

THEATRE

The needle in Newton's eye

A play about Isaac Newton's self-experimentation illuminates scientific rivalry, finds **Alla Katsnelson**.

Isaac's Eye
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Scientists occasionally conduct experiments on themselves. Among the most famous was Isaac Newton's extraordinary method for probing the nature of colour. He stuck a bodkin, a long sewing needle with a blunt point, into his eye socket, between eye and bone, and recorded seeing coloured circles and other visual phenomena. In his new play, *Isaac's Eye*, Lucas Hnath uses this bizarre experiment to explore scientific rivalry, the nature of truth and knowledge, and how the narratives of science and life congeal.

Isaac's Eye headlines the fifteenth annual First Light festival, a collaboration between the Alfred P. Sloan Foundation and the Ensemble Studio Theatre in New York to fund drama that explores scientific concepts and personalities. Hnath has looked to science for creative fodder since his undergraduate days at New York University. His first such work, which won a Sloan-sponsored writing competition, was a screenplay whose protagonist, computer scientist Adan Turner, finds himself imitating Alan Turing.

Perhaps the real story is in how truth is told and perceived.

"I tend to write characters who try to push some kind of limit — who are trying to experience something that no one has ever before experienced," he says. "Inevitably, you have to deal with science if you go in that direction."

In his new drama, Hnath plays with history, presenting a fictional backstory to the legendary conflict between Newton, when he was still unknown, and the well-respected physicist Robert Hooke. "There's a law named after me," Hooke brags repeatedly throughout the play. In 1665, when the play is set, the plague is ravaging England while an ambitious Newton is being eaten away by the desire to join the Royal Society. Newton writes repeatedly to Hooke — then-Curator of Experiments — demanding that he be considered for membership. Receiving no reply, he sends Hooke a package containing the sole copy of all his writings. When Hooke sees that much of Newton's research treads the same ground as his own, he decides to visit Newton and take him down a peg or three. The fictional encounter shakes up the course of both men's lives, as well as that of Catherine Storer, an apothecary's daughter who may have been a youthful romantic interest of Newton's.

*Alla Katsnelson is a freelance writer living in New York.
e-mail: akatsnelson@gmail.com*

Non-biodegradable products, such as glass bottles and television sets, can be recycled in safe, perpetual cycles, eliminating the need to use anything but recyclable raw materials. These metals, rare elements and approved synthetic materials do not physically degrade, and because they are not discarded will not come into direct contact with the environment.

Leasing and take-back systems (in which the manufacturer recycles the used product) are another way of making upcycling work, partly because they allow the use of higher-quality recyclable material that can take more wear. Companies already lease cars, but carpets — traditionally laden with chemicals such as chlorinated pigments, which persist in the environment and are often toxic — can also have many incarnations. The Dutch carpet manufacturer Desso, based in Waalwijk, makes polyvinyl chloride (PVC)-free carpets that improve air quality, because the patented fibres capture particulate matter from the atmosphere. Desso's take-back system even extends to PVC-free carpets that have been produced by other companies. In recycling, the carpet backing is reused and the yarn is rewoven into new carpets.

Raw materials and energy supplier Van Gansewinkel, headquartered in Eindhoven, the Netherlands, goes one step further. The company helped the Dutch mattress manufacturer Auping to design a take-back system for traditional mattresses as well as their own recyclable products. The steel in the mattresses is melted and reused; the foam is recycled as judo mats. Van Gansewinkel has also developed a continuous loop of high-quality recycling for office paper. It collects used paper from customers, sends it to the paper company Steinbeis in Stuttgart, Germany, for sustainable recycling, and with its partner Océ, based in Venlo, the Netherlands, supplies customers with the 100% recycled paper.

Nature does not respond to interdependence by seeking to minimize itself out of existence, but by growing and flourishing. Similarly, the key to generating a productive and sustainable economy is not through strategies of damage control and minimization, but through nourishing the industrial metabolism. ■

Michael Braungart holds chairs at Rotterdam School of Management and the University of Twente in the Netherlands, and is a founder of EPEA International Environmental Research in Hamburg, Germany. His latest book with William McDonough, *The Upcycle: Beyond Sustainability — Designing for Abundance*, will be published in April. e-mail: braungart@braungart.com