

Tasmanian clues to human evolution

Skeletal studies of the aborigines who have inhabited Tasmania for more than 30,000 years (SN: 4/8/89, p.223) present anthropologists with a problem. Some researchers cite anatomical links — often based on measurements of the brain case and teeth — between Tasmanian and Australian aborigines, suggesting the former group migrated from Australia across an ancient land bridge to their island home, about 200 miles to the south. Other investigators, focusing on different cranial features, find a weak connection between Tasmanian and Australian aborigines. Instead, they group Tasmanians with Melanesians living on islands northeast of Australia.

This South Pacific paradox stems from the different skeletal traits and statistical methods relied on by opposing scientific camps, asserts anthropologist Colin Pardoe of the Australian Institute of Aboriginal Studies in Canberra. However, Pardoe reports in the February *CURRENT ANTHROPOLOGY*, a comparative analysis of dozens of seemingly minor skull parts indicates that Tasmanian and Australian aborigines share far more anatomical similarities than expected, considering that the two populations have remained separate for 8,000 years.

This finding challenges the widespread assumption that many anatomical differences among human populations arose when great distances or geographic barriers prevented the passing of genes from one group to another through mating, thus allowing random genetic changes and local environmental influences to mold the anatomy of isolated peoples. On the contrary, Pardoe argues, mating across two populations may promote greater anatomical differences between the groups.

Tasmanians have endured the longest genetic isolation of any human group, Pardoe says. When rising seas swamped their land bridge to Australia 8,000 years ago, he maintains, islanders could not get to the mainland by canoe or raft.

Pardoe looked for the presence or absence of 35 minor anatomical features on the skulls of aborigines from Tasmania and regions throughout Australia. Unlike more prominent traits such as skull breadth, these features — including tiny bones formed by cranial sutures and small bridges of bone caused by excess growth — confer few survival advantages and mainly evolve randomly, outside the influence of behavioral adaptations to a particular environment, Pardoe contends.

His comparisons of the proportions of these traits indicate that Tasmanians display the most similarity to aborigines from southern Australia and appear far more similar to Australians in general than expected in so isolated a population, he says. Moreover, Tasmanian and Australian skulls show cranial differences roughly comparable to those observed among pairs of island-mainland groups with much more contact, such as Aleutian islanders and Alaskan Indians.

The results support the controversial notion that separate populations of anatomically modern humans evolved simultaneously in several parts of the world, beginning as early as 1 million years ago (SN: 2/27/88, p.138), says Milford H. Wolpoff of the University of Michigan in Ann Arbor. Wolpoff asserts that those who argue for a single, more recent origin of modern humans in Africa wrongly assume that isolated ancient human populations would develop so many anatomical differences over time that several *Homo* species would have evolved.

Christopher B. Stringer of the British Museum of Natural History in London, a leading advocate of the African-origin theory, has not yet seen Pardoe's report, but he told *SCIENCE NEWS* that the new data may not clarify variations in the anatomical evolution of different groups. For example, Stringer says, many skeletal changes evolved within a few thousand years in some prehistoric populations, such as early New World Indians, whereas few appeared among Neanderthals over a 100,000-year time span.

FEBRUARY 16, 1991

Social stress linked to hypertension

Blacks in the United States run a greater risk of high blood pressure than whites, a fact that has perplexed researchers attempting to unravel the genetic and environmental causes of hypertension.

A report in the Feb. 8 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* now indicates that a U.S. black's increased risk of having blood pressure higher than 160/95 depends partly on his or her social and economic status. "The message to take out of this is that we need to investigate the environmental factors related to the excess of high blood pressure in black Americans," says cardiovascular epidemiologist Michael J. Klag of the Johns Hopkins University School of Medicine in Baltimore.

Klag and his colleagues reexamined data from a previous study of stroke risk among 457 blacks in Savannah, Ga., Hagerstown, Md., and Pueblo, Colo. During that study, the researchers had measured the darkness of each participant's skin by recording the amount of light reflected from the surface of the upper arm. Klag's team used these skin color measurements as a "marker" of genetic inheritance in the hypertension study.

According to the laws of genetics, blacks with darker skin should have inherited more of their genes from dark-skinned West African ancestors, the researchers note. Previous work has indicated that genes passed down from these ancestors are associated with high blood pressure among U.S. blacks. Thus, the investigators reasoned, darker-skinned blacks should be more likely to have inherited genes that predispose them to high blood pressure.

When Klag and his colleagues compared skin color variations with blood pressure measurements, they found that blacks with darker skin did tend to have higher blood pressure — but only if they also ranked low on an index for socioeconomic status or if they hadn't finished high school.

When the researchers looked only at participants who had graduated from high school or who ranked in the top third of the socioeconomic index, they found that having darker skin did *not* correlate with high blood pressure. This suggests that genes influencing high blood pressure in blacks may play only a weak role in the increased risk of hypertension among U.S. blacks, Klag says.

Variations in skin darkness also proved a weaker predictor of blood pressure — regardless of socioeconomic status — than other hypertension-linked factors the researchers measured, such as body weight or the amount of sodium and potassium in the diet.

Elijah Saunders, a cardiologist at University of Maryland in Baltimore, says the study helps confirm the presence of a strong social or environmental component to hypertension in U.S. blacks. "It may not be all genes and hormones," he says, "although those things may be the background for it."

Other researchers have reported a link between high blood pressure and low socioeconomic status for both blacks and whites, Klag says. However, his team's analysis controlled for other possible causes of high blood pressure among low-income people (such as weight and diet), suggesting that the stress of unemployment, racism and poverty could be the culprit, he says.

Michael G. Ziegler, a hypertension researcher at the University of California, San Diego, notes that studies have consistently shown a link between suppressed hostility and high blood pressure in both blacks and whites.

Yet Ziegler suggests that researchers may have difficulty pinning down the stresses of poverty and racism as causes of high blood pressure. For one thing, he says, investigators are limited by cultural biases that could complicate their assessments of how much stress a person feels.

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