Reconstructing a Migration

The First Americans. Origins, Affinities, and Adaptations. Papers from a conference, Burg-Wartenstein, Austria, Aug. 1976. WILLIAM S. LAUGHLIN and ALBERT B. HARPER, Eds. Fischer, Stuttgart, 1979 (U.S. distributor, Verlag Chemie, Deerfield Beach, Fla.). xii, 340 pp., illus. $29.80.

For years people have wondered who were the first Americans. Scholars have suggested many plausible schemes outlining when the human species might first have arrived in the New World and how and where it dispersed once here, but they have had to rely on circumstantial evidence, most of which significantly postdates the presumed 40,000- to 20,000-year-ago entry date. *The First Americans*, a result of a symposium organized by William S. Laughlin, contains 14 papers illustrating some current attempts to resolve the Early Man question in America primarily through comparative biological studies of modern populations. Most of the papers written by physical anthropologists discuss the results of recent biological research that attempts to demonstrate and quantify the genetic linkage between Native American groups and their Old World (Asian) progenitors. Three papers by Hopkins, a geologist, Griffin, an archeologist, and Robert-Lamblin, an anthropological demographer, offer additional relevant findings from nonbiological fields.

Reflecting Laughlin's own expertise and theoretical orientation, several of the papers examine the degree to which Eskimo-Aleut populations show a greater—or at least different—affinity to Asians than do the North American Indians. As Laughlin notes, the question of native American origins provides a classic test case for the study of population histories, because this "last great migration of our single species" started from a single entry point, Beringia (the Bering Land Bridge and adjacent parts of northeastern Asia and western Alaska), at a relatively recent time. Eskimos and Aleuts are especially suited for the study of Native American population history because they constitute a well-defined population, distributed linearly in a chain of breeding isolates and bounded by natural barriers on the northern, eastern, and western extremities of their range.

Laughlin's thesis is that the New World was originally peopled by two distinct Asian populations: the American Indians evolved from interior Siberians and the Eskimo-Aleuts from North Pacific coastal Asians, or, more specifically, Bering Sea Mongoloids. Ancestral Eskimo-Aleuts formed the eastern segment of marine-adapted peoples distributed along the southern coast of the Bering Land Bridge during late Wisconsin glacial times, whereas the original American Indians were big game hunters who first occupied interior Beringia and later moved into the rest of the Americas. As sea level rose at the close of the Pleistocene, the Eskimo-Aleuts followed the receding coastline into Alaska. They continued to maintain their genetic isolation even as they entered the former Indian-held lands of Beringia because their prior maritime adaptation allowed them to outmatch ecologically the land-bound Indians along the evolving Alaskan coast. Finally, by the time the rising seas flooded Beringia those Eskimo-Aleuts who were living on the Beringian platform between Umnak Island in the Aleutians and the Kuskokwim River, Alaska, began to differentiate into the two branches. After 10,000 or 9000 years ago the Eskimo branch spread northward along the evolving coast while the Aleut branch spread westward along the shores of the Aleutian chain. About 4000 years ago the Eskimos who had reached northern Alaska spread eastward to Greenland. Subsequent local adjustments in the distribution of these two branches in the southeastern sector—an eastward spread of Aleuts and a westward spread of southwestern Eskimos—brought these by then distinct populations back into contact, probably in the vicinity of Port Moller near the terminus of Alaska Peninsula.

Although the papers in the book address a variety of research questions, most are relevant to Laughlin's thesis. As a basic theoretical stance the authors accept first of all that blood group and anatomical data from modern populations do indeed enable one to identify origins and histories of prehistoric populations. This view is in turn based on the underlying assumptions that similarities in certain biological measures between modern populations reflect directly the degrees of historical genetic affinity, and that the degrees of affinity can be directly translated into degrees of population divergence resulting solely from separation or branching from a single population source. The results of admixture and genetic drift are relatively unimportant—at least they are not seriously addressed in these studies, except where the observed similarities between specific measures, if accepted uncritically, would force one to infer relationships between obviously disparate groups.

Several of the studies point to close genetic ties between particular groups of Asians and North Americans. For example, Hanihara compares aggregate measures of the mesiodistal crown diameters of permanent teeth and shows that aboriginal North Americans (the sample includes Pimas and Aleuts) are more similar to Northeast Asians than to Southeast Asians or Aboriginal Australians. Kirk achieved similar findings by using blood group data. Cranial and postcranial morphological studies by Alexseev show that all aboriginal North Americans are more similar to coastal Northeast Asians than they are to interior northern Asians (Siberians).

Other studies examine the degree of affinity between various Native American populations. One of the most interesting of these is a blood serum study by Szathmary indicating that Eskimos and Indians do not show the profound differences suggested by Laughlin's two-population-origin thesis.

Answers to more detailed questions of affinities tend to differ with the approach and at times contradict each other. It is here I find special value in the book, because it offers opportunities to compare different historical genetic analytic methods applied to the same populations and to identify where the assumptions and methods need be more thoroughly scrutinized. For example, some morphological studies suggest that both Indians and Eskimos are more similar to coastal Northeast Asians than to interior Siberians; yet blood group studies of the same populations suggest that New World peoples are about equally related to coastal and interior northern Asians. Does this imply that morphology is a better measure of population history than blood antigens, or does it mean that morphological studies can at times generate spurious precision? Spuhler's composite blood group studies based on clustering techniques show that most Arctic and Paleo-Siberian groups are relatively similar to each other, but according to the same analytic method so too are, for example, Eskimos

and New Zealand Maoris. Other blood group studies show some curious clusterings between specific breeding populations, for example between Frobisher Bay Eskimos and Naskapi Indians or between Aleuts and East Greenland Eskimos. Do these similarities really reflect the detailed histories of divergence from a single population source and not later admixture, natural selection, or genetic drift? Several of the papers refer to this question tangentially, and one, by Lampl and Blumberg, addresses it directly by a comparative study of blood serum data. In this paper the authors compare the usefulness of a whole range of polymorphic systems for distinguishing between Native American populations and for identifying Asian-American affinities.

Laughlin's thesis also rests on the assumptions that throughout the late Pleistocene and early Holocene the south coast of Beringia maintained a larger human population than interior Beringia and that population pressure was responsible for moving Eskimos northward along the emerging coastline to replace the ill-adapted Indians confined to the receding interior tundra. To support this view Laughlin notes that southwestern Alaska and the Aleutian Islands have been rich in marine resources at least throughout Holocene times, and, using data described in a paper by Harper, that Aleuts have benefitted from this abundance by living longer (and breeding longer) than other American Arctic peoples. Laughlin contrasts this picture of a coastal Eden with a description of the Beringian interior as barren, cold, and dangerous—an area that could support only small groups of short-lived tundra dwellers. But Hopkins, one of the foremost experts on the environments of the Bering Land Bridge, states in another paper that the southern Beringian coast was not nearly so bountiful as Laughlin suggests. Throughout the terminal Pleistocene ice scoured its shores and severely limited the intertidal resources important to sea mammals and human beings. Furthermore, citing research by Dale Guthrie and others, Hopkins also makes a good case that it was the interior of the Land Bridge, not the southern coast, that was especially bountiful for human populations. The Beringian plain may have been covered by a grassy tundra that supported large herds of herbivores rivaling the modern savannas of Africa throughout the late Pleistocene.

Both Laughlin's and Hopkins's interpretations are simply speculative, however, and until we can actually document the relative carrying capacity of the coastal and interior Arctic over time it is futile to invoke population pressure as a force either for initially propelling people into the New World or for establishing the linguistic, cultural, or genetic boundaries of North American peoples that exist in the ethnographic present.

Laughlin's thesis needs to be examined critically also for its implications for the early prehistory of North Americans. It is clear that it is intended to be a model of actual migrations of ethnically identified people. This can be seen not only by his suggestion that the Indians crossed the interior and the Eskimo-Aleuts came across the southern Beringian coast, or that population pressure was the dynamic that sent coastal peoples into the interior, but also by his (and Wolf's) explanation of why Greenland Eskimos and Aleuts share certain blood group antigens: as the end members of a bidirectional migrating population they ended up in refugia where they could preserve more of their original common gene pool than the intermediate members. To accept this last argument, one would also have to accept that the early Eskimo groups who allegedly migrated from southern Beringia to northern Alaska (a linear distance of only about 1500 miles) over a period of 5000 or 6000 years did so without being significantly affected by continued gene flow from a core coastal Eskimo population or by genetic drift (even though they were living in small breeding isolates) or, as they rounded Seward Peninsula, by breeding with Asians, with whom (as the archeology shows) they were in continual contact, or by breeding with the Indians who presumably lived upstream from them along the major Alaskan rivers. These hypothesized emergent Eskimos would have had to retain an extraordinarily strong sense of ethnic identity and strict rules of endogamy excluding all outsiders from their small communities, not just for a few generations but for millennia.

Divested of its detail concerning actual migrations of peoples, Laughlin's general thesis is an adequate account of the history of gene flow across Beringia, given, that is, that the southern Beringian coast was densely populated. It is in fact a specific application of the standard statistical argument describing the results of interbreeding between numerically disparate populations. This large-scale population model is inappropriate, however, as a model of migration or culture history scaled to the level of ethnic group history. As a case in point, by focusing on a model of ethnic group dynamics rather than gene flow, one could make just as strong a case for the in situ evolution of Eskimos from the eastern interior Beringian populations as from coastal Beringians. All that is needed is to shift emphasis to the history of the original peoples living in the eastern Beringian region. Gene flow could proceed as Laughlin suggests, but without any of the Beringian groups—coastal or interior—going anywhere. People need simply have exchanged marriage partners with neighbors—as they in fact have always done—as they continued to live in their traditional homelands. Arguments that interior peoples were too ill-adapted or too land-oriented to learn how to cope with a coastal habitat that evolved over millennia are irrelevant to the gene flow thesis and give too little credit to the adaptability of human culture.

The First Americans presents an excellent discussion of the problems of origins, affinities, and adaptations of New World populations, and Laughlin and Harper have assembled many of the top scholars responsible for the recent research. The papers summarizing this original research make *The First Americans* an excellent reference for anyone interested in population history, and the representation of so many different research strategies and different, occasionally contradictory, findings makes it also unusually satisfying as a textbook.

DOUGLAS D. ANDERSON
Department of Anthropology,
Brown University,
Providence, Rhode Island 02912

Hazard Mitigation in China

Earthquake Engineering and Hazards Reduction in China. A Trip Report of the American Earthquake Engineering and Hazards Reduction Delegation. PAUL C. JENNINGS, Ed. National Academy of Sciences, Washington, D.C., 1980. vi, 190 pp., illus. Paper, $11.50. Committee on Scholarly Communication with the People's Republic of China Report No. 8.

This is a report written by a team composed of nine earthquake engineers, one seismologist, one geologist, and one China specialist after its three-week visit to the People's Republic of China in July and August 1978. The book deals mainly with earthquake engineering research and practice in China, but it also includes rather comprehensive reports on the Tangshan (M = 7.8) earthquake of July 1976 and the Sungpan (M = 7.2) earthquake of August 1976. The Tangshan