

The 'creation' of nearly 100 new hues by scientists studying mice brains is the latest in a long line of colourful lab discoveries

## Brainbow bright



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**B**righter hues are on the horizon.

For the past 150 years, the best colours have been invented by scientists – and they have just done it again.

The whole process started in 1856, when an 18-year-old Brit, William Henry Perkins, was doing a homework assignment in a makeshift lab in his parents' backyard.

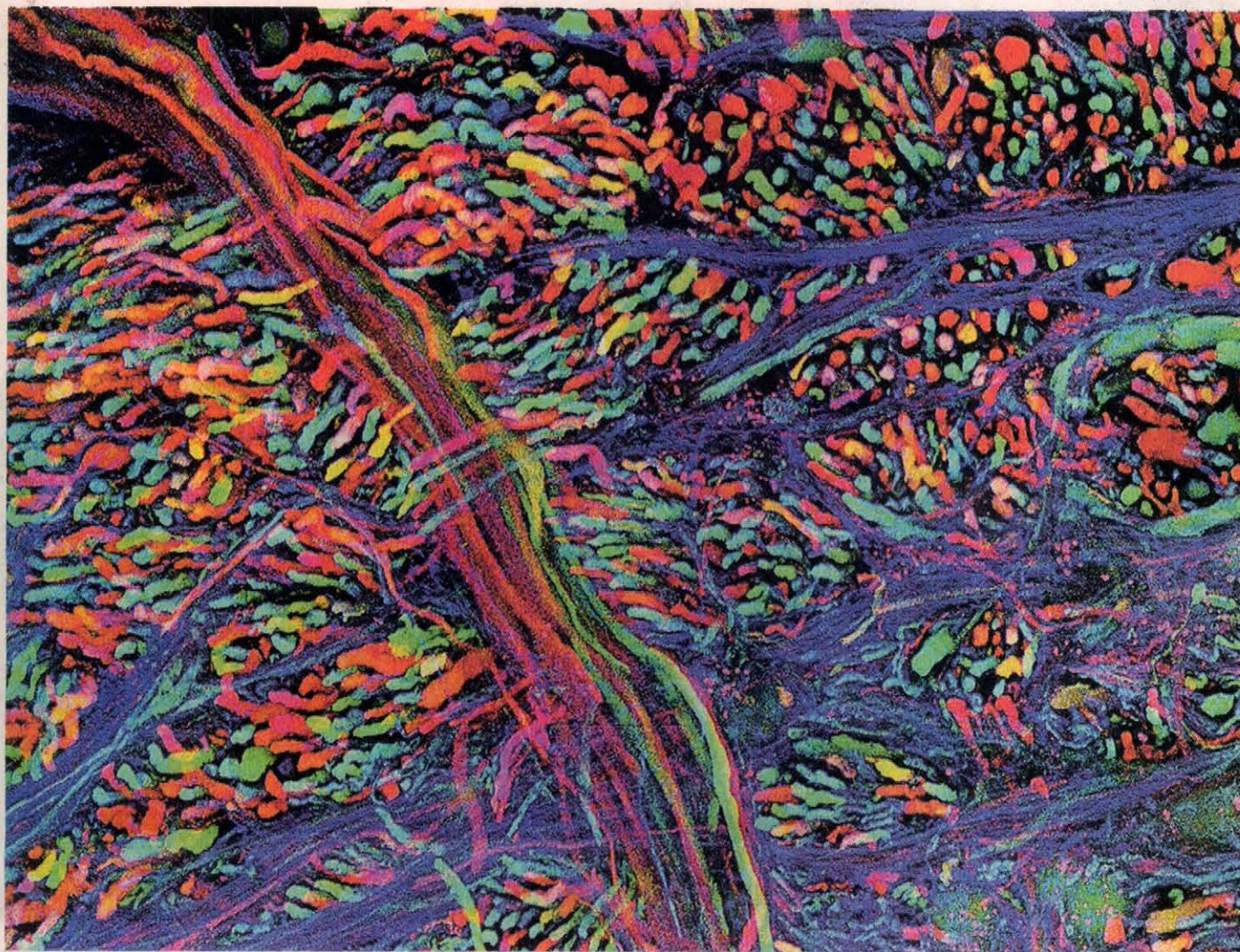
Although Perkins botched the assignment – he was trying to invent a synthetic quinine that could prevent malaria – he inadvertently discovered how to make a brilliant mauve dye.

The appetite for a new mauve was so voracious that creating a new colour became akin to winning the lottery.

In short order, other chemists were clambering to develop a new hue and make their fortunes until Perkins's teacher, August Wilhelm von Hofmann, worked out how to make any imaginable colour using the same basic principles.

These newly abundant and cheap synthetic colours gave the world shades more brilliant than nature's repertoire of pigments and made both the Impressionist art movement and affordable wall colour possible.

Almost a hundred years later, when the same basic ingredients were being used to produce pharmaceuticals, Dr. Albert Hofmann of Switzerland invented a new way of making bright colour when he inadvertently absorbed lysergic acid diethylamide while studying the medicinal properties of the ergot fungus.



This image of a mouse's brain stem was captured through the microscope of Harvard University's Jean Livet. HARVARD/THE ASSOCIATED PRESS

A few years later, lysergic acid diethylamide was synthesized into LSD, which the U.S. Central Intelligence Agency then administered to hundreds of unsuspecting American GIs as part of government tests.

Many of the subjects liked the colourful psychedelic visions it produced so much that the drug spilled out of the lab and onto the streets.

It ultimately became so popular that it was banned even for medical use, but not before the 1960s became the most colourful decade of the 20th

century.

This century's brilliant new colours, meanwhile, are not in the brain; they are the brain. Last November, a team at Harvard University led by Jean Livet and Jeff Lichtman released images that looked like abstract paintings by Gustav Klimt but were actually close-up images of the hippocampus of genetically modified mice, a.k.a. Brainbow mice.

Using genetic tricks to develop fluorescent proteins, the scientists were able to colourize the grey matter in the mice, resulting in the emer-

gence of about 90 new colours. Unfortunately, you need an expensive telescope equipped with a neon light (or a tab of mellow yellow) to see them.

These vibrant neurons, however, are more than simply aesthetically appealing. Just as colour can be a way-finding tool in underground parking garages or the hallways of badly designed buildings, scientists can use this type of colour mapping to find their way around the brain's tangle of neural circuitry and better observe how the parts work

together.

Science and psychedelic colour are also melding in the field of thermal imaging. In November, London's Museum of Science opened Launchpad, a hands-on exhibit incorporating an infrared video camera that records visitors' images using heat instead of light. The hallucinogenic images show colours emanating from all over the body, creating auratic studies in just how "hot" we really are.

This same infrared technology is being used to monitor heat loss in buildings. The

"hot map images" that result have a surrealistic psychedelic beauty. When a company, Hot-mapping, recently shot the British Houses of Parliament and other landmarks in this manner, the red splotches where windows were leaking heat added colour brilliance to chromatic harmonies worthy of a calendar or postcard.

Movies, ads and music videos are also benefiting from technologically enhanced colours. Film colourization, which seemed like such a bad idea when it was used to tart up classic black-and-white movies in the eighties, is now being used to add colour to other colours so skies are bluer and grass is definitely greener.

Toyota, Coca-Cola and American Express are among the companies that have paid \$3,000 a minute or \$300,000 a movie to add chromatic sizzle and increase product appeal.

In theatres right now, director Julie Taymor's latest film, *Across the Universe*, a sixties-era love story with a Beatles-only soundtrack, delivers a particularly enjoyable dose of psychedelia (especially in a scene with U2 front man Bono as Dr. Robert, a counterculture shaman).

When Taymor's crew finished shooting on Rivington Street on Manhattan's Lower East Side, many of the businesses left the brilliant 1960s colours used to brighten up the neighbourhood in place.

Now 102, Dr. Hofmann, the LSD pioneer, may not live to see the drug make its medicinal comeback, but the centenarian said at a conference in Basel two years ago that he sees LSD as the way to rebuild our relationship with ourselves and with nature.

Nature with science's enhanced colorizing, that is. » Janice Lindsay, an interior colour and design consultant, is writing *The Idea of Colour for McClelland & Stewart*. 416-961-6281, www.pinkcolouranddesign.com