

Critical Point Celebrating the mind

Robert P Crease celebrates the profound contributions of the “recreational mathematician” Martin Gardner, who would have turned 100 this October

Martin Gardner (1914–2010) is often called “the best friend mathematics ever had”.

Gardner earned that epithet primarily for the “Mathematical games” column he wrote for *Scientific American* for more than two decades from 1959 to 1981, as well as for his many other popular books and writings (see <http://martin-gardner.org> for a full list). According to the mathematician Colm Mulcahy, who chairs a committee marking the centenary of his birth on 21 October 1914, Gardner “revolutionized how mathematics and rationality were perceived by a sizeable chunk of educated people”.

Mulcahy compares Gardner’s impact to that of Carl Sagan on astronomy, Richard Feynman on physics and Steve Jobs on computers. Gardner indeed developed an immense and loyal following. From the early 1990s onwards, hundreds of followers – not just mathematicians but logicians, magicians, philosophers and puzzle-designers too – have attended a biennial “Gathering for Gardner” (or G4G) to share Gardner’s diverse interests (see July 2008 p20).

Notoriously shy, Gardner did not want a memorial service. So when he died in May 2010, his friends improvised. The previous G4G (the ninth) had taken place just two months earlier, and it felt repetitious to organize a similar event. Instead, Gardner’s followers hatched the idea of hosting a set of events simultaneously in different places on what would have been Gardner’s 96th birthday – 21 October 2010. They called it “Celebration of Mind”.

That October, some 66 events – including five in the UK – were held on six different continents. Some consisted of just three or four people trying games and puzzles in bars, others of meetings of dozens or more in homes, while one Nebraska puzzle company hosted more than a thousand people. The celebration was so successful that it was held again the following year, when numbers increased to 70, and spread to seven continents, including scientists at McMurdo Station in Antarctica.

In 2012 the mathematician-songwriter Vi Hart created four videos about “hexaflexagons” – the folding paper models to which Gardner had devoted his first col-



Mind the fun Lovers of maths and puzzles gather all over the world to share the work of Martin Gardner.

umn. The 26-year-old Hart, sometimes called “today’s Martin Gardner”, has a strong youth following, thanks to her engaging videos (www.youtube.com/user/Vihart). The hexaflexagon videos went viral, attracting millions of hits and promoting that year’s celebration, which had 156 events worldwide.

This year will see the usual commemorative markings expected at a centennial: an article about Gardner in *Scientific American*, tributes in magazines and websites devoted to mathematics, magic and puzzles, a possible Google Doodle (a daily variant of the search engine’s logo) on 21 October, and so forth. But Gardner’s real spirit lives in the Celebration events (www.celebrationofmind.org).

Inner secrets

Gardner’s secret was to allow non-mathematicians to experience the pleasure of mathematics by getting them to actually do it by solving problems, rather than by being told the right answers. He enticed people by interweaving frivolity and seriousness. “The frivolity keeps the reader alert,” Gardner wrote in *Mathematical Carnival* (1975), his seventh collection of columns. “The seriousness makes the play worthwhile.”

While mathematicians claim Gardner as their own (though his most advanced degree, a BA, was in philosophy), many of his writings are about physics. These include a book on relativity and a “Trick of the Week” feature that ran in *The Physics Teacher* from 1990 to 2002. In *Mathematical Carnival*, for example, Gardner asked what would happen if a doughnut-shaped piece of solid iron were heated – would the

diameter of its hole get larger or smaller? Elsewhere in the same book, he asked readers to imagine what would happen if a child, sitting in the back seat of a car with all windows closed and vents off, were holding a helium balloon floating at the end of a string. “When the car accelerates forward,” Gardner asked, “does the balloon stay where it is, move backward, or move forward? How does it behave when the car rounds a curve?”

The answer to this question – no, I’m not going to tell you, that’s the point – is surprising, and I was shocked when I saw it happen. John Railing, a magician and Celebration organizer, told me he tried it recently while driving his young daughter to a birthday party. After dropping her off, he mentioned it to the other parents, and for a few minutes was thrilled to hear all the adults at the party talking physics. “It’s a shame you can Google this nowadays and find that people have posted videos,” Railing says.

Googling it is not the Gardner way. The Gardner way is to ignite your fascination so that you experience the pleasure of finding the answer yourself. Ultimately, the fascination of balloon behaviour in cars is more visceral even than the cerebral attractions of the twin paradoxes of relativity and the Alice and Bob entanglements of quantum mechanics.

The critical point

A few weeks ago, a major publisher sent me a message promoting a textbook on “scientific rationality”. This appeared to mean a formal set of rules governing the operation of an abstract and universal “mind” that could “think from nowhere” about a range of areas. Learning to practise science, the author seemed to think, was a matter of acquiring a method in a classroom, then going out in the world to apply it.

That’s a hoax – a fake picture of science hundreds of years old – that I’d never inflict on students. They’d learn more about science from a “Celebration of Mind” event, where they’d experience themselves in the act of encountering a real puzzle of a specific sort at a specific time. That teaches more about how scientists actually practise their craft than formalized rules ever could.

Martin Gardner, who knew that very well, was also one of the best friends physics ever had.

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