

INNOVATION

The ideas lab

Jascha Hoffman reads about some creative research environments that led to unexpected discoveries.

Biomedical engineer David Edwards is regarded as an innovation guru. His various achievements include bringing to the market new ways to deliver drugs to the lungs, as well as setting up Le Laboratoire, a forward-looking institution in Paris that seeks to harness the creativity of science and art (see *Nature* 449, 789; 2007). His growing empire of labs, galleries and non-profit organizations stretches from Paris to Cape Town to Cambridge, Massachusetts, where he lectures at Harvard University.

His latest book, *The Lab*, calls for a new breed of small, flexible institutions to support interdisciplinary researchers whom Edwards calls “artscientists”. Motivated by curiosity and passion, such researchers make unexpected discoveries that blur the conventional lines between science, business and art. Rather than prescribing the details of how such a lab should function, Edwards offers examples from his own experience: ingenious humanitarian projects, culinary novelties and science-based art installations.

Edwards’s ideal laboratory requires large doses of supervision from experienced innovators. At Harvard, he has mentored undergraduates during their pursuit of ambitious humanitarian projects, including the development of soil-powered lighting for African villages using microbial fuel cells; the invention of a sleek water vessel whose collapsible skin was inspired by the design of living cells; and the creation of a soccer ball that generates electricity when you kick it. He is also on the board of Medicine in Need, an international non-profit organization that is pursuing an inhalable vaccine for tuberculosis.

One can sense the creative zeal when Edwards turns to his work on culinary technology. He describes a series of inventive soirées in Paris where guests were treated to caviar-like ‘flavour beads’ encapsulated in calcium alginate, or martinis that were turned to mist by ultrasound waves from piezoelectric crystals. The most popular of his foodstuff experiments is Le Whif, a form of breathable chocolate developed

with French chef Thierry Marx, inspired by Edwards’s earlier research on inhalable drugs. Delayed by faulty inhalers that spewed cough-inducing clouds of cocoa powder, a working version of Le Whif went on sale this year.

As the curator of Le Laboratoire, Edwards also pairs conceptual artists with open-minded scientists. The results, displayed at his galleries in Paris and Cambridge, Massachusetts, are well intentioned but

often incoherent. He describes in the book how he led Indian artist Shilpa Gupta to collaborate with Harvard psychologist and neuroscientist Mahzarin Banaji on an investigation of the biology of fear, resulting in an installation that required thousands of microphones to be strung from the ceiling.

The puzzling opacity of such works brings to mind the comment of Swiss art curator Hans Ulrich Obrist: “Bringing art to science gives you a good chance of having neither.”

Edwards’s prose can be heavy with jargon and self-promotion. Whereas his previous book *Artscience* (Harvard University Press, 2008; see *Nature* 451, 246; 2008) presented a series of vignettes of researchers working at the edges of their disciplines, the focus on Edwards’s own endeavours in *The Lab* can feel narrow. Yet his enthusiasm is infectious. He comes across as a free-spirited inventor and educator. He is also a pragmatist, conceding that an emphasis on the creative process, and a high tolerance for failure, may make it harder for inventive researchers to achieve financial autonomy.

In these austere times, Edwards takes a firm stance on the importance of the imagination: “If the lab sacrifices the playful, contemplative, daring, irreverent atmosphere of the creative band in order to gain sustainability,” he writes, “the organization may survive, but the lab will cease to exist.” ■

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