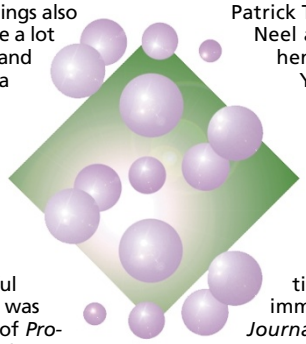
TOUCHING**base**

Down in 'Evolution Canyon'



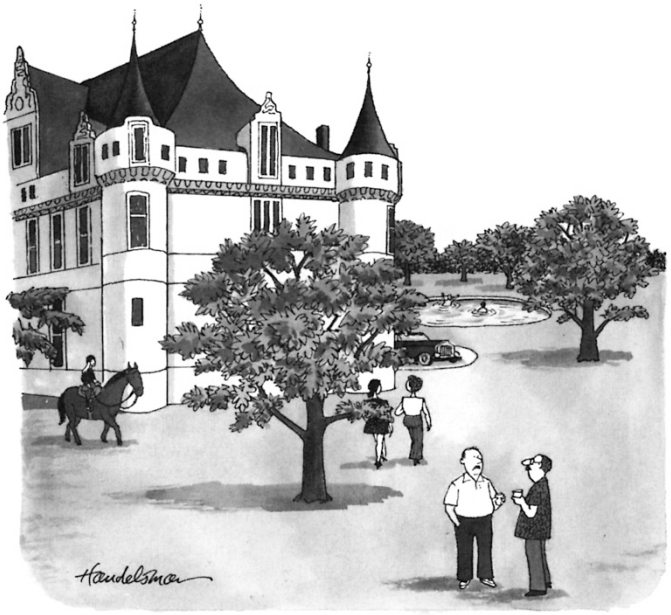
Islands have been recognized as laboratories of evolution ever since Darwin sailed to the Galapagos. But other settings also illustrate evolutionary principles at work, and they're a lot easier to get to. For the past decade, Eviatar Nevo and his colleagues at the University of Haifa have made a study of a canyon at Mount Carmel in Israel—a site known as 'Evolution Canyon'. There are two major slopes approximately 400 m apart at the top; the north-facing slope is covered by lush vegetation and is less exposed to solar radiation, whereas the south-facing slope is relatively dry, barren and warm (see photograph). Nevo and co-workers have already shown that these 'microclimates' constitute a powerful source of selective pressure. Just how powerful was shown in a recent report in the 6 November issue of *Proceedings of the National Academy of Sciences* (vol. **98**, 13195–13200; 2001). A team led by Nevo examined populations of *Drosophila melanogaster* that inhabit opposite slopes of the canyon. They found remarkable differences in the frequencies of microsatellites that are associated with *hsp70Ba*, one of five genes encoding Hsp70, a heat-inducible chaperone involved in thermotolerance. In fact, these two populations seem to have the highest intraspecies genetic distance ever reported for *Drosophila*. As the authors note, adult *Drosophila* can cover several kilometers in a single day, suggesting that natural selection overhwhelms the tendency of migrants to homogenize the allele frequencies between the two populations. Moreover, in 'Evolution Canyon,' *Drosophila* prefer to mate with natives of their own slope. This kind of reproductive isolation is a necessary condition for new species to arise, but it is usually thought to be preceded by geographical isolation—islands being the classic example. These results suggest that, given differing environments and abundant genetic diversity, a new species can be born within shouting distance of the old.

Shedding light on Darkness in El Dorado

In *Darkness in El Dorado*, published in December 2000, Patrick Tierney accused the late eminent geneticist James Neel and anthropologist Napoleon Chagnon of reprehensible activities during field studies among the Yanomami of Venezuela in the 1960s. The charges made by the author received ample coverage by the popular press. For example, *The Guardian* newspaper ran a story under the headline "US Scientist Brought Death to the Amazon". Over the past year, Chagnon has been tirelessly defending himself against these accusations. Neel, on the other hand, died shortly before the publication of the book, although he was aware of its imminent publication. In this month's *American Journal of Human Genetics*, a committee appointed by the American Society of Human Genetics responds to the allegations leveled against Neel. Much of the report focuses on Tierney's claim that Neel deliberately caused a measles epidemic, using a contraindicated vaccine, among the Yanomami to test theories about human evolution. On review of field notes and recordings, a reconstruction of the timing of the epidemic and consultations with measles vaccination experts, it concludes that Neel was in fact attempting to thwart the onset of an epidemic. The committee presents sound evidence that Neel's actions and his choice of vaccine were consistent with this aim. Whereas publication of the committee's findings will hopefully help to restore Neel's reputation, it is unlikely that a report by a committee of geneticists will assuage the doubts of the general public. An independent investigation of the accusations remains an imperative. Furthermore, it seems predictable that the penchant of the popular press for sensational news will mean that Neel's humanitarian efforts amongst the Yanomami will receive little coverage.

Mmmmmm, I can taste the fat in this…

We all know that fat-free ice cream isn't as tasty as its lipid-loaded cousin. But the contribution of fat to the brilliance of Ben & Jerry's (ice cream) has always been ascribed to the foodstuff's velvety texture. Fat, it has been thought, has no taste. In fact, palate dogma recognizes only five tastes—sweet, sour, bitter, salty and umami (the taste of monosodium glutamate). However, in October's issue of *Physiology & Behavior*, Richard Mattes of Perdue University adds to a growing body of research that indicates that the human body responds to the taste of fat, but not its smell. Other studies have demonstrated that oral exposure to fat elicits a rise in serum triacylglycerol in rats and humans by a mechanism that is independent of textural cues; whether this is attributable to taste, smell or perhaps a combination of the two has, until now, been unclear. In the study by Mattes, participants donned nose plugs and were fed cream cheese on a cracker. Shortly thereafter, their levels of serum triacylglycerol rose to three times that of those who ate only crackers. There was no appreciable rise in triacylglycerol in a second control group that could only smell the cream cheese. Mattes comments "This is not necessarily evidence that fat taste receptors exist. It is clear however, that there is a chemosensory detector for fat in the oral cavity." Now all we have to do is find it. Ben? Jerry? Any ideas?



"I could cry when I think of the years I wasted accumulating money, only to learn that my cheerful disposition is genetic."