Science & Technology

7 New Discoveries from Columbia Scientists

Important research you should know about.

By
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|
Winter 2019-20

Born to sing

Sarah M. N. Woolley, a neuroscientist at Columbia's Zuckerman Institute, along with postdoctoral researcher Jordan Moore, has successfully mapped the neural circuits that enable young songbirds to learn the complex patterns of trills, peeps, and warbles sung by their parents. According to Woolley, the study offers insights into children's ability to acquire language.

Breathing easy in the Empire State

A sharp reduction in air pollution in New York State has prevented thousands of premature deaths since 2002, according to a study led by Xiaomeng Jin, a PhD student in atmospheric chemistry at Columbia's Lamont-Doherty Earth Observatory. The cleaner air is largely the result of stricter limits on vehicle and power-plant emissions.

Left in the coal dust

Coal consumption in America is likely to drop by 25 percent over the next decade, jeopardizing the economies of dozens of counties that are almost wholly dependent on coal mining, according to researchers at SIPA's Center on Global Energy Policy.

A new take on addiction

Gay women are four times as likely as straight women to use marijuana on a daily basis, and for bisexual women the factor rises to seven, according to a study by Morgan M. Philbin, Pia M. Mauro, Emily R. Greene '17PH, and Silvia S. Martins of Columbia's Mailman School of Public Health. The researchers suspect that many gay and bisexual women are self-medicating to ease the stigma of being in a sexual minority.

Mealtime for mutants

A team of evolutionary biologists led by Columbia professor Peter Andolfatto have determined that the monarch butterfly evolved to be able to eat milkweed, which is deadly to most insects, by accumulating a suite of genetic mutations in a precise order. The scientists demonstrated this by painstakingly introducing the same mutations, one by one, in fruit flies, enabling them to eat milkweed too.

Starlight, not so bright

A star in the constellation Cygnus known as Tabby's Star has long baffled scientists by periodically dimming for days or weeks at a time. Now Columbia astronomers Brian D. Metzger, Miguel A. S. Martinez '19CC, and Nicholas C. Stone have proposed an explanation: they hypothesize that an exomoon is orbiting the star and slowly breaking apart, causing an ever-expanding cloud of debris to obscure the star's light.

Epilepsy relief in a laser?

Columbia engineer P. James Schuck has developed a microscopic laser — whose width is just one thousandth that of a human hair — intended to be implanted in the brain and used to treat neurological disorders such as epilepsy.

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