Confusion in Earliest America

An emerging consensus that the Americas were inhabited earlier than has been thought has undone a neat synthesis of linguistic, dental, and archeological evidence

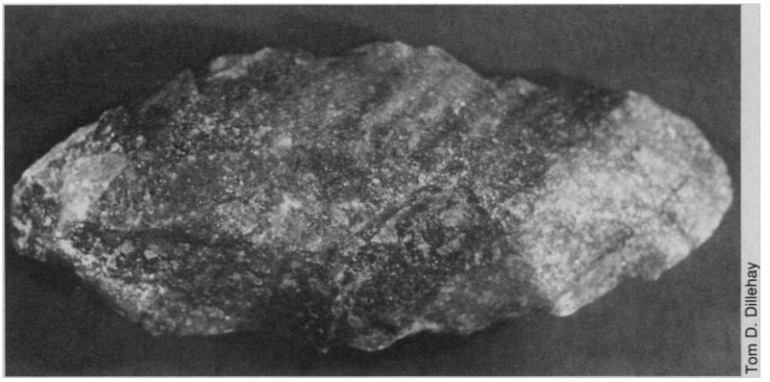
"IT'S TIME TO ACKNOWLEDGE that we do have a pre-Clovis culture in the New World," said Dennis Stanford, as he led off a recent conference in Boulder, Colorado, on language and prehistory in the Americas.* And that's a striking statement coming from Stanford, the archeologist who heads the paleo-Indian project at the Smithsonian Institution. The reason? Only a couple of years ago, Stanford and most of his colleagues who study the peopling of the New World were convinced that the Clovis culture was the first in the Americas. Named for Clovis, New Mexico, where its first traces were uncovered, the Clovis culture is represented primarily by a trail of elegant, fluted arrowheads and the remains of hunting camps.

Based on these artifacts, which appear in scores of well-established sites throughout North America beginning in about 11,500 B.P. (before present), a picture emerged of the first Americans as sophisticated big-game hunters who crossed the land bridge from Siberia to Alaska not long before that date. As recently as three years ago, this image represented the consensus in the field.

But all along there have been some mavericks who argued for a much earlier migration—as early, perhaps, as 40,000 B.P. The problem was that the sites these scientists proposed as evidence of ancient cultures often didn't stand up to detailed scrutiny. But last summer, at a meeting at the University of Maine, the tide began to turn as the result of detailed presentation of evidence from two sites: Meadowcroft Rockshelter in Pennsylvania, which has been firmly dated to 16,000 B.P. and Monte Verde in Chile, where the upper layers have been firmly dated to 13,000 B.P.

If Monte Verde and Meadowcroft are indeed valid, they necessarily imply that the initial migration took place at least 20,000 years ago, because human bands, moving on foot, a few tens or hundreds of kilometers per generation, would have had to start that early to reach Chile by 13,000 B.P. What is more, evidence from Monte Verde suggests that the earliest Americans may not have been specialized big-game hunters at all, but simple hunter-gatherers.

The overturning of the Clovis consensus has not been an isolated event. As that consensus collapsed, it brought into question another intriguing hypothesis that wove together linguistic, genetic, and dental clues to the peopling of the Americas. Known as the Greenberg hypothesis, after one of its three authors, Joseph H. Greenberg, a Stanford University linguist, this theory postulated three waves of migration from Asia to the Americas—the first wave occurring about 12,000 years ago and giving rise to the Clovis culture. Each migrational wave brought with it an ancestral language that ultimately yielded many descendants.



Tom D. Dillehay

Engraved in stone. *This biface was found at Monte Verde in Chile in a layer that has been dated to 13,000 B.P.*

But at the Colorado conference—which was devoted to considering the Greenberg hypothesis—it became clear that this wide-ranging synthesis is suffering stress. Not only does the acceptance of Meadowcroft and Monte Verde push the dates beyond what the original authors had proposed, but the idea of three migrational waves has been questioned by geneticists, who argue that the picture is probably much more complex. And Greenberg's own tribe—the linguists—is launching some very sharp attacks on him for what they call shoddy work and for reaching for generalizations before the data are all there to back them up.

Yet when the hypothesis was first formulated by Stephen L. Zegura and Christy L. Turner II along with Greenberg, it seemed a remarkable synthesis. Six years ago Zegura, an anthropologist and geneticist at the University of Arizona, attended a Greenberg lecture. He immediately spotted a thread connecting Greenberg's work with that of Turner, a physical anthropologist at Arizona State University. "Joe was talking about his linguistic classification of the American Indian languages and how they indicated there were three migrations. It just struck me: 'Wow! This was exactly what Christy Turner has been talking about for years.' "

In 1977, Turner identified a set of dental traits that linked the people of northeast Asia with both prehistoric and modern American Indians, Aleuts, and Eskimos. Other dental features seemed to divide the native people of the New World into three subgroups: Aleuts and Eskimos, Northwest Coast Indians, and all others. As the best explanation for these divisions, Turner suggested three separate prehistoric migrations. Based on the worldwide rate of dental evolution, he proposed an initial migration date of 14,000 B.P.

As Zegura observed, this scheme was almost a perfect match for Greenberg's American Indian language classification, which proposed three linguistic groupings—Aleut-Eskimo, Na-Dene (spoken by people of the Northwest coast), and Amerind (spoken by all other North and South American Indians)—coinciding with three migrations. Linguistic techniques for dating divergences among peoples seemed to support an initial migration of about 12,000 B.P., not too far from the figure Turner was working with—and the one that seemed to match the Clovis artifacts.

Thinking there was more to this than coincidence, Zegura investigated genetic correlations with the linguistic and dental evidence. Although not as conclusive as the

*Language and Prehistory in the Americas: A Conference on the Greenberg Classification, held 22 to 25 March 1990.

other studies, the genetic work could be interpreted as confirming the idea of three migrations.

Greenberg, Turner, and Zegura put their hypothesis before the world in 1986, noting as they did so that it was supported by the archeological evidence for the Clovis-first theory. Indeed, Greenberg's Amerind speakers, as the New World's first colonizers, would have been the bearers of the Clovis culture.

But at the Colorado meeting, this grandly unified theory provided a target for marksmen from genetics, linguistics, and archeology. While Stanford and his archeologist colleagues pressed for a pre-Clovis migration, Rebecca Cann, a geneticist from the University of Hawaii, argued that there must have been more than three migrations.

"In 1983," reported Cann, "the first mitochondrial DNA [mtDNA] study indicated that all the American Indians were descended from one lineage. But we now know that there were at least 11 major lineages, possibly more. To accumulate that kind of genetic diversity, there either had to be more migrations or bigger migrating groups with many unrelated females." Cann's mtDNA clock also indicates an early migration, possibly dating to 40,000 years ago.

Cann's report was based in part on recent research by Svante Paabo of the University of California at Berkeley. Paabo employed the polymerase chain reaction on much a more varied population sample than the one used in the earlier studies and came up with a much greater number of genetic lineages in the native population.

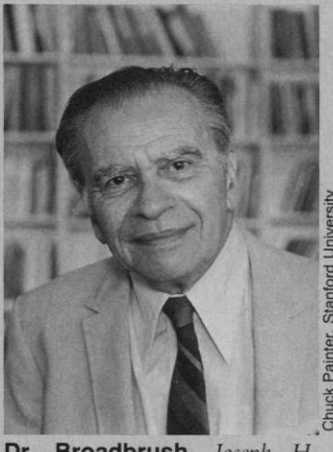
The hardest blows to the Greenberg hy-

The Big Picture

Joseph Greenberg, who has enraged his fellow linguists with a bold proposal that all American Indian languages can be classified in three groups, is no stranger to controversy—or to the big picture. In 1949, Greenberg, then a 34-year-old professor at Columbia University, single-handedly overturned the classification of African linguistics used by linguists and research libraries. He was attacked, as he recalls, because "I was this young upstart American from out of the West and they [the Europeans] were shocked."

In that affair Greenberg had the last word. His reclassification—based on his method of mass comparison (searching for lexical similiarities among languages)—has stood the test of time. A reclassification of the Oceanic languages he did using the same method has also found general acceptance.

Unlike his critics, Greenberg is a big-picture man, a scientist with a vast knowledge of languages and an intuitive sense for the relationships among them. Former students refer to his "insights," "intuitions," and "incredible memory." "He had ideatic memory as a child," said Alan Bell, a linguist at the University of Colorado, who studied with Greenberg, "and he never forgets anything. Plus, he's looked at the grammars of every language in the world. . . . But that's why he sees things in languages that other people don't."



Chuck Painter, Stanford University

Dr. Broadbrush. *Joseph H. Greenberg of Stanford.*

In 1960, drawing on this store of knowledge, Greenberg proposed a theory of language universals, a system that "revolutionized linguistics," says Paul Newman, a linguist at the University of Indiana. "Prior to Greenberg, linguists treated all languages as if they varied infinitely. But he saw patterns that let him draw generalizations about languages as a whole." So accepted are these "language universals," that "no one stops to think about them anymore," says Newman. "And that, to me, is one of the beauties of his work. He finds patterns that seem so simple, so obvious, that people say, 'Of course. Why didn't we think of that before?' "

Now 75—though his energy belies his age—Greenberg has once again stirred the fire. His three-part classification of the American Indian languages draws ready fire from other linguists, who have been carefully building similar historical connections—but in a brick-by-brick manner. While many are sympathetic to the idea that the languages are related, they contend that insufficient research has been done to create the larger groupings.

Greenberg's top-down, big-picture approach to American Indian language has led to charges that he is a poor and unscientific scholar—words he responds to with a shrug and shake of his head. "They think I'm some kind of a guy who crudely looks at lots of stuff, piles it here, piles it there," he says, a hint of hurt pride creeping into his voice. "I just don't work that way. But I do have to work with the kind of material that is available [word lists and grammars of Indian languages gathered by linguists in the field]. And I'd rather bring a language into a general classification, even if very little is known about it, than leave it dangling as an isolate."

Part of the dismay at Greenberg's approach stems from the fact that those who study American Indian languages have only recently abandoned the big picture themselves. In the 1970s there were a variety of large-scale groupings, but, says Lyle Campbell of Louisiana State University, "the evidence to support these major groups was very fragmentary and had never been tested. So I was the iconoclast in 1979 who said we needed to really look for this evidence first." That call led to the work on individual languages. "Now, Greenberg has done an end-run around us," Campbell says, adding, "It's not that we don't like what he's trying to do; we just don't like his methods."

Greenberg is admittedly weak with details; the word comparison lists, on which much of his Amerind classification is based, are pocked with errors. For some linguists, such failings are reason enough to ignore his classification. Yet they haven't been able to, and indeed every American Indian language they now reconstruct will be measured against his system. "Some very worthwhile work is going to be done now simply to prove or disprove Greenberg," comments Sarah Thomason.

Undeterred by the storms, Greenberg has pressed ahead with an even broader classification tracing the roots of some American Indian language groups to the Old World Eurasiatic languages—an immense group that includes Indo-European, Uralic, Altaic, Ainu, Gilyak, Japanese, and Korean. He is completing his Eurasiatic book and bracing for the furor it may unleash. "Oh, it's bound to get the Indo-Europeanists all upset," he says, unconcerned. "Maybe it will stimulate them, like I hope I have the American Indian linguists." ■ V.M.

pothesis came from the linguists, who refused almost en masse to endorse his concept of an Amerind language group.

Hard as they were, those blows were just the latest in a series that have rained down on the Amerind concept since Greenberg first proposed it in 1986. Lyle Campbell of Louisiana State University has argued in print that the concept "should be shouted down"; several others have called Greenberg's work sloppy and flawed scholarship.

But those charges were made in the relative privacy of scholarly journals. At the Boulder meeting, such attacks carried the additional barb of being delivered in public. Johanna Nichols of the University of California at Berkeley implied that Greenberg's search for an ancestral Indian language is futile. "The chances of finding out anything definite about a language older than 10,000 years are somewhere between zero and hopeless," she said. Sarah Thomason of the University of Pittsburgh concurred, calling Greenberg's Amerind classification an "empty exercise because it can't be tested."

At the end of each critical paper, Greenberg rose to defend himself, sometimes citing specific linguistic examples, other times quoting scholars who had praised his work. He also replied with barbs of his own, at one point saying wearily, "I'm only one man. What you're asking me to do [substantiate an entire language-classification system] took nearly a hundred researchers 200 years to do in Europe." This was greeted with laughter and applause.

Most of the criticism of Greenberg's work centers on his broad-brush methods. In attempting to sort out the American Indian languages, which had been classified into anywhere from 62 to 200 independent families, Greenberg applied a technique called "mass comparison," which relies on similarities among languages. Certain words, such as those for parts of the body, personal pronouns, and common nouns, change slowly and are rarely borrowed from other languages. Working with lists of such words, Greenberg compared hundreds of languages, seeking patterns that might point to familial relationships.

One of the first similarities he spotted among American Indian languages was the uniform use of "n-" and "m-" in the first- and second-person singular pronouns. "The borrowing of a first-person or second-person pronoun is an utterly rare event," he told the conference. "That it should have happened frequently in an area extending from Chile to British Columbia is a completely improbable event."

But such similarities have left Greenberg's critics unimpressed. Part of the reason is that the critics, including Thomason and Campbell, take a fine-brush approach, working on small groups of languages and carefully reconstructing historical relationships among them. Rather than relying on words, they search for correspondences in sound. For example, in many languages a "k" can become a "g" between vowels as a result of sound changes. Using such correspondences, historical linguists have reconstructed ancestral languages for many American Indian languages.

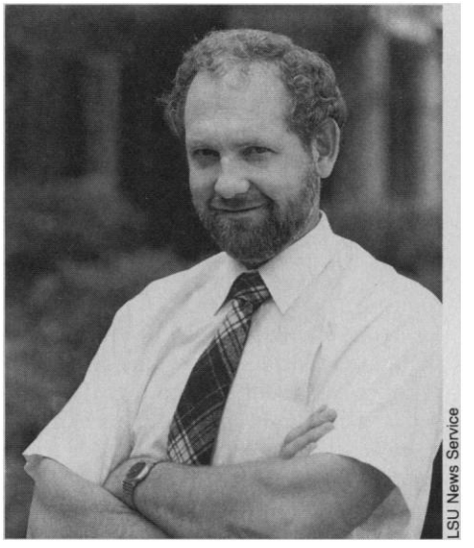
In time, they expect to find broad family groupings like those Greenberg has proposed. Indeed, they generally agree with the Aleut-Eskimo and Na-Dene families. But because so much detailed work remains to be done, they think his Amerind family is premature. "There are basically two questions here," says Thomason. "Is Amerind a language family? And are Greenberg's 11 subgroups [the languages comprising Amerind] all changed later forms of the proto-Amerind language?" Not until these questions have been answered, she argues, will archeologists be able to relate sites to specific languages—and even then she is not optimistic, noting that it is far too easy for people to change their language.

In the meantime, the archeologists are struggling with the sea change that has taken place in their own discipline as Meadowcroft and Monte Verde have moved into the mainstream. Those two sites are now "solid posts," Stanford said at the conference—posts that will ultimately provide the foundation for a new consensus. He cautions, however, that "it will take 2 or 3 years to convince everyone" of their validity.

Even more controversial are findings from the deeper archeological layers at Monte Verde—radiocarbon dates of 33,000 B.P. Those early dates are still accepted by only a minority in the field. But if they were to be accepted, they would push the migrational clock back much further.

As discussion proceeds on how far back the clock should be set, Monte Verde and Meadowcroft form part of an ongoing examination of the culture of the earliest Americans and the correlation between their culture and that of their Asian forebears. At the conference, Stanford pointed to similarities between bifacial stone blades from Meadowcroft and certain Siberian sites that have been dated at 25,000 B.P. But stone is only part of the picture. As Stanford and others have noted, it may be that the culture of the northeast Asians was based on "plastic media—wood and bone," material that is rarely preserved and that many New World archeologists are unfamiliar with.

This picture of a culture based on wood and bone is partially confirmed by findings at Monte Verde. University of Kentucky archeologist Tom Dillehay dug there from 1979 to 1986, uncovering the foundations of 14 wooden huts, as well as stone scrapers attached to wood handles, a hunk of mastodon muscle, animal skins, masticated potatoes, and a variety of plants, many with medicinal properties. "We found more than 80 types of plants," says Dillehay. "Some of these came from as far away as the Chilean seacoast, while others came from the mountains of Argentina."



Raised voices. *Greenberg's Amerind family "should be shouted down," says Lyle Campbell.*

Not only does this material suggest a vast trading network at an early date, it also indicates that the inhabitants of Monte Verde—or the people they traded with—were skilled botanists. Perhaps, say Dillehay and other archeologists, the first Americans were not hunters with finely hewn stone tools in the Clovis mold, but people who lived by gathering plants and shellfish, and killing seals or other slow-moving mammals with wood clubs. "They didn't rely on sophisticated stone tools because they weren't hunting big game animals," notes Stanford. "No point in making big fancy artifacts when you don't need to."

This picture—the earliest Americans as a people who lived by hunting and gathering, with an emphasis on plant life—may one day represent a consensus among those who study American prehistory. But for the moment the field appears to be in flux, with little to unify it—aside from a growing agreement that there was indeed a pre-Clovis culture in the Americas and that the Greenberg hypothesis, which not long ago seemed to offer the hope of an overarching unification, has begun to show signs of age.

■ VIRGINIA MORELL

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