

**Cycling renaissance.**  
**A history of urban travel in Europe from 1817 to 2050**

*Le retour de la bicyclette.*  
*Une histoire des déplacements urbains en Europe de 1817 à 2050*

“Il ritorno della bicicletta.  
Una storia degli viaggi urbani in Europa dal 1817 al 2050”

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Thank you, Professor Pagliano for your invitation. Sorry, I do not speak Italian and my English is bad enough. I am nevertheless very honored to be able to present here, at the Politecnico di Milano, my book on *Cycling renaissance* (Il ritorno della bicicletta). This book, however, has a subtitle that deserves some explanation.

First, we must realize that in its history, utility cycling is constantly competing with other transport modes: the horse, the tramway, the motorized two-wheeler, the car and even the pedestrian. Competition plays out at all levels: for space, for speed, for funding, for recognition... Then, to understand the current situation and even future, we need some historical perspective, to work on the long term. Each period reacting to the previous one, I gradually went back to the very origins of the bicycle, that is to say until the year 1817 which saw the invention of the draisine, the ancestor of the bicycle. Finally, international comparisons can help to better understand the specificities of each country, but also to discover good practices and to draw inspiration from them. The challenge was threefold: a systemic, historical and transnational approach to utility cycling and its evolution in urban travel policies.

Yet, is it serious to be interested in cycling? If you have invited me and if you are so numerous, it is because you think so. But some people estimate, on the contrary, that it is an archaic and outdated transport mode, far removed from the futuristic technologies that we are praised today, with the electric car and the self-driving vehicle. Others consider that the bicycle is reserved for the Northern Europeans and especially for the Dutch and Danes. There would be a cultural determinism, a gene of the bicycle! Others still think this sustainable transport mode is for urban environmentalist and it can concern only small journeys, without real impact on the energy consumptions. Far from these three clichés, utility cycling is simply a transport mode in full renewal, which deserves to be studied in all its dimensions, as the other modes. However, this is not easy because, compared to the automobile and public transport, the economic and political weight of cycling remains derisory.

My presentation will follow a very simple historical plan that will allow me to gradually address many aspects of the subject.

### **The first period, from 1817 to 1891, concerns the technical development of the bicycle.**

On April 5<sup>th</sup> 1815, the Tambora volcano, in Indonesia, erupted. Billions of tons of ash are sent more than 40 km high and darken the sky of the whole planet. 1816 is the “year without a summer”. Harvests are very bad and people have to kill horses for food. For some years, the Industrial Revolution is in full swing in Britain. Many inventors seek to improve transport techniques and to dispense with horses. Karl Drais, who lives in Mannheim, is one of them. At the beginning of 1817, at the age of 32, he invented a *Laufmaschine* (running machine, in English), allowing him to advance and maintain balance on only two wheels, by pushing on the ground with his feet. He runs 14.4 km between Mannheim and the Schwetzingen coaching inn, in just over an hour. An extraordinary speed at that time. But the draisine is quite heavy (25 kg) and the pavement of the roads is bad. His invention has only a passing success.

In 1861, Pierre Michaux and his son Ernest repair a draisine brought to them and they have the idea to fix pedals on the front wheel. The success is immediate. In three decades, hundreds of patents are filed to improve the velocipede: invention of steel spokes, pedalboard, diamond frame, tires with tube, etc. In 1891, the modern bicycle is ready. Its first name is the safety bicycle.

### **The second period, from 1891 to 1950, is the democratization of cycling**

At the end of the nineteenth century, before the advent of the automobile, the bicycle became the symbol of modernity and for 10 years enjoyed an extraordinary golden age. It is much cheaper and faster than the horse and multiplies by ten the walking territory. In France and Germany, the “veloce” represents above all the speed and courses are organised. In the Netherlands, however, in response to pan-Germanism, the bicycle is used to rediscover both the country and the values of the United Provinces, when they dominated the economic, cultural and artistic world in the seventeenth century. Similarly, in Italy, the first cycling tours turn to patriotic demonstrations. But it is in the United States that the bicycle knows the greatest craze: 10 million bicycles for 76 million inhabitants, in 1900. In all developed countries, cycling promotes women’s emancipation, as it allows them to leave their homes and relax the dress code.

With a certain wage growth and thanks to the price decline linked to mass production, the number of working hours needed to buy a bicycle is divided by 10. The bicycle is becoming more democratic everywhere in Europe, during the interwar period. The French use it while the Germans. In Italy, the practice is twice lower, but probably with great differences between the north and the south. In Milan or Turin, as in Lyon or Grenoble, cycling is probably equally used.

Every family owns at least one bicycle. Since the First World War, the Dutch have become the biggest bicycle users. Remained neutral during the conflict, they were forced to use this transport mode, because of a lack of oil for their cars. Then the royal family – yet very wealthy – understood all the benefits of riding a bicycle to appear closer to the people.

### **The third period, from 1950 to 1974, experiences the collapse of utility cycling**

During the boom decades after the Second World War, facing the flood of cars (+ 10% on average per year), all the countries of Western Europe, without exception, are experiencing a collapse of utility cycling. In France and the United Kingdom, large manufacturers of small cars, this use is divided by 6. In the Netherlands, the Daf company began producing small

cars only in the 60s. The cycling decline is later but then just as fast, with a division by 3. At the entrances to Copenhagen, the number of cyclists is divided by 8, also because of the rail competition.

In France, the rise of motorized two-wheelers has played a special role. A decree issued in July 1943 creates the category of engine lower than 50 cubic centimetres. This ultraliberal decree sets no age or speed limit. French manufacturers rush into the breach and invent the Solex, then the Mobyette and the Peugeot BB. In Italy, the Piaggio company develops the Vespa, in 1946, a motorized two-wheelers which is however more powerful: 98 cubic centimetres.

France became, from 1954 to 1960, the biggest manufacturer of motorized two-wheelers in the world. For moped riders who represent the bulk of users, an age limit of only 14 years is finally imposed in 1957, then a speed limit of 50 km/h in 1964, but the engines are almost always unbridled. The helmet is introduced later, in no less than six stages... This the authorities laxity precipitates the cycling decline and causes an explosion in the mortality of moped riders, especially adolescents: 2,500 deaths per year from 1964 to 1974, or thousands of extra deaths compared to a country like Germany. In 1978, France is the only country in Europe to have more motorized two-wheelers than cyclists. As a result, the practice of urban cycling is now four times less developed in France than in Germany. It seems that the Italian case is quite close to the French case.

The image of utility cycling is deeply degraded. From a popular vehicle, the bicycle becomes the vehicle of the poor, reduced to a residual transport mode. Compared to the motorcycle, cycling is wrongly considered very dangerous and the decline in the two-wheelers use is therefore good news. In the city gradually adapted to driving and less and less to cycling, the cyclist is considered as a delinquent and finally as a scapegoat.

### **The fourth period is going from 1974 to today. It concerns the advent of traffic calming policies and the cycling renaissance.**

With the Club of Rome report on the depletion of resources (1972) and the energy crisis in 1974, civil society awakens and begins to challenge the consumer society and the “all-car” policies. The Netherlands – where the urban population forms the majority since 1650 – is at the forefront of claims. In 1966, the Provo counterculture movement denounced the automobile invasion of Amsterdam and proposed to replace cars by a free white bicycles sharing system. In 1971, the *Stop de Kindermoord* movement (Stop the child murder) was created to fight the growing mortality of children crushed by motorists. In the densest countries and major cities of Europe, residents, parents, pedestrians and cyclists come together to demand the speed reduction of cars and the prohibition of their transit through districts. Bicycle demonstrations appear (as early as April 1972 in Paris).

With the crisis and without waiting for the achievement of bicycle facilities, the practice goes back in all countries of Western Europe, mainly to the detriment of pedestrians and public transport users. Defenders of the latter are worried and see cyclists as competitors. But such a resumption of practice cannot be sustainable in the midst of a car traffic flow that continues to grow. During the 70s, traffic flow plans generalized one-way arteries and coordinated traffic lights. They increase the traffic volume and speed by 30% on average, and the danger for cyclists. At the same time, illegal parking is invading the few existing cycling facilities.

The only solution that secures the pedestrians and cyclists journeys is to moderate traffic. This is the conclusion to which the Netherlands will soon reach in the 70s. In 1969, the very first “woonerf” (a kind of home zone) were tried in Delft. In 1976, in the new towns of Almere and Lelystad, the public authorities developed a new balance between “segregation”

and “integration” of cyclists in traffic. Cycling facilities are achieved along the arteries. On the contrary, in the districts, the cohabitation of the various transport modes is the rule, the speed is limited to 30 km/h and the transit is removed. Since then, this solution continues to spread around the world.

Germany took up this idea, in the late 70s, by inventing the concept of *Verkehrsberuhigung*, translated into English by traffic calming. To reduce accidents, 30 km/h zones can be generalized to all streets except the arteries, in the center as well as in the periphery. To disarm the protest of the very powerful automotive lobby in this country, the durability of achievements depends on the results of before/after studies, which have always been very positive. The accidents regress strongly, the noise is reduced, the pollution also thanks to a better fluidity of the traffic and a certain modal shift from car to bicycle. The average speed decreases but only about 10% in off-peak period and 5% in rush hour. The travel mode that benefits the most is always by far the bicycle.

In northern Italy, a highly urbanized region since the Renaissance, Ferrara decided in 1969 to simply close its historic centre to cars, creating the first ZTL (*zona a traffico limitato*) to save its urbanity (and not first its heritage). Only a few rights holders can continue to drive there at low speed; the traffic is divided by five. About fifty cities imitate it before the measure is ratified by a law in 1989. Hundreds of cities now have a ZTL, sometimes of respectable size (820 ha in Milan, 350 in Rome and Palermo, 300 in Bologna and Florence, 250 in Turin...). Again, and despite the lack of cycling facilities, bicycle journeys are soaring.

France is watching this development with interest and in the 80s launched the “safer cities, districts without accident” program. The results are very encouraging and lead in 1990 to the reduction of the city speed limit from 60 to 50 km/h and the inclusion in the Highway Code of the “30 km/h zone” and “pedestrian precinct” concepts. But public transport is considered as a priority. After a few adventures, the tramway triumphs: in the corridor of the lines, the public spaces are reworked and the city centres come out transformed. Here again, the traffic is calmed and the cyclists come back. While they were more numerous in the periphery than in the centre in the 80s, today almost everywhere it is the opposite. Cycling is multiplied by 2 to 4 in the centre of large cities.

It is therefore wrong to believe that it is enough to create a few bicycle facilities or to launch a bike share system, or to give a subsidy to purchase an e-bike, to revive utility cycling. History teaches us that traffic calming is everywhere the key factor of renewal. The cycling renaissance began in Northern European countries in the 80s and has continued in other Western countries since the 2000s. I would like to have some figures for Italian cities, but I do not find them. Sorry.

### **The next period will be the reconstitution of the bicycle system.**

Today, in a world of economic stagnation and with resources becoming scarce, the bicycle seems to have a great future. Especially when you realize that the “bicycle system” is still far to be optimized, unlike the “automobile system”. The motorist benefits from reliable and safe vehicles, an excellent and mesh network, a wealth of services... The most advanced countries in cycling development, such as the Netherlands or Denmark, are now striving to build a similar bicycle system. This involves firstly more reliable and efficient vehicles – such as e-bikes, cargocycles, recumbent bicycles or velomobiles, secondly networks of super cycle tracks with wide overpasses or underpasses to cross expressways, railways and canals, green waves (crossroads with coordinated lights) set on a speed of 20 km/h or priorities at intersections, and thirdly good services: repair, rental, secure parking...

The cycling renaissance would have considerable spin-offs. Associated with public transport in an “ecological transport system”, it would save mobility and lifestyle of inhabitants of

the outer suburb, at a reasonable cost. It would eliminate the Social Security deficit, thanks to the improvement of the public health that allows the daily practice of this active mode. It would help to clean up dense, polluted and noisy neighbourhoods...

The image of utility cycling remains often negative, especially among the popular classes recently came to the car and for whom getting back to cycling is a step backwards. It should nevertheless recover gradually with the renewal of generations and the development of more diverse bicycle cultures. Participatory and solidary bicycle workshops, which are currently in full swing, are enjoying great success in all circles. You surely have some in Italy too.

In conclusion, a systemic, historical and transnational approach requires a lot of time and many investigations, but it brings a great wealth of analysis. I have not sufficiently explored the Italian case and that is why I immediately accepted your invitation, because I hope to find here some ways to better understand it. Unlike a stubborn legend, Leonardo da Vinci did not invent the bicycle, you probably know it. But many Italian cities of average size have already developed utility cycling with efficiency: Ferrara, Bolzano, Pesaro, Ravenna, Padova, Reggio Emilia, Parma... And it seems that the big cities, like Milano, begin to follow this example with succes.

Thank you for your attention.