

Editorial

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In the 1990's, six MIT students took millions of dollars off a Vegas casino using a system they had developed. It certainly pays to have knowledge! For most people, knowledge of probability theory is confined to the utterly obvious fact that heads and tails are equally likely appearances for a tossed coin. Obvious? Far from it. A tossed coin is more likely to land with the same face on top! If the thrown coin spins perfectly around a horizontal axis through the center, it would not be biased, but such precision is not humanly possible. Every other toss is biased. In a normal toss, the coin spins around a slanted axis, and a recent study has shown that the coin will land with the same face on top about 51 percent of the time. Persi Diaconis, a distinguished statistician from Stanford University says that it would take some 10,000 tosses before a casual observer becomes aware of such a small bias, which is why it has not been noticed before. Hisashi Abe showed that one can use origami to trisect any acute angle rather easily even though Galois theory shows there are angles which cannot be trisected using only a ruler and a compass. The 19th century engineer Franz Reuleaux demonstrated how to use triangles to construct curves of constant width which could drill (almost) square holes!

That non-conformism may often prove advantageous in the sciences is well-documented. A non-conformist was Ruchi Ram Sahni, who was ostracized by his community for adopting the Brahma Samaj. This issue of *Resonance* features his son, the palaeobotanist and geologist Birbal Sahni and, in a smaller measure, Ruchi Ram Sahni. The father was a self-educated scientist who went on to become one of the first educationists in the country. Birbal Sahni was born exactly two years after Jawaharlal Nehru and shared a common period of study at Cambridge, England. Birbal Sahni was a founder member of the Indian Academy of Sciences. It is befitting that *Resonance* features this exceptional teacher, outstanding institution-builder and scientist supreme.



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