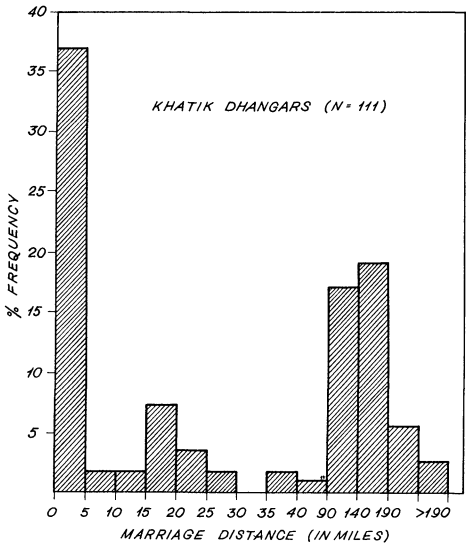

FIG. 4. Distribution of marriage distances among the Khatik Dhangars of west-central Maharashtra (redrawn after Majumder and Malhotra 1979).

centers the concentration is high, but in villages they are few or absent. The Jains, a religious isolate, also engage in business and white-collar work and are unevenly distributed over a wide territory—numerous in towns and certain temple places and scarce in villages. The Brahmins also have a rather uneven distribution; they are chiefly found in towns, big villages, and temple towns/villages. Thus these three groups have two things in common: relative to the total population of an area, their number is rather small, and because of constraints imposed by their professions their distribution is uneven. It is, therefore, safe to conclude that the multimodal distribution observed for these populations is largely due to their heterogeneous distribution.

In the case of Khatik Dhangars, found chiefly in west-central Maharashtra, we have fairly accurate knowledge of their distribution. They are present in large numbers in big cities like Bombay, Poona, and Nasik and considerably less numerous in small towns and market villages. In small villages, there may occasionally be one or two families, but mostly they are absent. This distribution is the result of their traditional occupation of meat selling. The observed bimodal distribution reflects the fact that in big cities, where their number is fairly large, it is often possible for them to select mates locally, but should they fail to find mates locally they have to travel long distances because Khatik Dhangars are scarce or absent in the intervening villages.

In conclusion, we are tempted to predict that in India, because of its unique social structure, we are likely to encounter more departures from the rule of leptokurtosis and that among the Brahmin castes and trading communities we will almost certainly observe multimodality in gene dispersion.

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Selection Intensity in the Sherpas

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A bio-anthropological survey of fertility, mortality, physique, and certain clinical-haematological and blood-polymorphic traits was undertaken on the Sherpas of Upper Khumbu (10,000–14,000 ft.), Nepal, and of Kalimpong subdivision (3,000–7,000 ft.), Darjeeling district, West Bengal, to study the nature of altitudinal differences, if any, in this Himalayan population. The Sherpas are generally considered to have migrated from the high-altitude areas of central and eastern Tibet to the high altitudes of northeastern Nepal about 500 years ago (Oppitz 1974) and thence to the lower altitude of Darjeeling district about 200 years ago. Demographic data were collected by retrospective methods from 110 households in Upper Khumbu and 250 households in the Kalimpong subdivision. A detailed description of the population and of the methodology of the present study has been presented elsewhere (Gupta 1979).

Altitudinal variations in fertility and mortality patterns have been reported by, among others, Grahn and Kratchman (1963), Baker and Dutt (1972), Mazess (1975), and Abelson (1976). Such variations with respect to Crow's (1958) selection intensity, a composite index involving fertility and mortality parameters, have been reported for an Aymara-speaking population of Chile and for the Quechua of Peru (Cruz-Coke et al. 1966, Garruto and Hoff 1976, Cruz-Coke 1977). Data on selection intensity on the two altitudinal subgroups of the Sherpas are presented here.

The index of total selection intensity (I), which measures the maximum potential rate of change, assuming that variations in mortality and fertility are genetically determined and fitness is completely heritable, was computed for the two subgroups following Crow's (1958) formula. No test of significance of the difference between the two with respect to I was possible. The data are presented in table 1. It appears that in the Upper Khumbu subgroup, average number of live births per married woman aged 45 years and above ($\bar{X}$) is 4.53 and its variance

TABLE 1

SELECTION INTENSITY AND ITS COMPONENTS

POPULATION	ALTITUDE	DEMOGRAPHIC MEASURES					SOURCE
		$\bar{X}$	V_f	I_f	I_m	I	
Sherpa							
Upper Khumbu.....	High	4.530	6.150	0.300	0.152	0.498	Present study
Kalimpong.....	Low	7.440	9.560	0.173	0.206	0.415	
Aymara							
Huallatire.....	High	7.30	9.89	0.185	1.178	1.581	Cruz-Coke et al. (1966)
Belén.....	Medium	5.82	6.95	0.205	0.360	0.638	
Arica.....	Low	4.34	8.53	0.453	0.146	0.665	
Quechua							
Nuñoa.....	High	6.7	9.0	0.200	0.522	0.827	Garruto and Hoff (1976)

(V_f) is 6.15. The total number of live births to women of all ages and the total number of premature deaths are 333 and 44, respectively, so that the proportion of premature deaths (p_d) is 13.21%. In the Kalimpong subgroup, $\bar{X}$ is 7.44 and its variance is 9.56; the total number of live births to the women of all ages is 1,186, the total number of premature deaths is 203, and p_d is 17.12%. The index of total selection intensity computed from these data is 0.498 in the Upper Khumbu subgroup and 0.415 in the Kalimpong subgroup, I_m and I_f being 0.152 and 0.300, respectively, in the former, and 0.206 and 0.173, respectively, in the latter group.

It will be apparent from table 1 that the fertility component is higher and the mortality component lower in the Upper Khumbu than in the Kalimpong subgroup. This is unlike the situation in other high-altitude areas, for instance, in Latin America (Cruz-Coke et al. 1966, Garruto and Hoff 1976, Cruz-Coke 1977), where selection operates mainly through mortality (i.e., I_m is higher than I_f).

The index of total selection intensity in both Sherpa subgroups is closer to the bottom of the range (0.6–3.7) reported by Spuhler (1962) among ten tribal populations. It seems, therefore, that selection pressure is moderate among both Sherpa subgroups.

Table 1 further shows that selection is operating with higher intensity in the Upper Khumba than in the Kalimpong subgroup, but the difference between the two is smaller than in the case of similar subgroups among the Aymara-speaking population in Chile studied by Cruz-Coke et al. (1966). Thus, interpreting I in terms of Darwinian fitness, it may be suggested that the rigorous environment of high altitudes has not reduced the fitness of the Upper Khumbu Sherpas to the extent that it has reduced that of the Aymara in comparison with their low-altitude counterparts.

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Wancho Fingerprints[1]

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The Wanchos inhabit the southwestern part of Tirap district in Arunachal Pradesh, in the northeastern part of India. They are one of the four major Mongoloid tribes of the district, the others being the Noctes, the Tangsas, and the Simgphos. They are believed to have originated in Tangnu and Tsangnu, both in the Tuensang district of Nagaland. Fingerprints of 60 unrelated Wancho males were collected from the various educational institutions of Longding subdivision during March 1979.

Table 1 shows the distribution of pattern types according to the scheme of Cummins and Midlo (1961). The greatest number of whorls is observed in the first digit of each hand. Radial loops are rare in both hands. The frequency of arches is greater in the left than in the right.

Table 2 shows the comparative occurrence of whorls and loops in different digits; the occurrence of whorls is more frequent in the first, second, and fourth digits of the right hand and in the first and fourth digits of the left.

Furuhata's index, Dankmeijer's index, and the mean index of pattern intensity are given in table 3. These three indices are compared for various Mongoloid populations of northeastern India in table 4, which shows that the Wanchos are closest to the Miri in Furuhata's index and to the Abor, Hajong, and Noctes in Dankmeijer's index. The mean indices of pattern intensity are generally similar for all these populations except the Mishmi.

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