who had chaired the IPCC for five years, lost his position by a vote of 76 to 49.

TERI

PACHAURI

The US shift away from Watson came as a surprise to both candidates. "I only learnt of US support through the media," says Pachauri. "I was not informed by them officially," he adds. Watson, chief scientist at the World Bank and a former member of the Clinton administration, also found out about the switch through interview queries from the media. John Houghton, who recently stepped down as cochair of one of the IPCC's four working groups, was taken aback: "I thought they would support Watson because of his great ability, energy, and high integrity, under which the IPCC has been very successful." But the news didn't come as a shock to Elliot Diringer of the Pew Center for Climate Change in Arlington, Virginia. "Dr. Watson is a very credible voice for stronger action on climate change, so it's not all that surprising that the Bush administration didn't want to renominate him," Diringer says.

WORLD BANK

WATSON

The US change of alliance created a split between one side—Europe and nearly all other industrialized countries—who thought Watson successfully ran the IPCC and eventually renominated him for the job after the US failed to back him, and the other side—the US, Japan, and developing countries—who wanted new leadership and rejected the UK delegation's last-minute attempt to organize a compromise in which Pachauri would share the chairmanship with Watson. "[The compromise] was understandably not attractive to India, other developing countries, or to Pachauri himself," says Houghton.

Pachauri, who gave scientific advice to Al Gore for the former vice president's book, *Earth in the Balance: Ecology and the Human Spirit* (Houghton Mifflin, 1992), was nominated for the job by the Indian government last September. According to IPCC delegates who attended the April meeting, Pachauri got the US vote for three reasons: The move helped Indo–US relations; the US could claim it was supporting developing countries by supporting Pachauri's candidacy; and, most important, by not having an American chairperson, the IPCC would have less influence in US political circles.

Not everyone believes IPCC influence in the US will drop during Pachauri's watch, however. Many climate scientists say that Pachauri is well-qualified for the position. "He is an able person of high integrity who is widely respected, who has a very different leadership style from Bob Watson," says Houghton. Watson was well known for a hands-on operating style. "My style of functioning is based on extensive delegation," says Pachauri.

Some policy changes will occur at the IPCC, with a shift toward looking at different regions and the social impact of climate change. "My strengths lie in technology, economics, and social sciences," says Pachauri. "I believe that there is not enough research or awareness of how climate change will affect developing countries. This is a gap which needs to be filled, and I intend doing my bit in this regard."

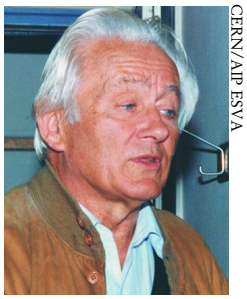
Pachauri says he is determined to increase everyone's understanding of the full threat of climate change so that not just governments, but also industry and the broader society, will take action to combat it. "We really need to go far beyond the reduction of emissions laid down in the Kyoto Protocol," he says. Diringer agrees: "The IPCC has had a substantial impact in calling attention to climate change and shaping a response. The important thing now is to preserve the integrity of the IPCC process. Bob Watson did a tremendous job and there's every reason to believe Dr. Pachauri will as well."

PAUL GUINNESSY

Charpak, Garwin Propose Unit for Radiation Dose

Becquerels, curies, grays, rads, rems, roentgens, sieverts—even for specialists the units of radiation can get confusing. That's why two eminent physicists, Georges Charpak of France, winner of the 1992 Nobel Prize in Physics, and Richard Garwin, an architect of the US hydrogen bomb and an outspoken advocate of arms control, are proposing the DARI as a unit of radiation dose they hope will help the public evaluate the risks associated with low-level radiation exposures.

CERN/AIP ESVA



CHARPAK

The DARI, or Dose Annuelle due aux Radiations Internes, is the radiation humans can't escape: It's the annual dose due to radioactivity in the body, mainly primordial potassium-40, from the stardust that formed our Solar System, and carbon-14, created by interactions of cosmic rays with nitrogen in the atmosphere. The dose from this internal radioactivity, accounting for the biological effects of different decay particles, is about 0.17 mSv/y; the proposed unit is rounded up, so that 1 DARI = 0.2 mSv.

GARWIN

In their book *Megawatts and Megatons: A Turning Point in the Nuclear Age?* (Knopf, 2001; for a review, see PHYSICS TODAY, April 2002, page 80), Garwin and Charpak assume that the effects of radioactivity are linear at low doses, that 1 DARI causes lethal cancer in 7 out of 1 million people, and that a lethal cancer shortens life by 16 years. They deduce that a year's worth of internal radiation shortens life by one hour. For comparison, says Garwin, "nuclear power shortens life by six minutes a year. A single CAT scan is worth 40 years of internal radiation and its life shortening is 40 hours. The DARI gives people a standard to judge exposures and hazards."

"We are living in a time when people want to terrorize people with radioactivity," says Charpak. "They make a fuss because of an incident producing 10% of a DARI, or even 1% of a DARI." With intrinsic internal radiation dose as a standard, he and Garwin hope that fears about nuclear energy will fade.

John Cameron, an emeritus medical physicist from the University of Wisconsin–Madison, prefers to compare radiation exposures to external background radiation. "You can tell a patient that the radiation from a mammogram is about equal to two months of just living," he says. Nat-

Nevada Issues Atomic License Plate

NTS HISTORICAL FOUNDATION

Nevada's newest special-interest license plate depicts an atom, Einstein's equation $E = mc^2$, and the mushroom cloud from an atomic blast. Profits from sales of the plates, which cost $61 for two, will go toward preserving the history of Nevada's nuclear test site.

Atomic testing "is an important part of Nevada history, and national and international history," says Dina Titus, a director of the Nevada Test Site Historical Foundation and the state senate minority leader who sponsored the plate in the state legislature. Rick Bibbero, a real estate agent, won $500 and the first set of mushroom cloud plates for creating the design in a nationwide competition.

Not surprisingly, not everyone is eager to celebrate Nevada's role in the development of the atomic bomb. Antinuclear groups protesting the turning of Yucca Mountain at the southern tip of the state into a permanent waste storage site call the new license plates "an abomination." But Bruce W. Church, president of the foundation, says most comments have been positive, although there were some worries about the design. A bemused state assemblyman, Thomas Collins, a Democrat from North Las Vegas, quipped in the state senate, "Is the atomic plate going to glow?"

PAUL GUINNESSY

ural background radiation is about 10 times the radiation from inside the body, although it depends on elevation and soil and so varies from place to place. "Our proposal is simpler," says Charpak. "The amount of radioactivity in the human body is stable."

Comparing exposures to internal or external background radiation is useful, says Hans-Georg Menzel, who heads CERN's radiation protection group and is a member of the International Commission on Radiation Units and Measurements (ICRU), "but only for a particular purpose: trying to help the public at large and decision makers develop a more realistic perception of the risk associated with radiation exposure. But this approach is certainly not useful as a unit for measuring for medical and legal purposes." Describing the risk of radiation by distributing the life-shortening effect of a fatal cancer over a large population, Menzel adds, "is appealing, but not a correct use of statistics. It is incorrect in the same way, but in the opposite sense, that some people make low radiation doses sound scary by multiplying very small doses with a large number of people exposed and so arrive at a high collective dose. I think it's rather misleading."

The DARI appears to be getting a warm reception in France, however. The French National Academy of Medicine has endorsed it, and a proposal is now in the hands of the ICRU. "I am satisfied," says Charpak. "We have put the idea on the table. We'll see what happens."

TONI FEDER