

more conventional kinds of paleontological modeling are "either unable to explain it or unwilling to deal with it."

There is evidence of human hunters having been in the Arizona-California area 11,000 years ago, but there is no direct evidence of their having hunted sloths. Nevertheless, they might have done so without necessarily leaving evidence for archeologists to pick up. Furthermore, it is not necessary for humans to have hunted every species that disappeared in order to have unbalanced existence for all of them. In the case of the sabertooth tiger, for example, it may be that humans hunted the sabertooth's favorite prey. As a result, the sabertooth would have found less food and would have reproduced less efficiently. If humans kept up the pressure for long enough, the sabertooth would have died out.

There is evidence that suggests extinction by hunting for mammoths in the Ukraine, Martin points out. There is a region in that country where 30,000 years ago people built their habitations out of mammoth bones. To the south of this area is territory that was then inhabited by humans but where the mammoth was extinct. To the north is territory where mammoths were then plentiful but humans rare or nonresident. Martin suggests that the region where people were exploiting mammoth bones represents a forward wave of human occupation that was gradually sweeping north-eastward, extinguishing the mammoths as it went.

Martin proposes that a similar wave of hunting people passed across the Bering Sea land bridge that existed about 11,500 years ago and swept southward across North America. There is a good deal of dispute about the earliest date of human occupation of North America. Some evidence for human occupation that seems much older than 12,000 years ago has been found, but those anthropologists who still maintain that the first people came to America 12,000 years ago tend to reject it as mistaken. Martin's argument about the cause of the great extinction can still be maintained by proposing that humans who lived in North America before this wave of 11,000 or so years ago were too few in number to affect the balance of large mammal species or were not big game hunters.

Martin says that even if he's wrong, the answer to the question of the late Pleistocene extinction is going to be interesting. If he's right, then people have been disturbing the ecology for a long time. Environmentalists often praise primitive people for their ability to live in harmony with the environment. Indeed, since at least the time of Jean Jacques Rousseau, the Noble Savage has been praised for adopting a natural style of life. It may be that the Noble Savage was not so noble after all. □

... Stress

thing else — we can't focus on just one thing."

Syme adds that the search for contributing forces "should not be limited only to factors associated with socioeconomic status. People who are married have lower death rates than those who are single, widowed or divorced for a wide variety of conditions and causes of death. States in the United States with high death rates for one cause tend to have high death rates for virtually all causes. Religious groups, such as Seventh Day Adventists and Mormons, have low death rates from all causes. Groups experiencing social and cultural mobility have higher rates of coronary heart disease, lung cancer, difficulties of pregnancy, sarcoidosis and depression. Those said to have 'stressful life events' have been reported to have higher rates of a wide variety of diseases and conditions"

He proposes that a "general susceptibility might be involved" and calls for "an inquiry into the common denominators among these factors."

The ultimate goal, of course, is the treatment or prevention of stress-related diseases. "The whole point is to relieve the individual," Shapiro reminds his research colleagues. An estimated \$750 million was spent during the past year on drug treatment of hypertension. Biofeedback and other relaxation techniques are also being employed, although on not nearly as wide a scale as are drugs.

About 10 major studies have demonstrated that various relaxation techniques can lower blood pressure, notes Herbert Benson of Harvard Medical School and director of the hypertension section of Beth Israel Hospital in Boston. "Relaxation techniques have been shown to substantially lower blood pressure for up to six months," he says.

Some experts are impatient with the slow pace of stress/illness research efforts and feel that more than enough evidence already exists to support the existence of the connection. "We're hung up on what constitutes evidence," says Stewart Wolf, chairman of medicine and physiology at the University of Texas in Galveston. "Do we need, in order to establish the relevance of psycho-social factors, that [high] level of quantification? We know that alcohol is relevant to accidents, yet we're not hung up on the fact that there are people who drink and drive and *don't* get into accidents," he says.

"I suggest we no longer ask if psycho-social factors contribute to disease ... [and] act on our acceptance of the connection of life stress and illness."

Rose, however, cautions that considerably more research is needed in the field. "I'm conservative about treatment," he says. "We have to get much better data. But I'm encouraged by what's happening in the field now. Psychobiology will rise to the occasion." □

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