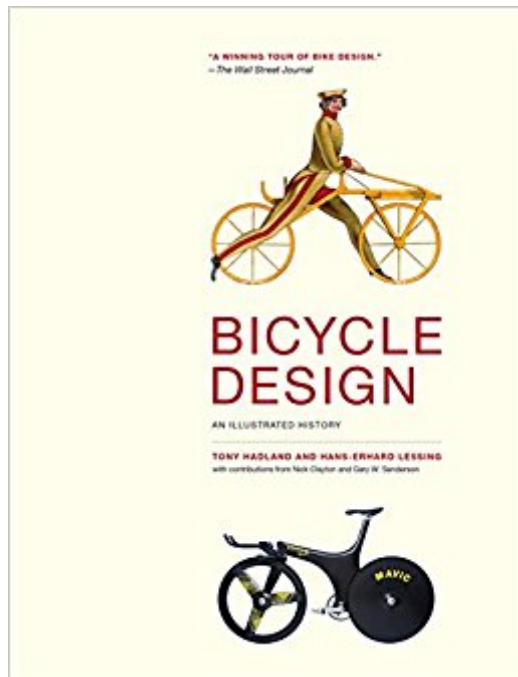




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# Bicycle Design: An Illustrated History (MIT Press)



## Synopsis

The bicycle ranks as one of the most enduring, most widely used vehicles in the world, with more than a billion produced during almost two hundred years of cycling history. This book offers an authoritative and comprehensive account of the bicycle's technical and historical evolution, from the earliest velocipedes (invented to fill the need for horseless transport during a shortage of oats) to modern racing bikes, mountain bikes, and recumbents. It traces the bicycle's development in terms of materials, ergonomics, and vehicle physics, as carried out by inventors, entrepreneurs, and manufacturers. Written by two leading bicycle historians and generously illustrated with historic drawings, designs, and photographs, *Bicycle Design* describes the key stages in the evolution of the bicycle, beginning with the counterintuitive idea of balancing on two wheels in line, through the development of tension-spoked wheels, indirect drives (employing levers, pulleys, chains, and chainwheels), and pneumatic tires. The authors examine the further development of the bicycle for such specific purposes as racing, portability, and all-terrain use; and they describe the evolution of bicycle components including seats, transmission, brakes, lights (at first candle-based), and carriers (racks, panniers, saddlebags, child seats, and sidecars). They consider not only commercially successful designs but also commercial failures that pointed the way to future technological developments. And they debunk some myths about bicycles -- for example, the mistaken but often-cited idea that Leonardo sketched a chain-drive bike in his notebooks. Despite the bicycle's long history and mass appeal, its technological history has been neglected. This volume, with its engaging and wide-ranging coverage, fills that gap. It will be the starting point for all future histories of the bicycle.

## Book Information

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## Customer Reviews

The serendipitous pairing up of two of the world's leading experts on the history of cycling technology has resulted in this definitive book on bicycle design. This is a remarkably complete account of the numerous technical problems encountered over the past two centuries, and of the ways different generations of mechanics and constructors have chosen to solve these problems. (Glen Norcliffe, Professor Emeritus and Senior Scholar at York University, author of *The Ride to Modernity: The Bicycle in Canada, 1869-1900*) The authors have given a far fuller and far more authoritative history of bicycles than has been accomplished previously. They have also laid to rest the many myths that have grown up in many so-called histories. The book is more comprehensive and more accurate than the several good histories of bicycles that have been produced in the last forty years. (David Gordon Wilson, Professor Emeritus of Mechanical Engineering at MIT, author of *Bicycling Science*) This is a uniquely comprehensive and carefully researched history of bicycle design written from an international perspective and abundantly illustrated. It stretches from the bicycle's pre-industrial origins to present innovations, covering features from brakes to the child seat. The seeming simplicity of the bicycle turns out to be the result of a long and complex history, which continues today. The bicycle -- presented in this book as the high-tech of the 19th century -- is now on the way to becoming the pioneer vehicle of the environmental age. In *Bicycle Design*, the development of this small human-powered machine is becoming big history. (Joachim Radkau, Professor of Modern History, Bielefeld University) Working from a simple but clever design, a bicycle is a machine that is altogether light and steady, singular and versatile. It is introduced in a masterly way through this scholarly and exhaustive work. Hold on tight to the handlebars, as *Bicycle Design* provides a ride through the Wheel of Time. (André Guilherme, Professeur de l'Histoire des Techniques, Conservatoire National des Arts et Métiers)... a winning tour of bike design. (The Wall Street Journal)... visually engaging. (The Los Angeles Times)... definitive book on the subject. (London Review of Books) *Bicycle Design* is the authoritative one-volume reference on cycling history and cannot be recommended highly enough. (Carlton Reid BikeBiz) Destined to become the definitive record of our wonderful wheels. (Mike Burrows Cycle)

Tony Hadland is the author of *Raleigh: Past and Presence of an Iconic Brand* and other books. He

is based in Oxfordshire, U.K. Hans-Erhard Lessing, formerly Professor of Physics at the University of Ulm and curator at Technoseum Mannheim and ZKM Karlsruhe, has written biographies of Karl Drais and Robert Bosch as well as books on bicycle history books published in Germany.

This is a beautiful book, printed in the USA on high-quality paper. Filled with interesting and through-provoking information and illustrations, almost every aspect of the bicycle's evolution is addressed. The text is often formulaic, essentially listing who submitted a patent for what and then subsequent iterations that followed; but realistically, how much exciting prose can one generate about the evolution of handlebar stems? My one complaint is the complete lack of attention given to bottom brackets and headsets. This is very puzzling given that these two vital components have undergone several design changes in my short lifetime alone. Cranks similarly are missing, despite a range of materials, spider configurations, and spindle interfaces. All in all, an interesting read!

Interesting read, with good descriptions of many of the mechanisms they talk about (not an easy task, but essential for a book about designs). It wasn't a book that I would want to read in a few sittings, but great for 30 minutes here and there. You can easily just read the chapters you are interested in, wherever they are in the book, and not miss important knowledge mentioned previously. Where topics overlap the authors will refer you to other relevant chapters.

This was a gift for a bicycle enthusiast. He found it very comprehensive and enjoyable to read.

Good book. Arrived on time.

Fascinating history

When two of the most knowledgeable and thorough researchers of cycling history work together to write a comprehensive guide of this type, we can expect an excellent result. And, in this book, *Bicycle Design*, we are not disappointed. The book covers the whole of the cycle history of the last two hundred years and is impeccably referenced and cited with a good general index. It covers not only the development of the basic design but of the types of materials used, manufacturing methods and also the progress of components and ancillary parts as well. Given that the history of the bicycle has acquired a whole miasma of myth, legend and downright deceit from its birth and throughout its development, an important part of the book is necessarily given over to,

yet again, debunking those fairy tales. Sadly this is still a necessary task. This is an essential handbook and reference work for anyone who wants to study or simply to understand the history and progress of the world's most numerous vehicle from its primitive beginnings nearly two centuries ago right up to the present day.

An amazingly detailed book, perhaps too much detail for a weekend rider like myself. However, there are lots of photographs and illustrations which make it easy to look through the book (all 564 pages including references and index). The contents are as follows: (1) velocipedes and their forerunners; (2) front drive; (3) wire wheels; (4) indirect drive; (5) the safety bicycle; (6) comfort; (7) improving transmission; (8) braking; (9) saddles, pedals, and handlebars; (10) lighting; (11) luggage; (12) racing bicycles; (13) military bicycles; (14) mountain bikes; (15) small wheeled bicycles; (16) recumbent bicycles; and 4 appendices. I enjoyed the insights on how bicycle organizations restricted the development of the bicycle over time. I remember when I began trying to ride on the streets in the 1960's, there were no robust bikes with puncture-resistant tires and gears for hills. It took the development of mountain bikes in the 1970's and 1980's to lead to new designs.

The book went into great detail about the history of nearly every technical aspect of bicycles. When the detail started to slow me down, I skimmed for the main points. I especially enjoyed learning about the reasons for the design of the penny-farthing bicycle. It had always mystified me why it had such a ridiculously large front wheel. Now I understand why. This led to some pleasant extracurricular viewing of YouTube videos about the penny-farthing in action.

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