Nonsubsidized households were more likely to purchase latrines when other households in their village were subsidized. — GJC

**CANCER**

Marrow-infiltrating lymphocytes in ACT
Adoptive T cell therapy (ACT) has had success in treating some types of cancer, but widespread use is limited in part by a lack of tumor-specific targets. Tumor-infiltrating T cells may overcome this limitation for solid tumors. Noonan et al. performed a phase I clinical trial and showed that bone marrow can be a source of ACT for hematologic malignancies such as multiple myeloma. Marrow-infiltrating lymphocytes provided myeloma-specific immunity in the bone marrow for up to 1 year after ACT, and increased progression-free survival. — ACC


**NEUROPHYSIOLOGY**

Brain imagination to control external devices
Studies in monkeys have implicated the brain’s posterior parietal cortex in high-level coding of planned and imagined actions. Afzal et al. implanted two micro electrode arrays in the posterior parietal cortex of a tetraplegic patient (see the Perspective by Pruszynski and Diedrichsen). They asked the patient to imagine various types of limb or eye movements. As predicted, motor imagery involved the same types of neural population activity involved in actual movements, which could potentially be exploited in prothetic limb control. — PRS

Science, this issue p. 906; see also p. 860

**PLANETARY SCIENCE**

Old minerals expose an ancient field
Mercury is the only terrestrial planet other than Earth with an active, internally generated magnetic field. Results from the MESSENGER spacecraft indicate that the field is almost as old as the planet. Johnson et al. took advantage of close flybys to extract evidence of an ancient magnetic field. Certain minerals are able to “lock in” the signature of a field at the time they crystallize. This remnant magnetization was found in a region on Mercury believed to be 3.8 billion years old. — BG

Science, this issue p. 892

**EVOLUTION**

Staying the same across a billion years
How far across evolution do families of genes retain their function? Yeast and humans are separated by roughly a billion years of evolutionary history, and yet genes from one can substitute for orthologous genes in the other. To study this effect systematically, Kachroo et al. replaced over 400 essential yeast genes with their human orthologs. Roughly half of the human genes could functionally replace their yeast counterparts. Genes being in the same pathway was as important as sequence or expression similarity in determining replaceability. — GR

Science, this issue p. 921

**IMPLANTATION**

Embryos engulf mom to latch on
In mammals, to ensure a viable pregnancy, a developing embryo must implant into the wall of the uterus. Previous studies suggested that this depended on maternal uterine epithelial cells dy ing by apoptosis, a form of programmed cell death. However, Li et al. now report in mice that cells from the developing embryo actively engulf live cells of the uterine epithelial barrier, in a process called entosis. This then allows the developing embryo to anchor itself to the uterine stromal bed. Although scientists had previously reported a role for entosis in cancer, these results suggest that this process may be more widespread. — BAP


**BIOGEOGRAPHY**

Unevenly blowing in the wind
Scientists, including Charles Darwin, first reported airborne microbes nearly two centuries ago. Many of these organisms cannot be cultured, and only recently have molecular approaches allowed scientists to begin to identify them. To better understand the distribution of airborne fungi, Barberán et al. examined dust samples collected from homes across...
Binary neutron stars may generate gravity waves when they combine.

## ASTROPHYSICS

### Modeling powerful mergers

Gravity waves are the ripples of spacetime predicted by Einstein’s theory of general relativity, and are expected to be emitted from the energetic mergers of large astrophysical objects such as binary neutron stars or binary black holes. Several large detector systems are trying to observe gravity waves. Helping that effort, Bernuzzi et al. introduce an accurate model of the dynamics of such mergers. Understanding the details of the mergers, taking into account the contribution of strong gravity and tidal disruption in the evolution from a binary to a merged system and the resulting changes in the waveforms of the gravity waves, should provide crucial insights into the makeup of our universe. — ISO


## PHYSICS

### Surprises in spiral domains

Antimony telluride (Sb$_2$Te$_3$), a semiconductor with thermoelectric applications, has a layered hexagonal close-packed structure. Hauer et al. grew Sb$_2$Te$_3$ platelets using a solvothermal technique that developed a spiral growth pattern around a screw dislocation. Scattering-type scanning near-field microscopy of mid-infrared reflectivity surprisingly revealed triangular domains of opposite phase that were not seen with platelets grown by other methods. They attribute the contrast to growth twins that had different levels of antisite defects, which act as electronic dopants and affect its plasma frequency. — PDS


## FLUID DYNAMICS

### Uncool heat pipes in microgravity

Heat pipes are efficient heat transfer systems commonly used to cool things such as microprocessors. Heat pipes have a hot end that evaporates liquid, which flows as vapor to a cold end that condenses it. The liquid then normally returns to the hot end through capillary action, completing a circuit with a net cooling effect, although the hot end commonly dries out, lowering the performance of the device—at least on Earth. Kundan et al. investigated how heat pipes work in the microgravity of the International Space Station. Surprisingly, on the station, the hot end quickly floods, because of changes in surface tension caused by the lower gravity. This observation suggests that heat pipes will have different performance limitations in space. — BG


## PSYCHOLOGY

### Judgments that lead to job offers

Job seekers often need to send out hundreds of resumes in order to get a handful of interviews. But do applicants really need to meet their potential employers face-to-face for the best chance of success? Schroder and Epley investigated this by having business school students or actors apply for jobs by composing elevator pitches for delivery via text and audio or video recordings, and museum visitors or professional recruiters judged the candidates’ intellect and their likelihood of being hired. In all of the combinations, the audio pitches outperformed written ones and did just as well as the videos, suggesting that a person’s voice is the key. — GJC


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### Citizen scientists fight an oak killer

Sudden oak death (SOD), caused by a fungus-like pathogen, has killed millions of trees in California and Oregon. In a recent example of the value of citizen science for both research and the public good, Meentemeyer et al. showed that the involvement of trained volunteers for the past 6 years enabled researchers to learn more about the spread of the disease, build predictive maps of disease risk, and provide decision-makers with information that could help prioritize efforts. High-school students, teachers, and others used a symptom mapping tool and then sampled leaves for analysis. Amateurs equaled professionals in their ability to recognize infected leaves. — BJ