

ciety do indeed tend to have lighter skin than men do. Long before they ever laid eyes on Caucasians, the men of China, Japan, and ancient Sumer praised the fairest-skinned women among them in verse and song. Later, they did not admire all Caucasian traits. A Japanese diplomat visiting the United States in 1860 wrote home: "The women's skin was white and they were charming . . . but their hair was red and their eyes looked like dog eyes." Frost also

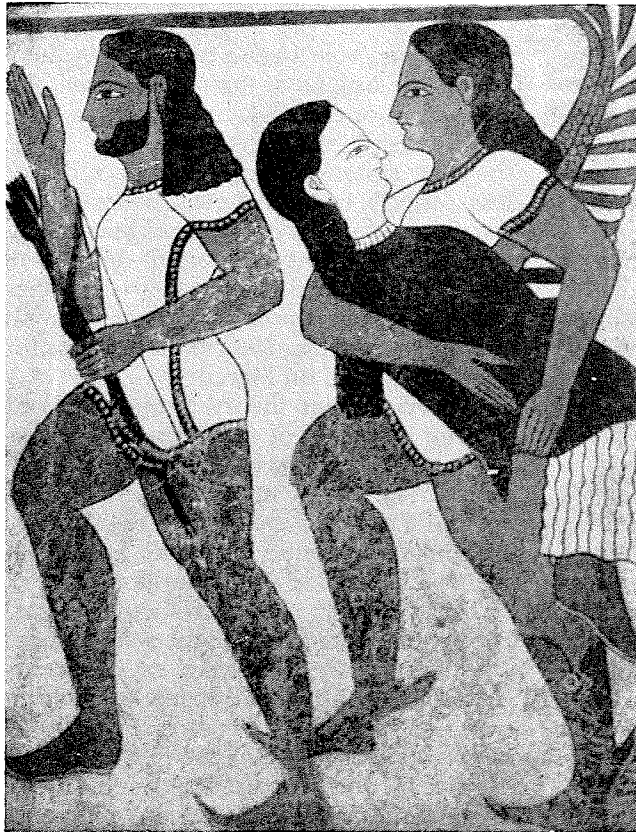
dismisses the possibility that paler skin is a badge of high status. The preference for lighter colored women persists even among hunter-gatherers, where status distinctions are few.

The best explanation, Frost suggests, may be "infantile mimicry."

Among humans and many species of apes and monkeys, the young of both sexes have abnormally light skin or fur, along with other distinctive traits such as "soft"

facial features. Anthropologists and others believe that these traits arouse protective instincts among male (and female) adults. Females of all primate species genetically "mimic" these traits to some extent (e.g., women have little facial hair). But gender differences in fur color are particularly linked to *monogamy*. Only 18 percent of all primate species are monogamous, but the proportion rises to 63 percent among "dichromatic" species. Apparently, lighter fur color among females diminishes the male instinct for aggression or abandonment—the greatest threats to monogamy. Although it has not been proved, Frost says, the same explanation probably holds true for the lighter skin color of human females.

Why, then, do 20th century whites favor suntanned skin? Not because darker skin is a sign of membership in the "leisure class," Frost says, but because it signals a freer approach to sexuality, "with less importance given to the formation of long-lasting relationships."



The artists of ancient civilizations often depicted women as fairer-skinned than men. In this Etruscan painting (circa 525 B.C.), the men were colored brick-red, the women white.

Neural Darwinism

"Survival of the Synapses" by Daniel S. Levine, in *The Sciences* (Nov./Dec. 1988), 2 E. 63rd St., New York, N.Y. 10131-0191.

Only 34 years have passed since a pathologist performing an autopsy on Albert Einstein removed his brain to search for the secret to the great scientist's genius.

Scientists have long since agreed that all human brains are virtually identical. Except in one crucial respect: the arrangement and number of connections between

neurons, or nerve cells, in the brain. The secrets of the brain lie in "the variable ways in which neurons form networks," writes Levine, a mathematician at the University of Texas, Arlington.

How are neurons organized? The latest theory to emerge, says Levine, is called "neural Darwinism." One of its leading advocates, Gerald M. Edelman, of Rockefeller University, sees a two-stage process. In the embryo, each brain develops its own distinct neural networks, guided by chemical agents called cell adhesion molecules (CAMs). Just as CAMs create thousands of feathers in chickens, making no two feathers identical, so they create a multitude of subtly different neural networks in the brain.

The second stage occurs after birth, when the strengths of the synapses (between the neurons) are modified by sights, sounds, and other outside stimuli.

Ultimately, the workings of the brain are

determined by "competition" among different neural networks to interpret external stimuli. The "winners" suppress the "losers." The "winners" are generally those that receive the most stimulation during early development. Thus, cats that are raised in a laboratory painted with horizontal stripes, and are then suddenly placed in a room painted only with vertical stripes, tend to bump into the walls. The neural pathways responsible for horizontal perception override those that govern vertical perception.

How, then, does one explain Einstein's genius? Presumably, he owed it both to his unique endowment of neural networks *and* to their early stimulation.

What is most important about neural Darwinism, Levine notes, is that it says "that the ways in which human beings perceive, learn, and remember are not fixed—not genetically determined or otherwise preordained."

RESOURCES & ENVIRONMENT

Greenhouse Effect?

"About That Drought . . ." by Richard R. Heim, Jr., in *Weatherwise* (Oct. 1988), Heldref Publications, 4000 Albemarle St. N.W., Washington, D.C. 20016.

As Americans sweltered through the summer of 1988, many climatologists warned that planet Earth could be experiencing the onset of the "greenhouse effect," caused by the buildup of man-made carbon dioxide in the atmosphere. [See *WQ*, "Climate," Winter 1988.]

Maybe not, says Heim, a meteorologist at the U.S. National Climatic Data Center. During the past two decades, he notes, the United States has endured five of the warmest years since recordkeeping began in 1895. But it has also experienced seven of the 20 coldest years. The link between last summer's heat wave and the greenhouse effect, Heim believes, remains ambiguous at best.

Likewise, the destructive drought of 1988 "was not as bad as the droughts of

the 1930s and 1950s—and probably other[s] that occurred before weather records were kept." In 1934, drought afflicted 61 percent of the country, from western New York state to the Pacific coast. On April 14, 1935, several people suffocated in a dust storm that struck Stratford, Texas. During 1953–54, drought covered 51 percent of the country. Last year's drought affected 45 percent; the year brought the *driest* growing season on record in only 12 percent of the nation's area.

Since the 1950s, Heim reports, despite scattered dry years, the nation actually has been experiencing a wet spell. Eight of the 20 wettest years on record have occurred during the 1970s and '80s. Last year, unnoticed by the news media, the desert Southwest was being "drenched by the wettest