are lacking in modern humans and other primates. (Two later hominids—*A. africanus* and *Paranthropus robustus*—lacked these specializations.) "These features in the early hominid bones can't be explained except that they are uniquely related to knuckle walking," says John Fleagle, a paleoanthropologist at the State University of New York, Stony Brook, the institution from which Richmond and Strait received their Ph.D.s. And these common traits imply that the common ancestor of australopithecines, chimps, and gorillas was a knuckle walker. The knuckle-walking traits were lost in hominids—by about 2.5 million to 3.0 million years ago, according to specimens of *A. africanus*, Richmond says.

But the finding raises other questions, such as why a climbing creature already adapted for traveling on the ground would evolve the ability to stand on two feet as well. "In some ways, for me, it makes it more difficult to understand the evolution of bipedalism," Potts says. One idea is that walking upright freed the hands for other uses, such as carrying food, tools, or weapons, says Carol Ward, a paleoanthropologist at the University of Missouri, Columbia. "The big problem is that we don't have a fossil record of the chimp-human-gorilla ancestor," she notes. "So what you have to do is build an argument based on parsimony and hope for the best."

–ERIK STOKSTAD

LOOKING AHEAD

Medalists Gaze Out on A Familiar Future

Who says good scientists need data to voice an opinion? Last week the newest winners of the national medals of science and of technology (*Science*, 4 February, p. 785) spent an hour speculating on what the world might look like in 2025 and whether "innovation will surpass science fiction." The spirited discussion among the 15 medalists—part of a daylong series of events that culminated in presentation of the awards by President Clinton—flowed freely around such knotty questions as the impact of technology on the quality of life and what drives human behavior. Not surprisingly, there was no consensus. But although a few scientists declined to venture outside their own discipline, most were happy to extrapolate from today the shape of tomorrow.

On stage. This year's medalists include (top row, from left): Stewart Rice, Robert Solow; (second row): Leo Kadanoff, Jerome Swartz, Susan Solomon, Kenneth Stevens, Felix Browder; (third row): Judy Swanson (for Robert), John Ross, Lynn Margulis, James Cronin; (bottom): Glenn Culler, Ray Kurzweil, Jared Diamond, David Baltimore, Ronald Coifman. Not shown: Robert Taylor.

Computer scientist Raymond Kurzweil spoke glowingly of nanobots communicating directly with our neurons to repair damaged tissue, part of a panoply of technological advances that would bring good health and prosperity to all. His sunny view, however, clashed with conservation biologist Jared Diamond's warning about a collection of 25-year "time bombs"—in particular the loss of biodiversity—that must be defused before humanity can prosper. Cellular biologist Lynn Margulis was even gloomier, fretting about how the desire to procreate could lead to unsustainable population levels that would overwhelm the capacity of any technology. In rapid succession, the three scientists gave thrust and parry, conceding nothing.

The issue of how to monitor where the world was headed proved equally hard to pin down. Economics Nobelist Robert Solow objected to overly optimistic predictions of ever-expanding productivity from computers and electronic communications, saying that the slight gains in recent years have yet to survive a recession. Kurzweil disagreed, saying that traditional economic measures were no match for the new economy, but Solow stuck to his guns. Taking another tack, medicine Nobelist David Baltimore opined that productivity itself was a poor measure of progress and that, for most people, an improved quality of life from modern pharmaceuticals was a more meaningful indicator.

Moderator Ira Flatow, a science journalist, seemed happy to let participants state their views and take their shots, leaving the audience to draw its own conclusions. But at least one panelist expressed displeasure at how the issues were being framed. "I don't know what life will be like in 2025, and I don't think scientists have much that's useful to say about the topic," commented physics Nobelist James Cronin after the roundtable ended. "But I can promise you that in 25 years we will know a lot more about the composition of the universe. That's what science can give the world. And I think that's pretty important."

–JEFFREY MERVIS

NEUROSCIENCE

New Ion Channel May Yield Clues to Hearing

As every biology student learns, the sense of hearing depends on the operation of the hair cells in the inner ear. These cells bear microscopically fine projections, the hairs or cilia, that bend in response to passing sound waves, setting off nerve impulses that the brain recognizes as sounds—a clap of thunder, say, or a hushed whisper. But even though neuroscientists have learned a great deal about hair cells, they have been unable to track down a key element needed for the cells' operation—the ion channel that opens when the hairs bend to produce the electrical signal. Now, working with a seemingly different system, they've made a discovery that may help them get their hands on the elusive channel.

On page 2229, a team led by Charles Zuker of the University of California (UC), San Diego, reports that it has cloned an intriguing ion channel from the neurons that underlie the sensory bristles of the fruit fly. It is a mechanically sensitive channel—in other words, it responds to mechanical force instead of voltage changes or biochemical modifications. At first blush, the fruit fly bristles, visible with a magnifying glass, appear to be quite different from the microscopic bundles of hair cells within the human ear. But the Zuker team has shown that the neurons beneath the bristles operate much like the hair cells as they convert movement into electrical impulses. That has some researchers thinking that the functioning of the two types of cells may depend on structurally similar ion channels. If so, the new gene could provide a useful probe for fishing out the channel in human hair cells—an accomplishment that could lead to new insights into the causes of hereditary deafness and perhaps ways to correct it.

"I am really excited about [this] channel," says Cornelia Bargmann, who studies sensory systems at UC San Francisco. Although there are other candidates for such mechanically sensitive channels, including one discovered by Bargmann's team, she calls Zuker's the "most intriguing candidate right now" because of its possible connection to hair-cell channels, with their "clear medical relevance and interesting biophysics."