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belief system” is an overstatement, as he doesn’t really get excited by anything more than a packet of crisps. Better to say he sits back confident in his own faith and looks down on those whom he feels simply can’t understand. Most of the ‘artists’ appearing in the book are

women, another area of his life that seems to lead Beard into trouble. Despite past form for being “coaxed into indiscretion,” he decides to present his interpretation of the gender disparity in physics to a horde of tabloid journalists, eager to find any ammunition to attack the Labour

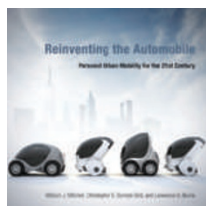
government, no matter how vague the connection. In Beard’s opinion, although the physics community has a responsibility to encourage girls to study the subject, a disparity might always exist owing to the fact that more men inherently want to get involved. This goes down very badly with a fellow panel member, and a very English scandal ensues.

So has McEwan managed to pull off the integration of science and art? The point at which a physics simile goes too far is down to a matter of personal taste: “a yearning for what could not be had outside theoretical physics — time reversal,” will probably be close to the boundary for many people. But in general, *Solar* is a thought-provoking read. It is probably impossible for a scientist not to try to spot faults and inconsistencies whenever their field of research is invoked in the media. But to me, this is part of the fun, and McEwan makes it a worthy challenge. □

REVIEWED BY DAVID GEVAUX

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Quo vadis, motor car?



**Reinventing the Automobile:
Personal Urban
Mobility for the
21st Century**

by William J. Mitchell, Christopher E. Borroni-Bird and Lawrence D. Burns

MIT PRESS: 2010. 240 PP. \$21.95/£16.95

The sensation of the 1953 Turin Auto Show was a vehicle with an engine of just less than 10 horsepower.

The Italian engineer and entrepreneur Renzo Rivolta had decided that his company, Iso, should design and produce a car adapted to the needs of post-war Europe. The Isetta — ‘the little Iso’ — was small and simple, had room for two passengers and was affordable.

Before long, licences to build the tiny car were sold to Belgium, France, Spain, Brazil and, most importantly perhaps, Germany, where the BMW Isetta was a sweeping success — more than 160,000 of BMW’s version of the ‘bubble car’ were built between 1955 and 1962. The vehicle,

together with other ‘microcars’ of the day, became a symbol of Europe’s economic recovery after the war and of individual freedom regained. But with increasing prosperity, the microcars eventually disappeared from the streets, to be replaced by bigger, more powerful and more comfortable models.

The twenty-first century presents new transport challenges, different from those of post-war Europe, but no lesser. Reducing both pollution and our dependence on fossil fuels are high on today’s political agenda. Our concept of personal transport — which has barely changed since the days of the Isetta — is on the verge of collapse, as witnessed by anyone who lives in an urban area (and today that is more than half of the Earth’s population; by 2030 it could be 80%).

In *Reinventing the Automobile*, William Mitchell, Christopher Borroni-Bird and Lawrence Burns present their vision of how personal mobility might develop through this century. Their proposal is based on four ‘big ideas’: first, change the basic design of cars to electrically powered vehicles that interact wirelessly with each other and with roadway infrastructure; second, create a ‘Mobility

Internet’ that allows cars to share real-time and location-specific information about traffic and road conditions; third, set up a ‘smart’ utility grid to supply the cars with electricity; and fourth, develop dynamical pricing systems for power, parking, and road and vehicle use.

None of these ideas are, in themselves, surprising. But the wealth of information compiled in *Reinventing the Automobile* makes the book an arresting read and a valuable resource. The breadth of the discussion — from different angles, with the support of many graphs, images and tables — leaves a deep impression of how we might get around in the future. The focus, however, is exclusively on urban mobility, as the subtitle of the book makes clear. The situation outside cities is untouched.

The big question, of course, will be whether it is possible to realize these ideas in practice. A broad awareness of the problems ahead is needed, but also genuine willingness to tackle them, not least through each of us evaluating our own needs and degree of flexibility. How much are we willing to change our routines? Just how big a car do we really need? □

REVIEWED BY ANDREAS TRABESINGER