

editorial

Einstein: Things and Thinkers

In this special issue we celebrate our good fortune that this century produced an Einstein. What clues to the origins of his uniqueness can we decipher from his life?

To his good neighbor and friend next door, Eric Rogers (famed for his physics demonstrations at Princeton) gave a special physics toy for a present every Christmas. Albert Einstein never received one with greater delight than he found in the “upside-down plumber’s helper.” Holding the broomstick handle upright, with the rubber cup attached atop it, one was confronted with the task to get into it a ping-pong ball hanging out over the lip of the cup, held only by a thin rubber thread, running back into the cup’s center. Wiggle the supporting stick as one would, one found that the ball insisted on staying out—or, if it went in, flew out again. Einstein knew better. Holding the stick high in the air he released it to fall freely. Gravitation disappeared. The thin rubber thread faced no competition. It drew the ball into the cup; it stayed there. When the falling plumber’s helper was finally caught Einstein’s principle of equivalence had won again.

It took more than Einstein to make Einstein. It took things and thinkers.

From 23 June 1902 to 6 July 1909 Einstein worked at the Patent Office in Bern. Patent applications of the greatest variety came over his desk and with them models. In distilling out of each the central point and putting it down in words on paper, Einstein confessed that he learned more from his boss than from his own father. Let someone come up with a better way than this to give the young person of our time the sense of what physics is and how it works! With such a sharpening of his natural faculties it is no wonder that Einstein always delighted in the machinery of the physical world, from the action of a compass needle to the meandering of a river and from the perversities of a gyroscope to the drive of Flettner’s rotor ship. That unique experience with things and how they work joined forces in him with a love of studying or discussing with the great thinkers.

No one could speak to Einstein without feeling that Maxwell and Maxwell’s struggles and Maxwell’s great words lived in his mind; and not only Maxwell but an entire travelling intracranial cast of daily colleagues: Leibniz, Newton, Mach, Boltzmann, Ehrenfest, Planck and Bohr.

Nothing contributed more to his sense of the goal than his philosophical capital. He had made the great thinkers a part of himself. Nothing did more to help him find his way through to the goal than long practice in extracting the simple central point out of apparently complex devices.

Einstein’s sun was the great tradition of the great thinkers. His moon and stars were the happy mysteries hidden in things.

To our aspiring young friend who wants to be another Einstein, we have to say that it would take more than genetic cloning, an old sweater and unruly hair. First, arrange to be brought up in the country having the greatest scholarship of your time. Second, train at a university unsurpassed in science. Third, fall in love with great figures of science and philosophy, their ideas, their dreams, and their hopes. Fourth, belong from age 13 to a family-like community that expects you to be personally responsible for thought in your field. As you succeed, let that community fasten on you—by relieving you of certain duties—still more responsibility, not only for your field, but also for the higher welfare of the larger community. Fifth, for seven years face each morning your quota of patent applications and accompanying “working” models of the most fantastic variety, instructed by a demanding boss to explain for each in a clear, crisp sentence or two why it will work or why it won’t, why the application should be granted or denied. Finally, arrange for the physics of your time to be rich in unexpected findings. These conditions granted, you have a chance to be an Einstein.

JOHN ARCHIBALD WHEELER
The University of Texas at Austin