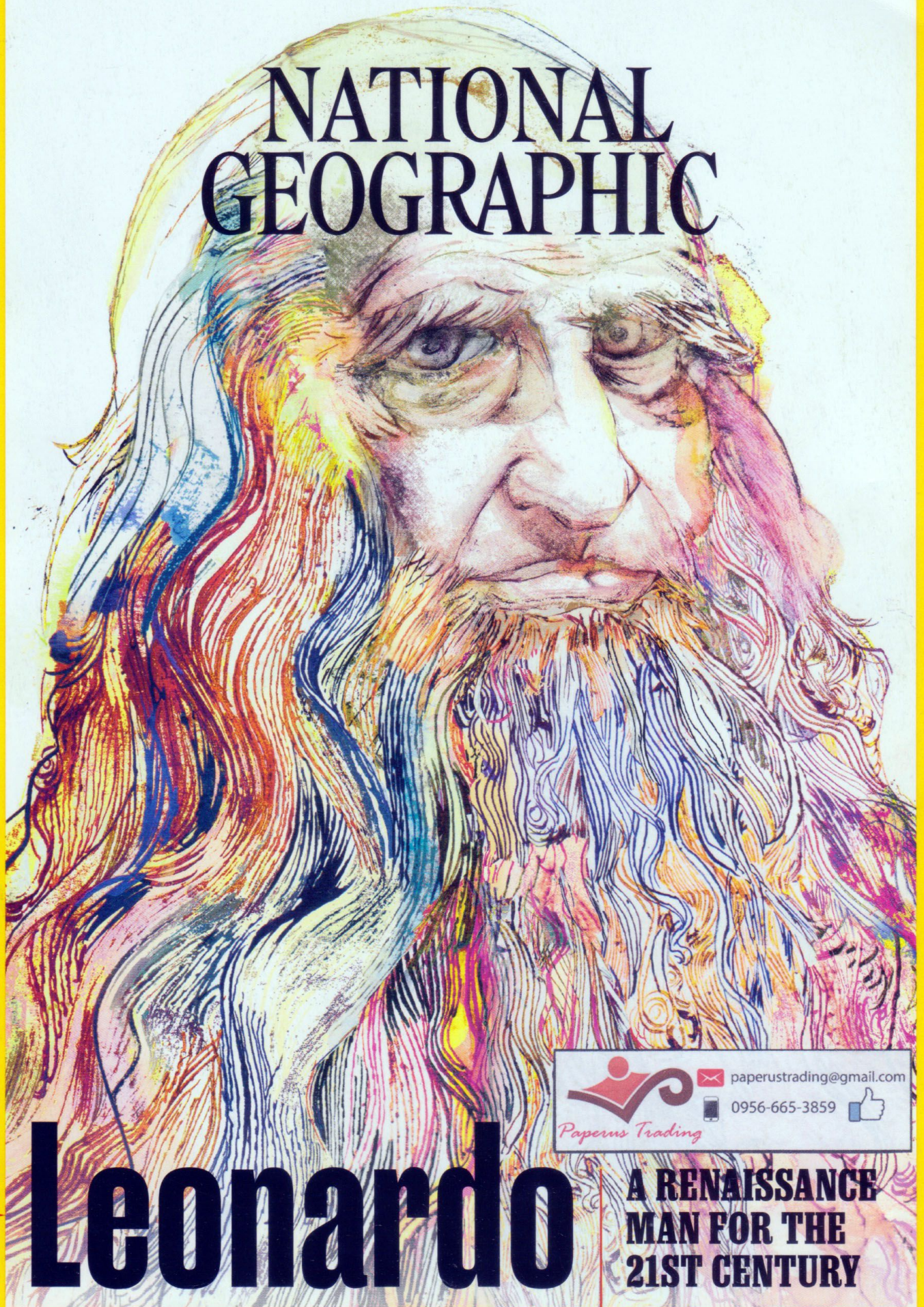


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The 500th anniversary of Leonardo da Vinci's death is bringing renewed attention to his notebooks—and the artistry, curiosity, and genius they contain.

ILLUSTRATION: RICCARDO VECCHIO  
IMPRINTS

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### Modern Girls, Ancient Rite

A village in Spain welcomes spring the same way it has for centuries, by placing a few chosen girls on flowery pedestals.

PHOTOGRAPHS BY  
DANIEL OCHOA DE OLZA

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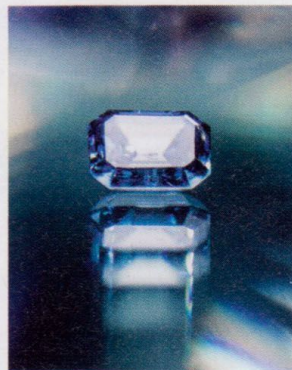
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Plastic waste washes into the oceans at an average rate of about nine million tons a year. Much of it eventually breaks down into barely visible bits—microplastics, which are so abundant that larval fish are eating them in their first days of life.

BY LAURA PARKER  
PHOTOGRAPHS BY  
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### Leonardo's Enduring Brilliance

Five hundred years after his death, Leonardo da Vinci's stunning creativity and foresight in science, the arts, and engineering continue to amaze us—and to inform modern work in the fields he studied so long ago.

BY CLAUDIA KALB  
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# PROOF

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PHOTOGRAPHS BY DANIEL OCHOA DE OLZA  
LOOKING AT THE EARTH FROM EVERY POSSIBLE ANGLE





# MODERN GIRLS, ANCIENT RITE

In May a village in Spain welcomes spring the way it has for centuries, by featuring girls on altars.

VOL. 235 NO. 5



A young girl does her part to celebrate the festival of La Maya, which marks the arrival of spring in Colmenar Viejo, Spain.





# The Future of Dying in Style

WE MEMORIALIZE THE DEAD WITH THE TOOLS OF OUR TIMES. IN THE HIGH-TECH 21ST CENTURY, THERE ARE SOME PRETTY ODD OPTIONS.

BY GLENN McDONALD

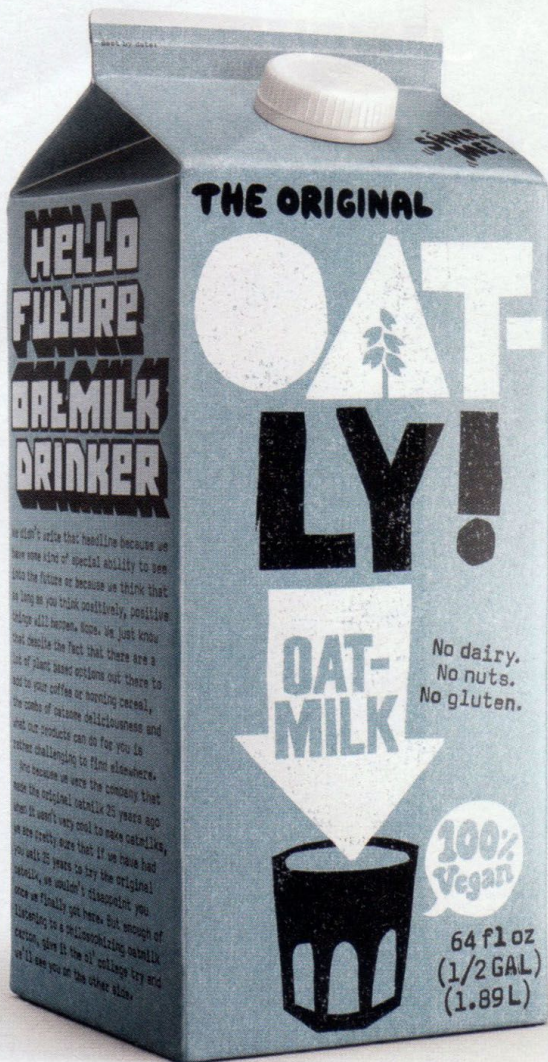
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THROUGHOUT HISTORY, PEOPLE have devised elaborate ways to memorialize the dead: the pyramids of Egypt, Europe's Gothic mausoleums, the Taj Mahal in India. What some mourners consider meaningful, others would call macabre. In 19th-century Europe and America, "death photography" produced portraits of the departed in lifelike poses; in the Tibetan Buddhist rite known as sky burial or *bya gtor* (alms for the birds), earthly remains are set out to feed vultures.

Notions about honoring the dead are shaped by many factors—culture, tradition, geography, religion. But the notion is one thing, and the execution is another. In every era, it's the available technology that determines our range of memorial options.

The intersections of death and technology have long been busy crossroads. In these early years of the 21st century, they're getting really interesting. Because I write about science and technology for a living, I've lingered at these intersections,



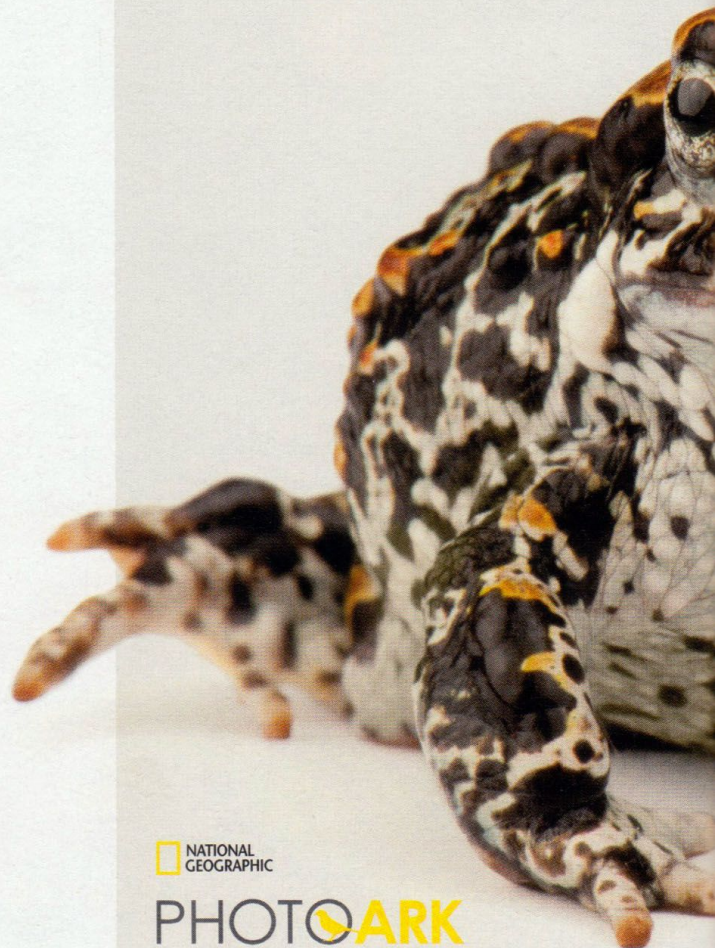


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## TOADS' SEX LIFE HINGES ON FINDING THE PERFECT POOL

**THE MALE YOSEMITE TOAD** (*Anaxyrus canorus*) can mate like mad every year—for about two weeks. Only in late spring. And only in wet meadows, at elevations above 4,800 feet, in California's Sierra Nevada. The male will wait in a pool, trilling. A female drawn by his mating call (*canorus* means “melodious”) will enter the water and submit to his advances—if the pool suits. Toads have precise specifications for where they'll breed and leave their eggs, says U.S. Forest Service ecologist Christina Liang.

For six years Liang and colleagues observed 143 pools across 19 meadows in the toads' range. Toads seek pools that will support life from the



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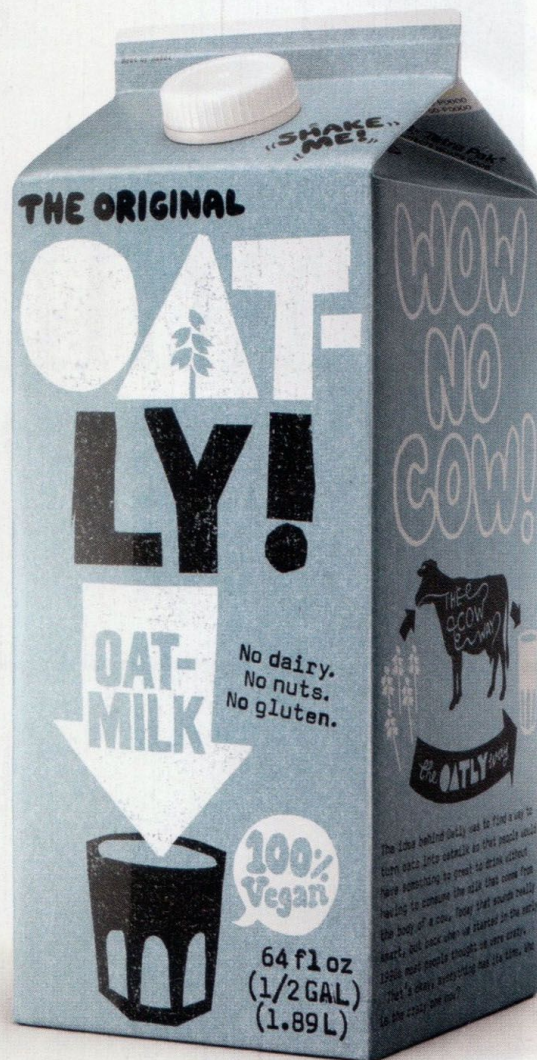
springtime when eggs are laid through late summer when toadlets emerge. By tracking which pools were and were not occupied, researchers found differences in conditions were at times quite small. Toads chose wider pools with more surface area; pools with warmer water (a mean temperature of 76.7°F versus 71.2°F); and pools that were deeper—by only about the diameter of a standard pencil.

To mate, Liang says, the male “clamps onto” the female’s back—but “she has the final say” on where to release eggs and may move around with him attached until she chooses a spot. Once she releases her eggs and he fertilizes them, she’ll leave; he’ll resume calling.

The Yosemite toad is considered endangered, and its numbers are falling. Scientists say the amphibian chytrid fungus is one reason, but climate change also may contribute to some pools drying up before tadpoles mature. The species “is on that knife’s edge,” Liang says, “where these really small changes in environmental conditions can have potentially large effects.” —PATRICIA EDMONDS



THIS TOAD WAS PHOTOGRAPHED AT UC BERKELEY'S MUSEUM OF VERTEBRATE ZOOLOGY. PHOTO: JOEL SARTORE



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