Old Hand

Three and a half million years ago, an *Australopithecus* hoisted itself up into trees at night with this hand, the first intact hand and forearm found from this long-dead offshoot of the human line. The appendage is attached to what may turn out to be an entire *Australopithecus* skeleton; archaeologists led by Ronald Clarke of the University of Witwatersrand in Johannesburg are now delicately chipping the bones free from the limestone floor of a South African cave (*Science*, 18 December 1998, p. 2183). The hand's curved finger bones suggest that this species spent a lot of time in trees, probably nesting there at night to sleep out of reach from predators, says Clarke.

Ancient australopithecine hand emerges.

According to anthropologist Randall Susman of the State University of New York, Stony Brook, more details of this individual's life could emerge once the hand is freed. For example, Susman says, a finding of broad fingertips—which can support more muscles and nerves—would suggest that *Australopithecus* was capable of the precise manipulations necessary for making tools.

Splitting the Rent, Keeping the Peace

It could be an episode on MTV's *The Real World*: Four friends move into a house that has four rooms of different sizes. It doesn't seem fair for them all to pay the same amount, but how should they divvy up the rent so that nobody feels shortchanged? Mathematicians have now proven that an "envy-free" distribution of rent always exists—and they've written a computer program that finds it.

Francis Su, a mathematician at Harvey Mudd College in Claremont, California, engineered the Fair Division Calculator, available online at www.math.hmc.edu/~su/fairdivision. It works by repeatedly quizzing each roommate on which room he or she would choose if the rents were divided in certain ways. Over many iterations, the scheme gets closer and closer to a division that everyone is happy with. Su lays out a proof that the scheme always works in the December issue of *American Mathematical Monthly*. Make that *almost* always—if a room is so bad that one roommate won't even take it for free, the method breaks down. In that case, Su suggests looking for a less picky roommate.

Mathematicians say the method should be applicable to many conflict-resolution systems other than rent division. "To me, the interesting thing about it is the philosophy," says Michael Starbird, a mathematician at the University of Texas, Austin. "Instead of arguing with one another about value systems, you declare your own value system and let a third party find a middle way."

Last Dance

Led by riffs from three institute chiefs, a band called "The Directors" performed at a send-off party last month for outgoing National Institutes of Health (NIH) director Harold Varmus, who just set up shop at the Memorial Sloan-Kettering Cancer Center in New York City. They crooned, among other favorites: "Harold, stay, just a little bit longer" to the tune of "Stay" by Maurice Williams and the Zodiacs, and "Oh where oh where can that Harold be?/Paul Marks took him away from me," to the tune of "Last Kiss" by J. Frank Wilson & The Cavaliers. If you really want to sing the complete, spine-tingling lyrics, see www.sciencenow.org/cgi/content/full/1999/1221/3. The ensemble included Francis Collins, director of the National Human Genome Research Institute, on lead guitar; Steve Katz, director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, on lead guitar; and Rick Klausner, director of the National Cancer Institute (NCI), also on lead guitar. Having three lead guitars was in keeping with NIH style, Klausner explained.

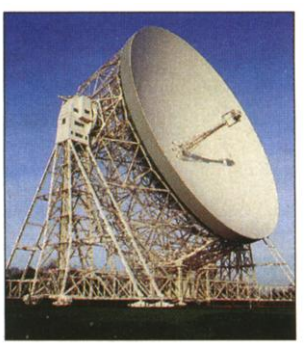
Katz, top, Collins, middle, Klausner bottom.

Radio Scope Gets New Lease on Life

Best known, perhaps, for first spotting a gravitational lens—the telltale starlight and radio waves bent by the gravity of a massive object—in 1979, Britain's aging Lovell radio telescope is about to be burnished into a more useful instrument for studying the cosmos.

"We've been thinking of upgrading Lovell for the last 10 years," says astronomer Peter Wilkinson. Now they can replace the corroded surface panels of the giant 76-meter dish with galvanized steel plates and upgrade its steering mechanism for more precise targeting of signals. The 40-year-old Lovell will be able to pick up a greatly expanded range, including the frequency emitted by methanol, "the signpost for galaxies," formed wherever galaxies, and hence stars, are being born, says Wilkinson. The telescope moonlights as a listening post for signs of extraterrestrial life.

The $3.7 million for the Lovell, located at the Jodrell Bank Observatory south of Manchester, was announced this month by the U.K.–Wellcome Trust Joint Infrastructure Initiative. The upgrades, Wilkinson says, will keep the telescope "operating well into the 21st century."



The Lovell radio telescope.

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