

the  
DESIGN  
MUSEUM

**BICYCLES**  
THAT CHANGED  
THE WORLD

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# VELOCIPEDE

c.1863

Pierre Michaux /  
Pierre Lallement

The next major step in the evolution of the bicycle came with the introduction of mechanical propulsion. Prior to this, bicycles were usually pushed along by the rider's feet using a motion similar to running. There is some dispute as to who was responsible for first introducing pedals, with two different Parisian metalworkers both having valid claims on the invention. Around 1863 both Pierre Michaux (1813–83) and Pierre Lallement (1843–91) began manufacturing designs with rotary cranks and foot pedals attached to the front wheel hub.

Other experiments in mechanical propulsion included foot-operated treadles, which were similar to the foot panels used to drive looms and sewing machines. However, these solutions were never particularly practical and it wasn't until the late 1860s that bicycles using pedals similar to ones we recognize today were in widespread use. These came to be known as velocipedes – from the Latin for 'fast foot'.

While these designs did allow for greater speeds to be achieved, they were not without their problems. Pedals attached to the front hub made it very difficult to steer and pedal simultaneously and the poor ride quality gave rise to the nickname 'bone shaker'. As the velocipedes improved, and cyclists became more aware of their capabilities, cycling clubs started to form and the first organized races were held.

A typical image of a cyclist on a velocipede or 'bone shaker' bicycle, widely used throughout the 1840s and 1850s. This type of bicycle earned its moniker through the use of solid wood or metal wheels.



# RALEIGH ENGLISH ROADSTER WITH STURMEY-ARCHER AW 3-SPEED HUB

1930–40

The Raleigh Bicycle Company is one of cycling's oldest and best-known brands. It was founded in 1887 after businessman Frank Bowden (1848–1921) bought a new bicycle having received advice from his doctor to exercise more. Bowden was so impressed by his purchase that he returned to the small bicycle workshop, in Raleigh Street, Nottingham, England, bought the business and began to expand. In little more than seven years the company had moved to a new, 3-hectare (7-acre) site and become the largest bicycle manufacturer in the world.

Of all the models manufactured by Raleigh, the classic English Roadsters of the 1930s have left the greatest legacy. Featuring a new type of gearing system, the bicycles sold more than a million units and are still popular in Asia, Africa and parts of Europe. Built by Sturmey-Archer, another Nottingham company acquired by Bowden, the rear-wheel internal-gear hub allowed the cyclist to select a gear using a lever mounted to the handlebar. The Sturmey-Archer AW 3-speed hub was the most successful of these systems. While the hub was a complicated piece of engineering comprised of tiny components, it performed well with a long and largely maintenance-free lifespan. Still in production today, the Sturmey-Archer hub became one of the cornerstones of Raleigh's success.

Two posters from the 1930s vaunt the innovations of the Sturmey-Archer bicycle. Here was a bike, it seems, that could be ridden even by the unhealthy!



# KUWAHARA *E.T.* MODEL BMX

1982

BMX, or bicycle motocross, began in the 1970s when, inspired by the popular motocross stars of the day, a group of friends started to organize dirt-track bicycle races in California. While they started out using standard wheelie bikes, such as Schwinn Stingrays and Raleigh Choppers, these were soon customized for better performance. By the end of the decade the sport had captured the imagination of children all over the United States, and purpose-built tracks and bikes soon followed.

As well as dirt-track racing, other BMX disciplines began to emerge, the most famous of which is freestyle. Often described as BMX stunt riding, freestyle was pioneered by Bob Haro (1957–) in the mid-1970s when he and his friends began riding their bicycles through the concrete reservoir channels in San Diego, California. Gaining in popularity, freestyling soon spread to skateparks and on to the city streets. Riders like Bob Haro became well-known stars, performing tricks at public demonstrations and competitions, and designing their own bikes.

Although already popular in the States, and to a lesser extent in Europe, BMX received a huge boost in 1982 when film director Steven Spielberg spotted children BMXing in the streets and asked Bob Haro to perform the stunts in *E.T.* The worldwide success of *E.T.* helped popularize BMX and was responsible for inspiring an entire generation of children.

The appearance of BMX bikes in *E.T.* played a major role in encouraging children to take up the sport. Many of today's most famous cyclists, such as Sir Chris Hoy, the most successful Olympic cyclist of all time, first took up the sport after watching *E.T.*

