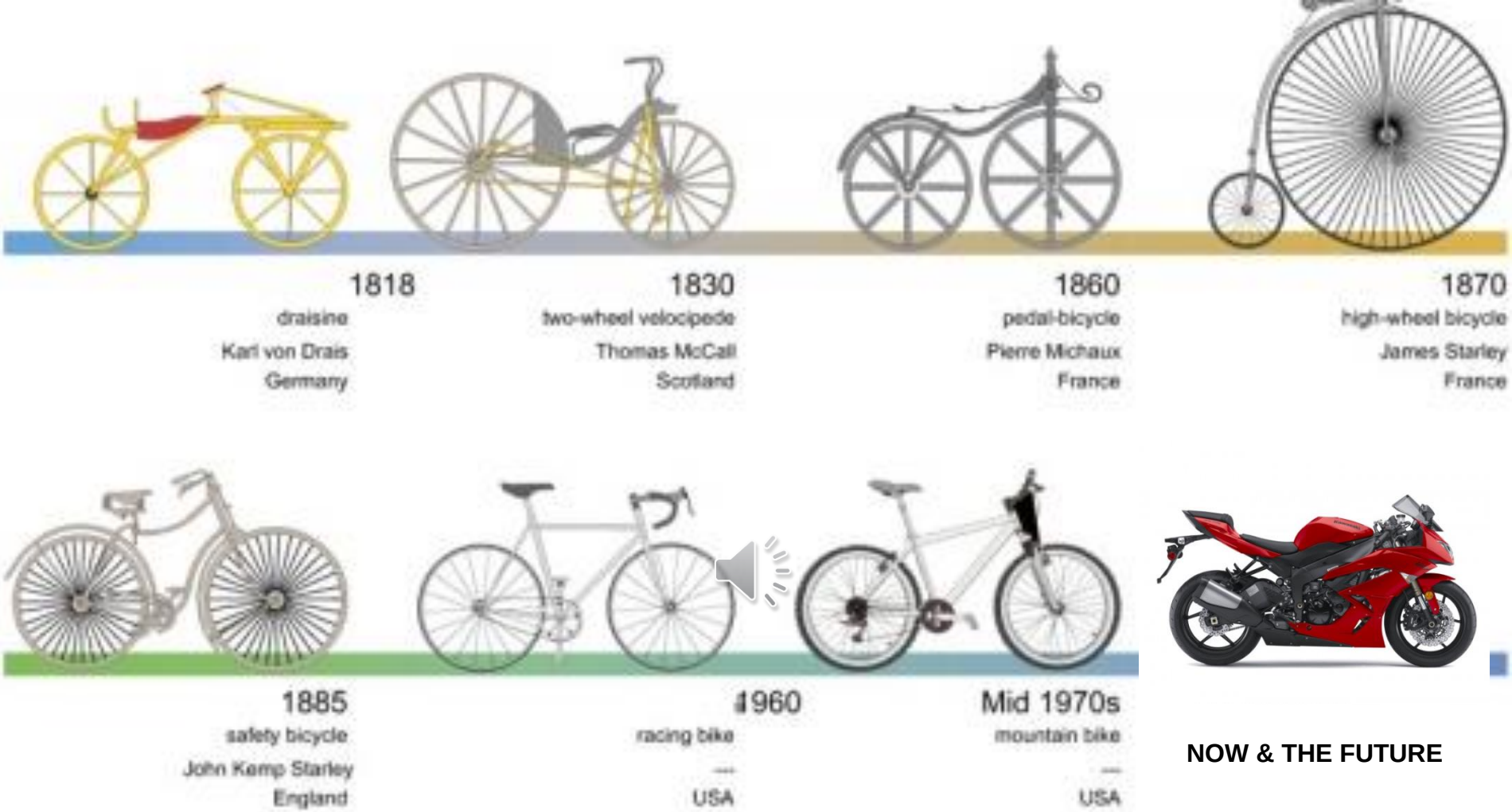


NOW & THE FUTURE

THE HISTORY OF THE WHEEL AND BICYCLES

COMPILED BY HOWIE BAUM

OUT OF THE 3 BEST INVENTIONS IN HISTORY, ONE OF THEM IS THE WHEEL !!

TOP 3 INVENTIONS

World Wide Web

Sir Tim Berners-Lee invented the World Wide Web in 1989, 20 years after the first connection was established over what is today known as the Internet. Interestingly, Lee's initial proposal for the Web was rejected by CERN

Printing Press

Johannes Gutenberg, a German blacksmith and publisher, invented mechanical movable type printing in 1439, laying the material basis for the spread of learning to the masses

Wheel

The wheel was invented at a relatively late point in the development of human civilisation, in the Bronze Age around 3500 B.C. By this time, humans were already herding domesticated animals and had social hierarchy

Evidence indicates the wheel was created to serve as potter's wheels around 4300 – 4000 BCE in Mesopotamia.

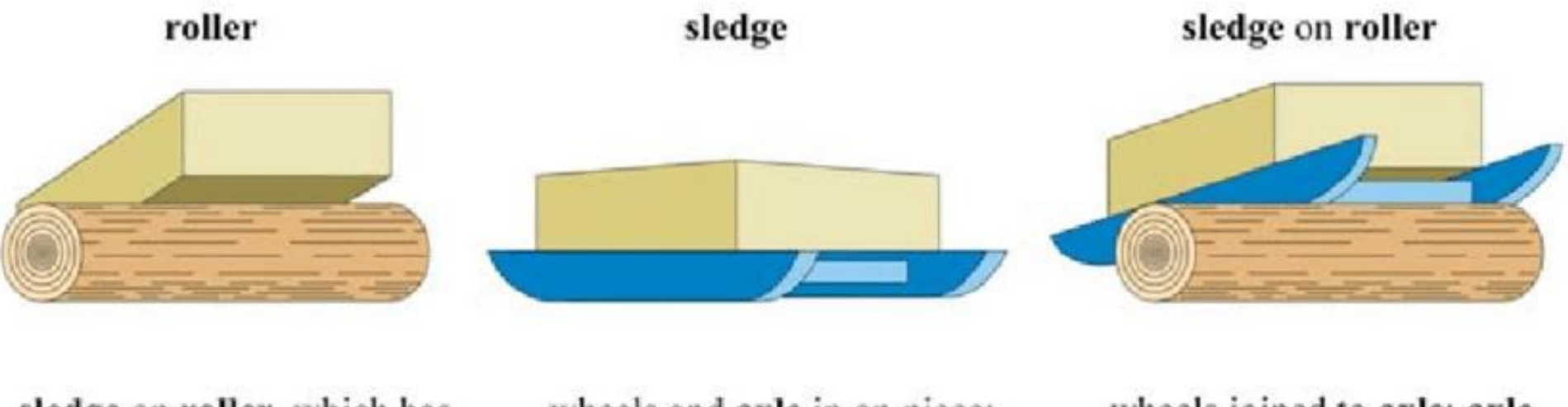
This was 300 years before they were used for chariots. (Jim Vecchi / Corbis)

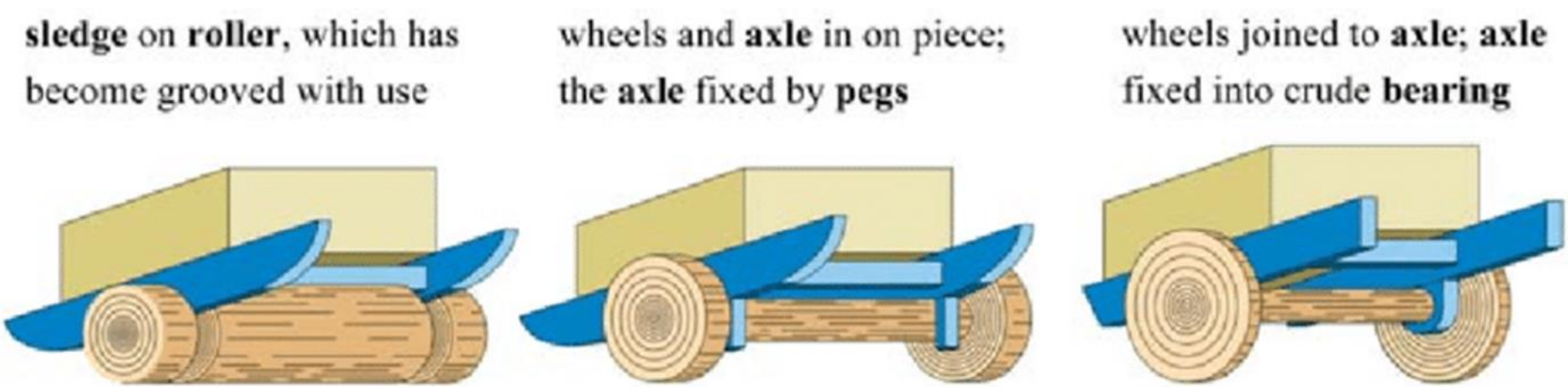
METHODS TO MOVE HEAVY OBJECTS BEFORE THE WHEEL WAS INVENTED

Heavy objects could be moved easier if something round, like a log was placed under it and the object rolled over it.

The Sledge

Logs or sticks were placed under an object and used to drag the heavy object, like a sled and a wedge put together.





Log Roller
Later, humans thought to use the round logs and a sledge together.

Humans used several logs or rollers in a row, dragging the sledge over one roller to the next.

Inventing a Primitive Axle

With time, the sledges started to wear grooves into the rollers and humans noticed that the grooved rollers actually worked better, carrying the object further.

The log roller was becoming a wheel, humans cut away the wood between the two inner grooves to create what is called an axle.

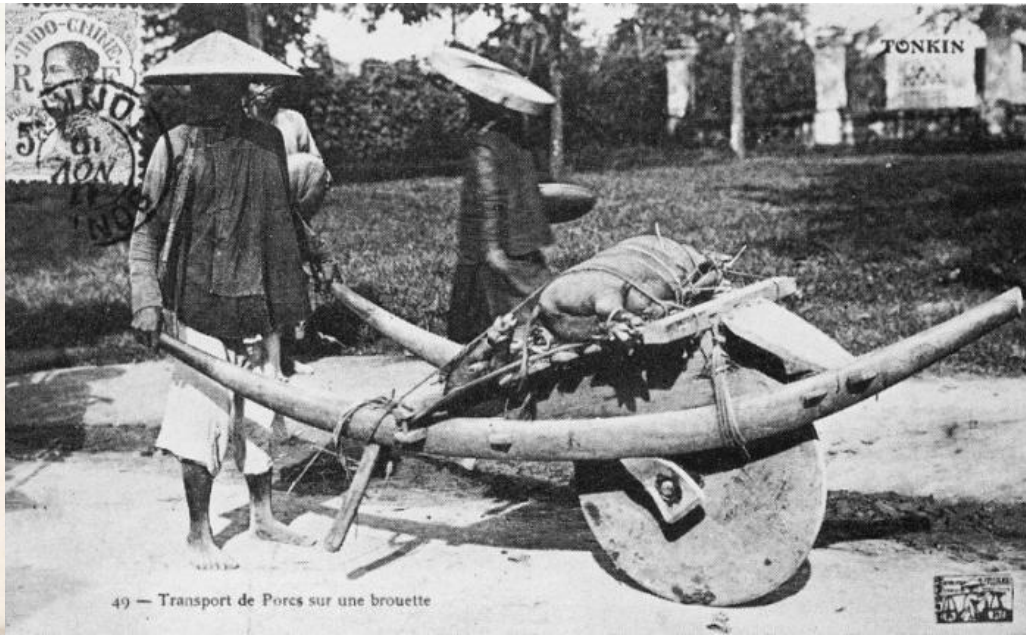
THE ANCIENT GREEKS INVENTED WESTERN PHILOSOPHY…AND THE WHEELBARROW

CHINA FOLLOWED 400 YEARS AFTERWARDS

The wheelbarrow first appeared in Greece, between the 6th and 4th centuries BCE.

It was found in China 400 years later and then ended up in medieval Europe.

Although wheelbarrows were expensive to purchase, they could pay for themselves in just 3 or 4 days in terms of labor savings.


TONKIN
49 — Transport de Porcs sur une brouette

SPOKED WHEELS

The spoked wheel was invented around 2000 BCE in Anatolia (Turkey).

Spokes made the wheels lighter giving the people an upper hand in warfare.

Spoked wheels have been found in graves that date back as late as 2100-1800 BCE.

4 FEET, 8.5 INCHES

What is the significance of this distance ?

The US standard railroad gauge (width between two rails) is 4 feet 8.5 inches.

That’s a very odd number.

Why was that distance used?

Because that’s the way they built the Railroad engines and train cars in England and the US railroads were built by English expatriates.

WHY DID THE ENGLISH BUILD THEM LIKE THAT?

NOTICE AND REMEMBER THAT BEFORE, ELECTRICITY, 2 HORSES WERE USED TO PULL THE TRAM CARS.

Because the first rail lines were built by the same people who built the pre-railroad tramways, and that's the gauge they used.

A tram (in North America streetcar or trolley) is a rail vehicle that runs on tramway tracks in public urban streets.

The lines or networks operated by tramcars as public transport are called tramways.

WHY DID THEY USE THAT GAUGE THEN?

Because the people who built the tramways used the same jigs and tools that they used for building wagons which used that wheel spacing.

WHY DID THE WAGONS HAVE THAT ODD WHEEL SPACING?

Well, if they tried to use any other spacing, the wagon wheels would break on some of the old, long distance roads in England, because that's the spacing of the wheel ruts.

SO, WHO BUILT THOSE OLD RUTTED ROADS?

Imperial Rome built the first long distance roads in Europe (and England) for their legions.

The roads have been used ever since.

And the ruts in the roads?

Roman war chariots formed the initial ruts, which everyone else had to match for fear of destroying their wagon wheels.

So, the next time you wonder what horse's ass came up with that, you may be exactly right, because the Imperial Roman war chariots were made just wide enough to accommodate the back ends of two war horses !

The Space Shuttles had 2 big booster rockets attached, which the design engineers wanted to make bigger.

The railroad line from the booster factory run through a tunnel.

The railroad track, as you now know, is about as wide as two horses' behinds.

So, a major Space Shuttle design feature of what was the world's most advanced transportation system was determined over two thousand years ago by the width of 2 horse's asses !

FUTURE WHEEL DESIGNS

REVOLVE

THE FOLDABLE AND AIRLESS WHEEL

This unique wheel created by German designer Andrea Mocellin has been designed to be multi-purpose.

it can be used on both bicycles and wheelchairs, and it is space-saving.

Called the Revolve, this 26-inch airless tire can be quickly and easily folded into 1/3 of its original size and locked safely into position.

https://www.youtube.com/watch?v=jKHMvXK-kRU&t=90s 1.5 minute

DARPA GROUND X VEHICLE WHEELS

These are wheels that transform from round for regular driving, into tracks for rough roads, on the fly and a digital assistant that helps drivers find the safest, surest route across steep terrain

. https://www.youtube.com/watch?v=0RiD7U1Jw6s .8 minutes

THE UPTIS MICHELIN PROTOTYPE TIRE

It represents a major advancement toward achieving Michelin's VISION concept.

The concept introduced four main pillars of innovation:

1) Airless

2) Connected (electronically)

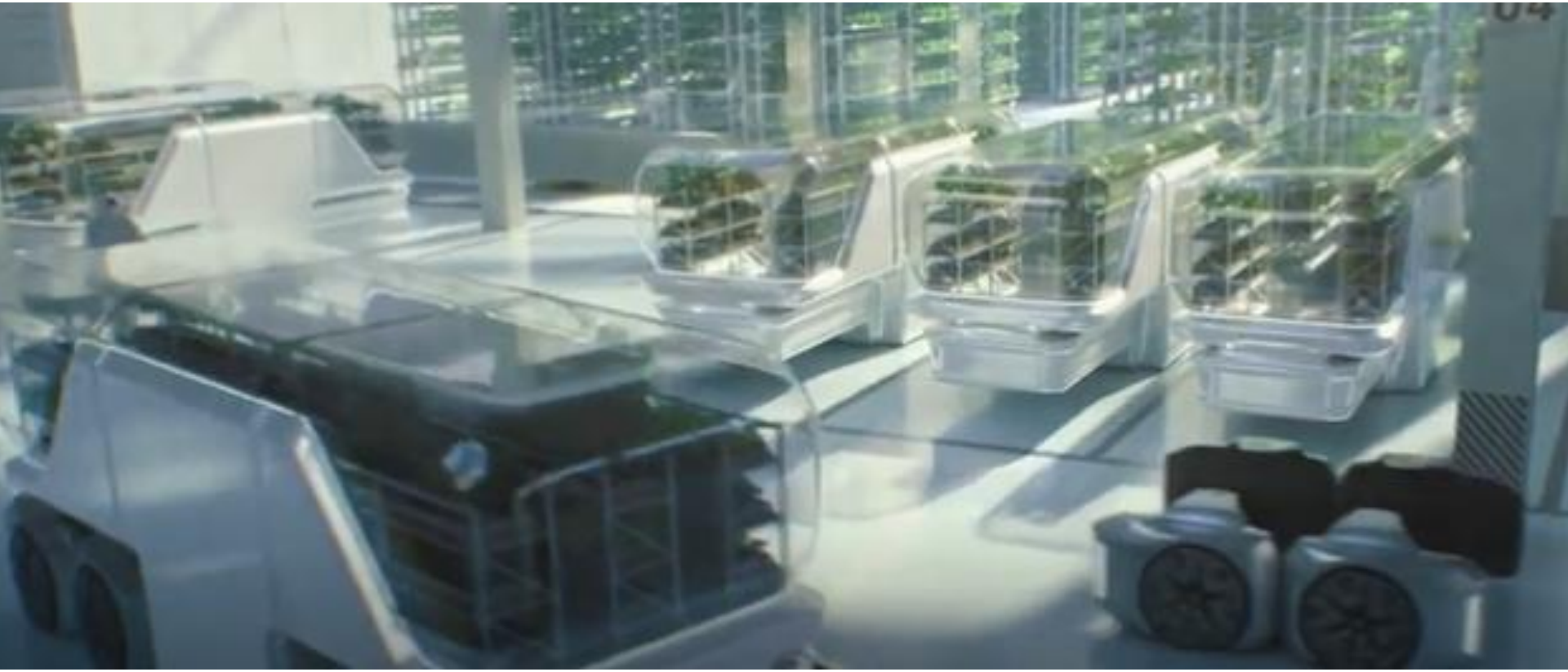
3) 3D-printed

4) 100% sustainable (entirely renewable or bio-sourced materials).

Michelin and GM announced a joint research agreement under which the companies intend to validate the Uptis Prototype, with the goal of introducing it on passenger models as early as 2024.

https://www.youtube.com/watch?v=27iJWJXBmnc go to 1.27

NEW TIRE AND VEHICLE TECHNOLOGIES



https://www.youtube.com/watch?v=Bfr4rmdbpGw&t=4s 2 minutes

HANKOOK TIRE COMPETION IN THE TRANSPORT DESIGN DEPT., AT THE UNIVERSITY OF CINCINNATI, DAAP COLLEGE OF DESIGN

First place - Ben Zavala designed the Tiltread car tire that can roll into corners at an angle, like a motorcycle tire.

His design was to split the tire into three parallel ring sections, each mounted on a corresponding split section of wheel. This allowed them all to have good traction with the road surface.

The wheels are hubless with an electric drive motor which varies power to each tire section, allowing the sections to spin at different rates during cornering.

.

https://www.youtube.com/watch?v=RHQp-EK--G0 1 minute

THE MOTIV TIRE

Second place in the competition was taken by Mark Hearn who imagined an off-road tire called **Motiv.**

It features numerous height-variable, non-pneumatic tread blocks that can adapt to extremely rough terrain without risk of blow-out.

https://www.youtube.com/watch?v=1f4oaXNcLek
1 minute

THE TESSELA TIRE

Third-placed Miranda Steinhauser's proposal for an eco-friendly tire also impressed the competition judges.

The Tessela tire's easily removable tread components allow consumers to replace worn-out tread when required, rather than the whole tire carcass, reducing tire waste and landfill

HANKOOK TIRES

THESE ARE 4 NEW TIRE DESIGNS FROM THE HANKOOK TIRE CO., IN SOUTH KOREA.

https://www.youtube.com/watch?v=vYy2wI1G9vE 2.3 minutes

HANKOOK TIRES

Hankook is a very progressive tire company in South Korea.

In 2018, they revealed these 3 futuristic concept tires, developed in collaboration with the Royal College of Art., in London, UK.

THE AEROFLOW TIRE CONCEPT

It is aimed at motorsports.

It's a wide body with a fat slick tread that can separate in the middle to become much wider, and suck incoming air into a turbine impeller, which Hankook says can be "used to generate additional downforce if necessary.

https://www.youtube.com/watch?v=zCqb6D9M6fU 18 seconds

This is the kind of car that might be able to make use of the Aeroflow tires and their downforce-generating capabilities.

THE HEXONIC TIRE CONCEPT

It is focused for self-driving cars for ride comfort for passengers who don't need road feedback or feel.

Its tread is broken up into a series of hexagonal modules that can be to split apart to create new channels for water.

Each hexagon also has a Y shape in the middle that can push through the smooth surface to add smooth surface.

https://www.youtube.com/watch?v=1lwSiq8eYrE
1 min

HLS23 TIRE CONCEPT

For a new method of moving products for the future.

The two-column treads can control the speed and direction of the tires separately

This system allows efficient operation of moving, storing, and charging in limited storage spaces with narrow individual footprints.

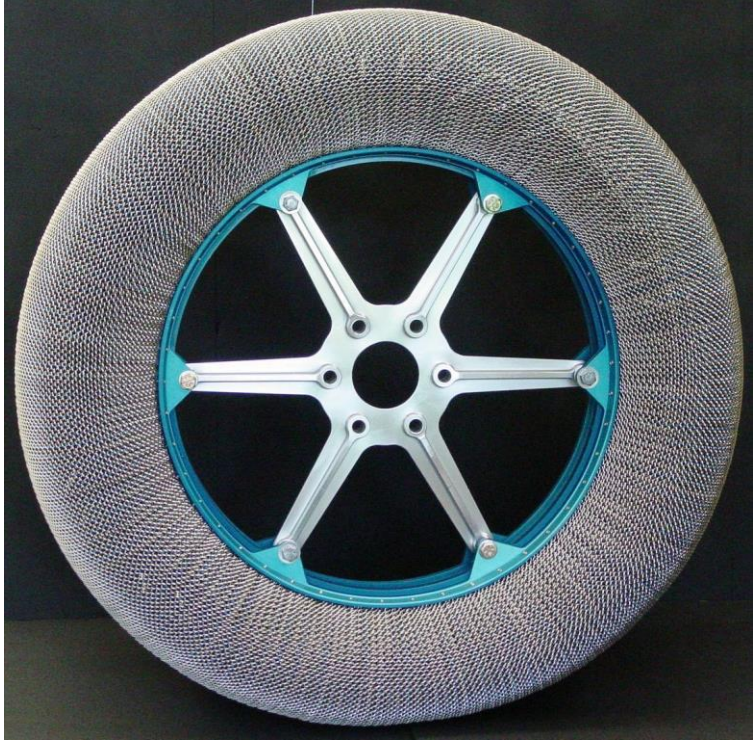
https://www.carbodydesign.com/2018/12/hankook-rca-innovative-tire-concepts/ 15 seconds

https://www.youtube.com/watch?v=52QOqEknEpc&t=5s
2.3 minutes

WHEEL DESIGNS FOR THE CURIOSITY AND PERSEVERANCE MARS ROVERS

This is a new wheel design for future planet rovers.

It is based on the "Spring Tire", which NASA developed with Goodyear back in the mid-2000s but the new one is a more durable and flexible version which could revolutionize space exploration.



https://www.youtube.com/watch?v=kj3zsD5q5c8
1.5 minutes

Types of bicycles

Mountain bicycle

Town bicycle

Folding bicycle

Cruiser bisycle

Road bicycle

BMX bicycle

Compact bicycle

Monocycle

Tandem bicycle

THE HISTORY OF THE BIKE

The Electric Bicycle

First invented in 1891 but not in mass production until the 1990s, it runs with the aid of an electric motor reaching speeds of 20mph.

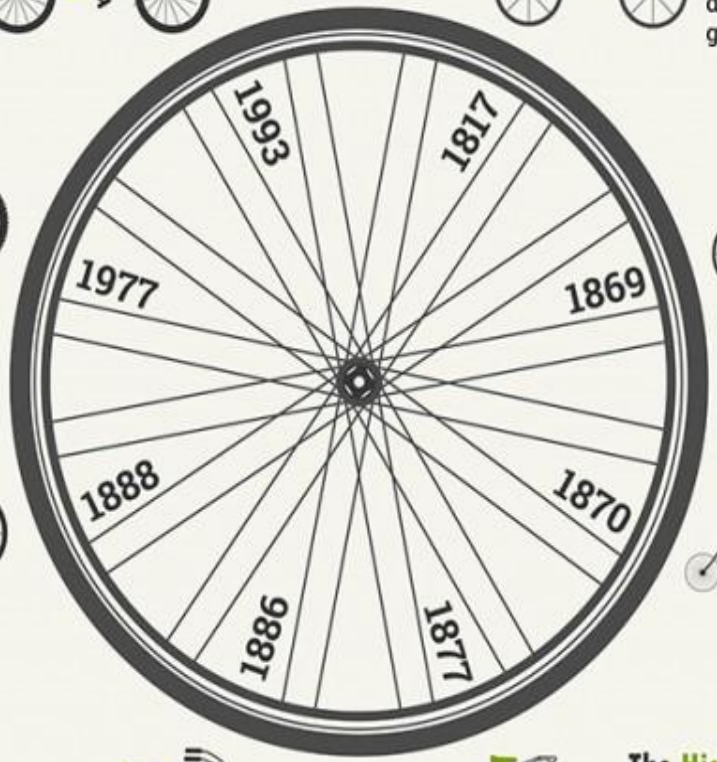
START →

The Draisine

Simply just the frame and wheels, The Draisine was a two-wheeled vehicle designed for the rider to glide along or walk with.

The Mountain Bike

Gears were introduced to The Mountain Bike giving them the ability to take on more challenging terrain.



The Velocipede

Pedals were added to the front wheel of The Velocipede and it was nicknamed 'the boneshaker' due to its rigid and uncomfortable ride.

Brakes & Freewheel

The rear wheel no longer needed to move at the same speeds as the pedals, along with the invention of cable-calliper brakes.

The Penny Farthing

The large wheel was used on The Penny Farthing when manufacturers found that more distance would be covered on each rotation, but unfortunately it was prone to accidents.

The Safety Bicycle

This version of the bike saw the return to riding with two wheels of the same size, which left the high-wheel designs extinct.

The High Wheel Tricycle

High Wheel Tricycles were a lower height compared to The Penny Farthings, making them much easier for women to ride in dresses.

Sources

pedalinghistory.com | edition.cnn.com | mudsweatngears.co.uk

Gumtree

THE BICYCLE

Today, the bicycle is the primary transportation of the human race.

About 1.6 billion bicycles are in use throughout the world.

Hundreds of millions of bikes are manufactured every year to meet the continuing demand for cheap wheeled transport.

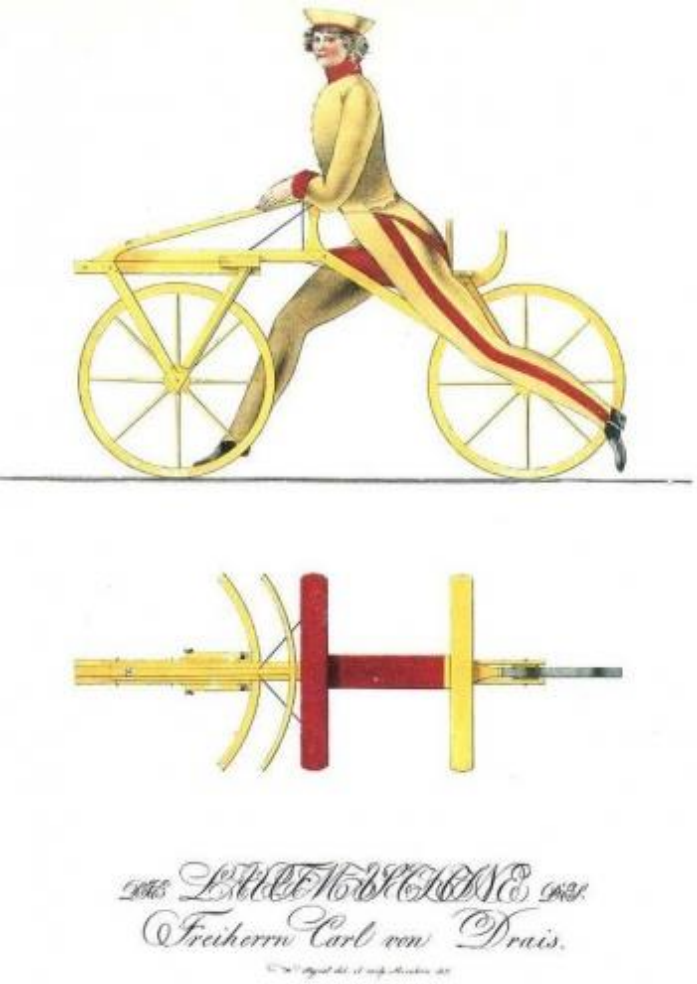
This is the first bicycle design developed by cave people back in the day. – LOL !!

Note the highly efficient use of the 2 legs for both making the bike and person move as well as being used for a friction braking system !!

The first widely recognized, two-wheeler adult bicycle in actual use was the pedal-less Celerifere, later renamed the *Velocifere.*

A toy of the French nobility in the 1790s, designed by Comte de Sivrac.

The rider propelled themselves by kicking the ground with their feet, but you could not steer this bike.



Draisienne, ("running machine") designed in 1817.

It is regarded as the first design of the bicycle with handlebars to steer it, but it didn’t have any pedals, gears, or brakes and was used a lot for downhill racing.

The first pedal propelled 2-wheel vehicle was designed and built by Kirkpatrick MacMillan, a Scottish blacksmith.

Willard Sawyer in Dove, England successfully manufactured a range of treadle operated 4-wheel vehicles and exported them worldwide in the 1850s.

THE VELOCIPEDE

Ernest Michaux added cranks to the *Draisienne* two-wheeler in 1855 and created the **Velocipede**.

It was rather uncomfortable to ride and that is how it got it's other name - **boneshaker**.

It was the first bicycle to have a brake.

1867
The First Motorcycle

In 1876 Sylvester Howard Roper attached a two-cylinder steam-engine to a bicycle and the world's first motorcycle was born.

In 1885 Gottlieb Daimler strapped a gas engine to a wooden bicycle and the world's first gas powered motorcycle was born.

If it weren’t for the invention of this gas-powered wooden gadget 124 years ago, we might still be getting around by horse and buggy.

The Penny Farthing

This bike was first known as the ‘High Bicycle’ and was invented in 1871 - only rich people could afford these bikes.

It became known as ‘The Penny Farthing’ because the wheels were like the small and large coins.

People would often fall off head first!

THE HIGH WHEEL TRICYCLE – THE 1880'S

While the men were risking their necks on the high wheels, ladies, confined to their long skirts and corsets, could take a spin around the park on an adult tricycle.

These machines also afforded more dignity to gentlemen such as doctors and clergymen.

The Safety Bicycle

In 1885, British inventor John Kemp Starley designed the first "safety bicycle" with a steerable front wheel, two equally-sized wheels, and a chain.

It was called the safety bicycle because it was much safer than the Penny Farthing. Modern bikes are very similar to this one.

With four key aspects (steering, safety, comfort, and speed), the Safety Bicycle became very popular in the middle and late 1890s.

In 1898, Chicago immigrant Adolph Schoeninger with his **Western Wheel Works** significantly reduced production costs, and thus prices so his **"Crescent**" bicycles became affordable for working people, and massive exports from the United States lowered prices in Europe.

1888 - Pneumatic Tire

The use of a pneumatic tire was first added to the bicycle by a veterinarian by the name of Dunlop who was attempting to give his sick child a more comfortable and less bumpy ride on his tricycle.

Now with the use of the tricycle and the pneumatic tire, comfort and safety could both be contained in the same machine.

1902 - INDIAN MOTORCYCLE

This was the first year of production of a motorcycle for the Hendee Manufacturing Company that was designed by a bicycle racer by the name of Oscar Hedstrom.

This machine had 1 and 3/4 horsepower and sprocket-and-chain drive and shows the gradual change from the bicycle to the motorcycle.

1920 - KID'S BIKES

Just after the First World War, manufacturers appealed to the desires of children to have a motor rather than a bicycle by combining parts of automobiles and motorcycles to bicycles for a "classic" design.

These designs were the heaviest and flashiest of all the bicycle designs to date.

MOST BICYCLES ARE MADE IN CHINA

The People's Republic of China today produces over 60% of the world's bicycles.

86% of the bicycles sold in the US are imports from China.

However, cycle use in China is decreasing sharply, down to 20% of all trips, compared to 33% in 1995.

The most popular vehicle of any kind in the world is the **Chinese Flying Pigeon**, with **some 500 million in service.**

BAMBOO BICYCLE

Bicycles designed for the Olympics have been extensively designed to be as light and as strong as possible, as well as keeping air resistance to a minimum.

ELECTRONIC OR E-BIKES

They offer an environmentally friendly, affordable, efficient, and fun way to get around.

They have integrated electric motors and batteries, and most are governed to a top speed of 20 miles per hour.

They get a range of 20-35 miles per charge.

A FOLDING ELECTRONIC BIKE

AN ELECTRIC BIKE WITH A REAR HUB MOTOR

A MID-DRIVE ELECTRIC BIKE

A DOWNTUBE MOUNTED BATTERY

REAR-MOUNTED BATTERY

Compact / Folding (Dahon boost)

Hybrid (E+ Schwinn)

Mountain (E+ bike)

Recumbent (Giant Revive Spirit)

City / Cruiser (Urban Mover 55)

Dirt (Mongoose CX200)

Tricycle (Trike) (Ezee Carro)

Tandem (Pedego Tandem)

Chopper (CB Chopper)

Road (Cytronex Cannondale Super Six)

Pocket (Daymak E-F2)

2001 Segway Human Transporter

The Segway PT is a two-wheeled, self-balancing electric vehicle invented by Dean Kamen.

Segway PTs are driven by electric motors at up to 12.5 miles per hour.

Gyroscopic sensors are used to detect tilting of the device which indicates a departure from perfect balance.

Paul Blart on the Segway

KAYAK FOLDING SCOOTER

FUTURE BICYCLES

The Cube Urban Street Bike Concept gets rid of the seat tube and upper sections of the standard frame in favor of a three-piece system that has the back wheel attached only via the axle.

Because of it, this model is significantly lighter (therefore much faster) and way sexier than what we are riding today.

The Furious Sports Bike
Concept by Nenad Kostadinov

What makes this design unique and thoroughly futuristic is the onboard computer, which displays a range of data about the ride such as speed, location, and calorie consumption.

Chris Boardman's
Intelligent Bike

The British Olympic gold medalist and Tour de France stage winner has designed a bicycle with a solar-powered back-up motor, an onboard computer, a fingerprint security scanner, and wheels without spokes.

HUBLESS BICYCLE CONCEPT BY JOHN VILLARREAL

https://www.youtube.com/watch?v=5ruqyflSAIw .5 minute

The Wire Bike Concept by Ionit Predescu is another design that sheds weight to increase speed.

It does so by using a suspension frame system instead of the traditional bike frame.

Like a suspension bridge, the weight on the bike helps sustain the structure's form and stability.

The solid pieces of the bike will be made of carbon fiber and the cables will be of light Kevlar.

FOLDING BICYCLES

The **Mando Footloose** is a chainless, folding urban bike that uses high-tech solutions from the automotive industry to make city riding safe and efficient.

This small bike generates power through pedaling.

That energy is then stored in a lithium battery which powers a small motor.

The bicycle is fully automated and even auto-detects slopes to shift gears.

https://www.youtube.com/watch?v=EZWucoILskU 1.5 minutes

The Eco 07
Bike Concept
by Victor Aleman

it is designed to be completely disassembled and fit into a container about the size of a briefcase.

It also looks good.

THE DICYCLE

This unusual bike is still in the conceptual phase, but if it ever goes to production, you'll sit in between two giant wheels that can reportedly transport you directly across land and water without a hitch.

Designed by the Amsterdam based firm GBO, the boat-bike hybrid would be perfect for the canals and wetlands of the Netherlands.

RIMAC'S NEW GREYP G12S ELECTRIC BIKE

It combines the best features of a motorcycle and a bicycle.

It has a set of powerful batteries, new suspension and a spectacular design.

It has chunkier shock absorber and only one disc brake instead of the former's twin setup.

The redesigned chassis, built using strengthened steel tubes, makes room for the various modifications in the bike's electrical components.

UNICYCLES

RECUMBENT BIKES

It places the rider in a leaned back riding position, which can feel very comfortable.

The legs stretch out in front of the rider to pedal.

The handlebars sit either above the lap or on the sides next to the lap.

The rider sits horizontally rather than vertically as they would on a standard upright bike.

This ergonomic seating position improves comfort by distributing the rider's weight over a larger area.

A LONG WHEELBASE RECUMBENT BIKE WITH OVER SEAT STEERING

A SHORT WHEELBASE RECUMBENT WITH DIRECT STEERING

THE TRIKE

One of the most popular recumbent designs is the trike.

These are recumbent bikes with three wheels instead of two.

The main benefit trikes offer over bikes is stability and safety because it has 3 wheels.

Recumbent trikes are also a great choice for people with reduced mobility or certain disabilities.

A TADPOLE STYLE RECUMBENT TRIKE

SOME FUN BICYCLES AND OTHER WHEELED VEHICLES !!!


GOODYEAR

FABIAN MATZERATH/AFP/Getty Images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BICYCLE FORE


27/11/2010 09:32

NOW, FOR SOME VERY COOL, FUNNY, AND INTERESTING MOTORCYCLE DESIGNS !!!


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BIKE
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♫♪ You Picked A Fine Time To Leave Me, Loose Wheel ♪♫

THE END

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