	41.4

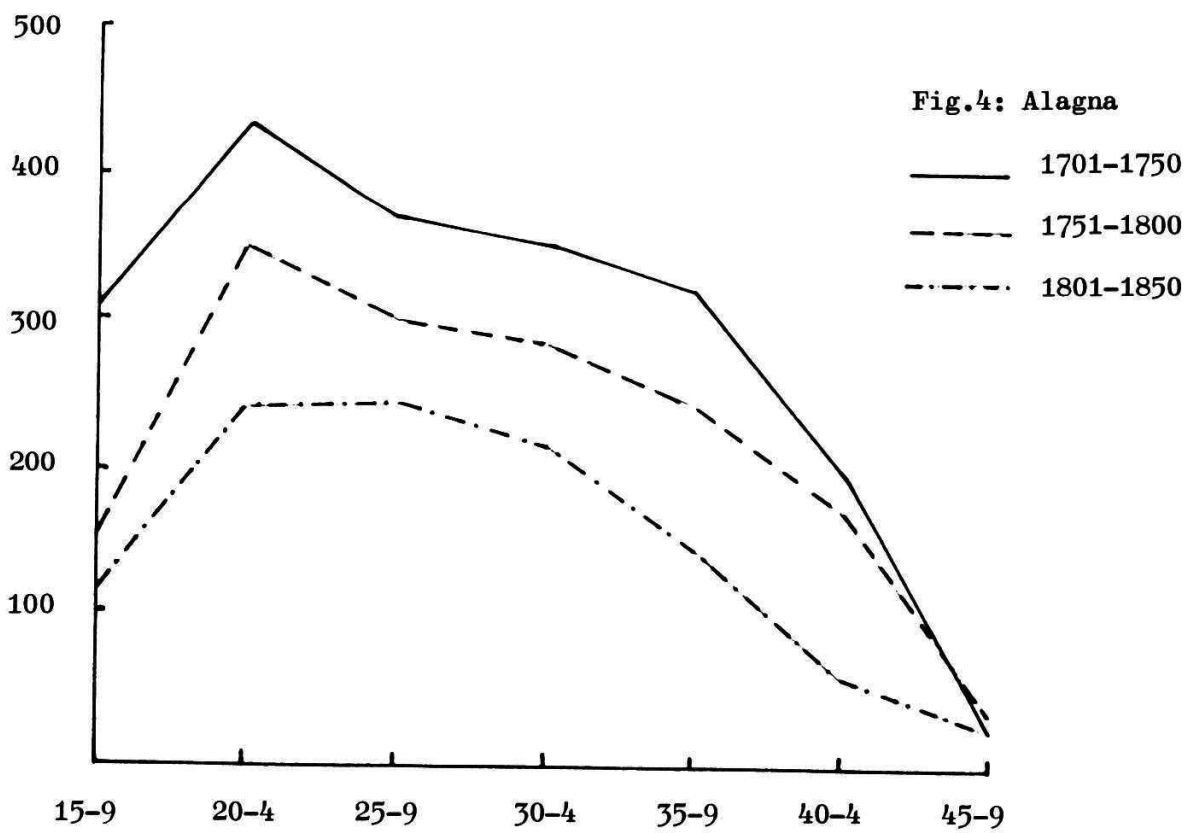
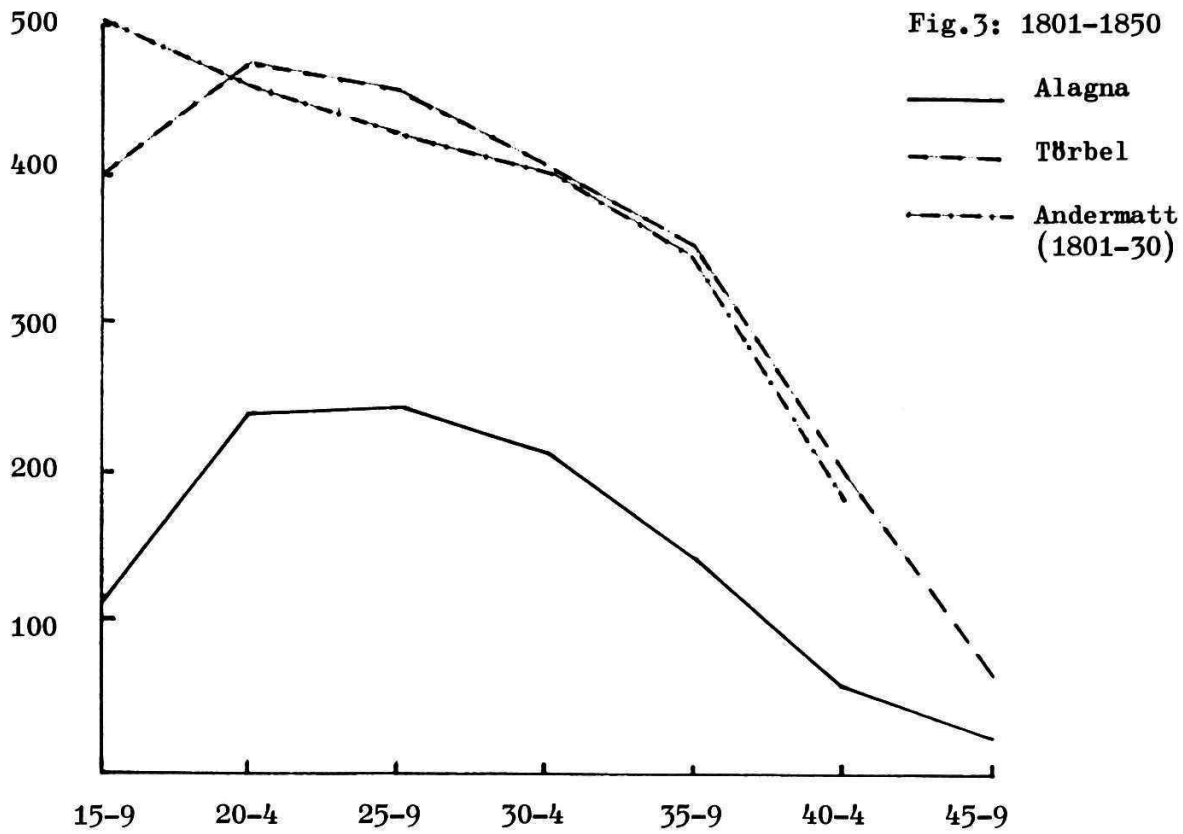
Note: By 'reconstituted families' we mean, following Netting (1981: 132), families "remaining resident in the village so that family reconstitution and reproductive histories are possible".

Sources: Alagna: Family Reconstitution;
Törbel: Netting 1981: Tables 6.11 and 6.18.

Table 11

Figures 1-4. Age-specific marital fertility rates





Figures 5-8. Males by age, marital status, and headship position

