FOREST MANAGEMENT

## Europe's managed forests contribute to warming

For most of the past 250 years, surprisingly it seems that Europe's managed forests have been a net source of carbon, contributing to climate warming rather than mitigating it. Naudts *et al*. reconstructed the history of forest management in Europe in the context of a land-atmosphere model. The release of carbon otherwise stored in litter, dead wood, and soil carbon pools in managed forests was one key factor contributing to climate warming. Second, the conversion of broadleaved forests to coniferous forests has changed the albedo and evapotranspiration of those forests, also leading to warming. Thus, climate change mitigation policies in Europe and elsewhere may need to consider changes in forest management. — AMS

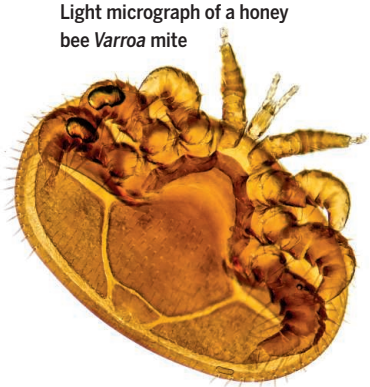
*Science*, this issue p. 597

HONEY BEE DISEASE

## *Varroa*-vectored virus pandemic

Bees are facing several threats that are causing population collapses. Wilfert *et al*. found that European honey bees are the primary source of deformed wing virus (DWV) (see the Perspective by Villalobos). However, paradoxically, transmission between bees is inefficient. It seems that parasitic mites can facilitate virus transmission. European honeybees acquired the rapidly spreading *Varroa* mite from Asian honey bees, possibly via the commercial exchange of queens. Not only do bees suffer direct damage from the mites, but the bees are also efficiently inoculated with DWV. — CA

*Science*, this issue p. 594; see also p. 554



**Light micrograph of a honey bee *Varroa* mite**

HEART DISEASE

## Powering down yields a healthier heart

In hypertrophic cardiomyopathy (HCM), the heart muscle enlarges and becomes progressively less efficient at pumping blood. HCM can be caused by mutations in components of the sarcomere (the heart's contractile unit), most notably myosin. Hypercontractility is among the earliest heart disturbances seen in mice carrying these myosin mutations, implying that the mutations inflict their damage by increasing myosin's power production. Green *et al*. identified a small molecule that binds to myosin and inhibits its activity (see the Perspective by Warshaw). When orally administered to young mice, the molecule prevented the development of several hallmark features of HCM without adversely affecting skeletal muscle. — PAK

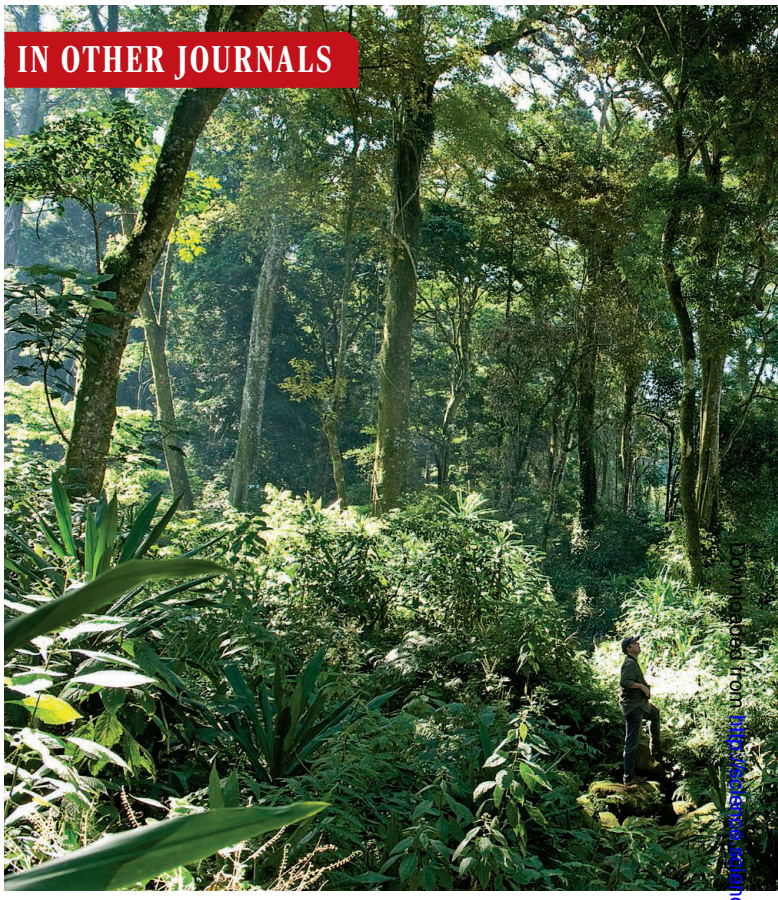
*Science*, this issue p. 617; see also p. 556

CANCER

## Metastatic breast tumors break down bone

Most breast cancer cells activate the breakdown of bone to promote metastases. Wang *et al*. found that the ABL kinases enhanced the ability of breast cancer cells to invade and break down bone in mice. In breast cancer cells, the ABL kinases activated pathways that triggered the transcription of genes encoding factors that activate osteoclasts (cells that break down bone) and those that enhanced the survival of breast cancer cells in the bone microenvironment. An ABL-specific inhibitor decreased bone metastasis in mice. — WW

*Sci. Signal.* **9**, ra12 (2016).



# IN OTHER JOURNALS

*Edited by* **Sacha Vignieri** *and* **Jesse Smith**

QUANTUM OPTICS

## To catch a photon nondestructively

With several techniques now available for generating single photons, coupled with their relative robustness and ability to be transmitted long distances, photons are ideal carriers of quantum information. However, determining the best methodol-ogy for detecting a single propagating photon without absorbing it (and destroying it) remains a work in progress. Xia *et al.* propose a cavity-free approach based on an induced nonlinear interaction. By co-propagating a weak probe beam with the signal beam containing the single photon in a nonlinear medium, they show theoretically that the phase of the probe beam should be shifted, conditional on the presence of the single photon. The proposed technique could offer a simpler route for implementing such quantum non-demolition detection strategies necessary for successful quantum information processing. — ISO

*Phys. Rev. Lett.* **116**, 023601 (2016).

DRUG SCREENING

## Imaging to improve drug target mapping

Finding effective new drugs, or combinations thereof, that are free of toxicity and off-target effects is a big challenge—one that may only be solved with large amounts of data. Breinig *et al.* present a screening method that includes automated quantitative high-throughput imaging to track not only cell viability and proliferation, but also other features such as DNA texture, nuclear and cell shape, and cytoskeletal properties. Screening over 1200 pharmacological agents in 12 isogenic cell lines allowed the mapping of quantitative "footprints" or signatures of phenotypic responses

PHOTOS: (LEFT TO RIGHT) GERD GUENTHER/SCIENCE SOURCE; © ARIADNE VAN ZANDBERGEN/ALAMY STOCK PHOTO