AFD Ep 332 - The Rise of Bicycles in the Late 19th Century (and Rachel talks about e-bikes)

- E-bikes
    - https://www.fastcompany.com/90341686/the-unlikely-way-e-bikes-could-transform-how-we-age (obviously won't read it all)
      Between 1995 and 2009, the number of people aged 60 to 79 who bike increased by 320%
      Right now, the proportion of Americans over the age of 65 hovers around 15%; by the year 2040, one in five Americans will fall into that category. While not a complete solution–cities and communities still must provide robust and accessible public transportation and ride-hailing for people for whom biking is not an option–e-bikes are increasingly a promising transportation method for older Americans. They encourage an active lifestyle, which is crucial for supporting overall health and may even alleviate symptoms of later-in-life diseases like Alzheimer's and Parkinson's. And as e-bikes make it easier for older people to get around, they might, in turn, urge cities and communities to implement better, more people-centric designs to support them–which in turn could benefit all of us now and as we age.
      Research from the American Association of Retired People in 2018 found that 90% of adults over the age of 50 drive themselves places, but 21% of people over the age of 65 do not drive, and that proportion climbs as people age. Even for those who can drive, though, driving is not always an ideal option. The experience of driving alone can be isolating, and sometimes daunting if people age into vision loss or other physical impediments. (Not to mention the fact that driving alone is also terrible for the environment.)

      Beyond solo driving, older adults generally have three transportation options: public transportation, paratransit, and ride-hailing. Some cities–like Washington, D.C., and Eugene, Oregon–have worked to make public transportation more accessible to older adults. Other places lean more on paratransit–shared vans that must be scheduled in advance to transport people to appointments or functions–but its limitations, according to a report from TransitCenter, make "it impossible for paratransit riders to use the service for spontaneous travel, contributing to social isolation." Since the advent of Uber and Lyft, ride-hailing has become more popular. Companies like Roundtrip are catering specifically to older people and those who need to access medical appointments, and Lyft is rolling out programs specifically to help seniors get to the doctor.

      But it may still be some time before ride-hailing scales as a real option for older Americans. AARP finds that just 29% of Americans aged 50 and older have ever used ride-hailing apps, and the majority are unlikely to try them. As for autonomous vehicles, which have been hailed in tech circles as a way to meet mobility needs for older people, they are not landing with that demographic. AARP found that 88% of seniors are unwilling to ride in them, citing safety concerns. Don Anair, deputy director of the Union of Concerned Scientists' Clean Vehicle Program, has found that holds true in his research. "The number-one priority for new technology is it has to be safe for people to have any confidence in it," he says. While autonomous vehicles could, he says, potentially ease the need for older people to own their own cars and transport themselves places, they have yet to be fully proven out as safe at scale.

In 2003, Jay Alberts, a researcher and physician at the Cleveland Clinic, was participating in an annual bicycle ride across Iowa on a tandem bike: He was in the front, and a friend who had been diagnosed with Parkinson's was in the back. Alberts, who studies the disease and other neurological conditions, notice a change in his co-rider over the course the trip: As they rode more and more, her handwriting, as she wrote postcards home to loved ones, and overall motions became more controlled.

That experience led Alberts to look more closely at what about cycling can alleviate Parkinson's symptoms. "There's a whole host of research that shows exercise has benefits for Parkinson's patients," he says. On the tandem bike, because he was also pedaling, the woman was able to move her legs at a quicker rate without having to exhaust herself–and that faster rate of motions is what helped alleviate her symptoms. Such movement, Alberts found, improves motor functioning in Parkinson's patients by around 35%. E-bikes, because they allow riders to pedal quickly and move without overexerting, could deliver similar benefits. "The e-bike has great potential to enable and empower older adults, even those with neurological impairment to retain an active lifestyle," Alberts says.

"I think we've demonstrated that this type of exercise is medicine," Alberts says, and emphasized that while his research focuses specifically on people with diseases like Parkinson's, the benefits extend to older people in general: Active transportation like cycling can prevent the onset of diabetes and heart disease, and keep people's joints healthier for longer.

As the U.S. population gets older, cities and smaller communities will have to reassess how they enable older people to get around. "When people are not able to drive anymore, or don't want to because they'd prefer to walk or bike, they have to be able to," Atherton says. Through NCSC, she frequently consults with the AARP, which she says is very supportive of their work "because frankly, their members are asking for it." They want to live in the types of communities NCSC advocates for: Those with densely located amenities, through which they can navigate on wide, well-maintained sidewalks, or on regular, accessible public transportation, or a complete network of protected bike infrastructure. "They want to feel safe, and they want choices," Atherton says. "They want to remain engaged in their community, but they don't want to have to drive to all the time to reach what they need."

Plus when communities prioritize the safety of an older person on a bike or on foot, they make the streets better for all of us–especially as we all age. Ultimately, the benefits of a community that prioritizes mobility and access for the most vulnerable generation will radiate out to everyone. As Liberman says, while the concern, as people age, is often the walls closing in on their lives, being out in the community on a bike "opens up your world."

    - These actually originated in the 1890s but never really caught on until recently: https://www.electric-bicycle-guide.com/electric-bicycle-history.html
- History
    - Civilian - created in rudimentary form (pushed by feet) in the late 1810s and repeatedly modified throughout the 19th century https://en.wikipedia.org/wiki/History_of_the_bicycle
        - Feminism
            - https://en.m.wikipedia.org/wiki/Bicycling_and_feminism
              Once bike design became the modern two-same-sized-wheeled vehicle ("safety bicycle"), cycling became more accessible to women, further by the drop frame design to accommodate women's clothing.

              Took women out of the "domestic sphere", made them more visible in their communities
            - https://www.bustle.com/p/the-feminist-history-of-bicycles-57455
              Increased women's mobility and freedom; while mainly middle and upper class women cycled, payment plans made bicycle accessible to poorer women.
              Suffragettes embraced bicycles both symbolically and physically. Popular woman's monthly Godey's declared in the 1890s that "there is something women of every class have welcome as a shorter road to freedom than wide, welcoming college doors, or open gateways to the polls. In possession of her bicycle, the daughter of the 19th century feels that the declaration of her independence has been proclaimed." Susan B. Anthony herself wrote in 1896 that she thought the machine "has done more to emancipate women than any one thing in the world," and that she "rejoices every time I see a woman ride by on a bike."

              But they were practical means for campaigning and drawing attention, too; English suffragettes in particular would ride around on bicycles with "Votes For Women" banners in the 1910s, and suffragettes blocked Winston Churchill's motorcades with bicycles. The suffragette movement even had its own special bicycle: In 1909, an advertisement for it, in the colors of the suffrage movement and with a "Medallion of Freedom," appeared in the pages of the magazine Votes For Women.

        - Metal pedal bikes were invented in France in the early 1860s, igniting a Bike Craze that ended with the Franco-Prussian War https://en.wikipedia.org/wiki/Bike_boom but the UK kept the flame alive
        - The 1880s saw the rise of "safety bicycles" with chains and gears (and less chance of horrific crashes if bumping into something), then pneumatic (ie inflated rubber instead of solid rubber) tires for bikes were invented in 1888 in Britain & began the "Golden Age of Bicycles" – Solid tires were good for dirt roads but inflated tires were better for paved roads
            - By early 1890s the popular "lady's" bike design existed
        - **Bicycles and the Second Industrial Revolution**
            - Bicycle manufacturing

        - *Bicycle manufacturing proved to be a training ground for other industries and led to the development of advanced metalworking techniques, both for the frames themselves and for special components such as ball bearings, washers, and sprockets.* [These were useful outside the bicycle industry.] *They also served to teach the industrial models later adopted, including mechanization and mass production (later copied and adopted by Ford and General Motors),[83][84][85] vertical integration[84] (also later copied and adopted by Ford), aggressive advertising[86] (as much as 10% of all advertising in U.S. periodicals in 1898 was by bicycle makers),[87] lobbying for better roads (which had the side benefit of acting as advertising, and of improving sales by providing more places to ride),[85] [...] In addition, bicycle makers adopted the annual model change[83][88] (later derided as planned obsolescence, and usually credited to General Motors), which proved very successful.[89]* https://en.wikipedia.org/wiki/Bicycle#Economic_implications
        - Some bicycle manufacturers became car manufacturers especially because the English focus on cycle technology innovation was toward three or four-wheel cycles with more comfortable seats and then powering those cycles, which eventually leads to automobiles. Of course there were also motorized bikes that became motorcycles.
        - Some bicycle manufacturers had started as sewing machine companies too because there was some overlap.
        - And famously the Wright Bros turned from making bikes to planes
- New jobs and activities: *Bicycles helped create, or enhance, new kinds of businesses, such as bicycle messengers,[99] traveling seamstresses,[100] riding academies,[101] and racing rinks.[102][101] Their board tracks were later adapted to early motorcycle and automobile racing.* https://en.wikipedia.org/wiki/Bicycle#Economic_implications
- In some ways, bicycles don't fit neatly with the rest of the trends of the Second Industrial Revolution that we've talked about over the course of our 2020 episodes. The surges in popularity almost seem counter-cyclical to the economic booms and busts of the period despite the expense of buying one at the time. Individually run small business bicycle manufacturers are the opposite of the big monopoly corporations. But one recognizable feature is that after the 1890s boom in demand collapsed and there was a big over-supply of bicycle manufacturers, a number of companies bought up all their competitors to become gigantic regional or national monopolies or near-monopolies, in a process similar to Rockefeller's acquisitions that we discussed in our series on how Standard Oil's corporate model came to define the era.
    - Perhaps most important was the American Bicycle Company formed in 1899 by cycle manufacturing tycoon

Albert August Pope of Columbia Bicycle who merged 42 bicycle manufacturers in North America and then kept acquiring more. He was the key figure in bringing vertical integration, mechanized mass production assembly lines, modern advertising, and planned obsolescence to the bicycle manufacturing industry, which then led to the same in the emerging auto industry not long after.
https://en.wikipedia.org/wiki/American_Bicycle_Company
https://en.wikipedia.org/wiki/Bike_boom#1890s
https://en.wikipedia.org/wiki/History_of_the_bicycle

        - The lobbying for better roads for bicycles was a key contributor to the shift to lobby for automobile-oriented personal transportation
        - Rubber (probably something we will come back to for a full episode): There was a scramble to harvest rubber around the world in the 1870s, infamously leading to Amazonian indigenous plantation slavery or neo-feudalism [https://en.wikipedia.org/wiki/Amazon_rubber_boom] and in the 1880s the creation of Leopold II of Belgium's Congo Free State brutal corporate rubber harvests and the origins of the term "crimes against humanity" (you can listen to the recent episode on that in the podcast "Conspiracy You Can Believe In") https://podcasts.google.com/feed/aHR0cHM6Ly9hbmNob3luZm0vcy8yYTgzYTQxYy9wb2RjYXN0L3Jzcw/episode/MzYzNzI4MjAtMjUxMi00ZGI1LWI3ZWMtMmU1N2UyNzc2OGI1?hl=en&ved=2ahUKEwiHtL6d1vHsAhWyTt8KHVgYCVcQjrkEegQIDBAF&ep=6
    - In the US, automobiles quickly took off in the early 1900s while bikes became seen as a toy for children – a view never adopted in Europe.
    - The arrival of ten-speed bike technology at the same time as the emerging environmental movement led to a ten-year US bike craze from 1965-1975, but ironically it peaked before the oil crisis and fell off quickly
    - Mountain biking technology and popularity also grew in the 1970s and beyond
    - Government support in the People's Republic of China under Mao led to bicycles becoming widely prevalent there for a long time
- Military
    - https://en.wikipedia.org/wiki/Bicycle_infantry
        - The French Army invented folding bikes (although the modern design used widely was patented by African-American inventor Isaac R Johnson in 1889)
        - In WW1, bikes were usually used for scouting
        - In WW2, the Japanese used tens of thousands of bike infantry to maneuver very quickly around slower Allied divisions while carrying more than a foot soldier could carry and not using up transport fuel – and often confiscated local bikes to keep the demands on supplies low
        - Guerrilla forces including the Viet Minh used bicycles as cargo transport by breaking down artillery into small enough pieces to move by bike but larger pieces than a person could carry.
    - US Army Bicycle Corps: *The 25th Infantry Regiment arrived at Fort Missoula in May 1888. The regiment was one of four created after the Civil War that were made up of black soldiers with white officers. In 1896,*

Lieutenant James Moss organized the 25th Infantry Bicycle Corps to test the military potential of bicycles.[6] The corps undertook several short journeys – up the Bitterroot Valley by bicycle to deliver dispatches, north to the St. Ignatius area, and through Yellowstone National Park – before making a 1,900-mile (3,100 km) trip from Fort Missoula to St. Louis in 1897. The Army concluded that while the bicycle offered limited military potential, it would never replace the horse. The 25th Infantry returned to Missoula by train. https://en.wikipedia.org/wiki/Fort_Missoula

- It's odd that they would take this attitude regarding horses because combat horses require a lot of training and upkeep and if you have a shortage they are hard to replace, as Napoleon found