

# Driving Modernity

Technology, Experts, Politics, and  
Fascist Motorways, 1922–1943

Massimo Moraglio





## Driving Modernity

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*Technology, Experts, Politics, and Fascist Motorways, 1922–1943*

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Fascist Motorways, 1922–1943*



**Massimo Moraglio**

Translated from Italian by Erin O'Loughlin



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*To Erin, Julian, and Owen*





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I nonetheless remind readers that the author is fully and solely responsible for the contents of this volume.

M.M.

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# Acronyms



**AASS** Azienda autonoma statale della strada (National Road Agency)

**ANAS** Azienda nazionale autonoma della strada (National Road Agency)

**ACI/RACI** Automobile club italiano (Italian Automobile Club)/  
Reale automobile club italiano (Royal Italian Automobile Club)

**ACS** Archivio Centrale dello Stato (Central Archives of the State)

**AGIP** Azienda generale italiana petroli (General Italian Oil Company)

**AGPTO** Archivio Generale provincia di Torino (Turin Province  
General Archives)

**AIPCR/PIARC** Association internationale permanente des  
congrès de la route/Permanent international association of  
road congresses

**ASCT** Archivio Storico Città di Torino (Turin Historical Archives)

**ASF** Archivio Storico Fiat (FIAT Historical Archives)

**BIAR** Bureau International des Auto Routes (International Bureau  
for Motorways)

**CCIAA** Camera commercio industria, agricoltura e artigianato  
(Chamber of Commerce, Industry, Handicraft and Agriculture)

**CEUE** Comité d'études d'union européenne (European Union  
Study Committee)

**Comit** Banca commerciale italiana (Italian Commercial Bank)

**HaFraBa** Verein zur Vorbereitung der Autostraße Hansestädte–  
Frankfurt–Basel (Union for the planning of the Hanseatic cities  
motorways)

**IFI** Istituto finanziario industriale (Industrial Financial Company)

**ILO** International Labor Organisation

**IMI** Istituto mobiliare italiano (Italian Movables Company)

- IRI** Istituto di ricostruzione industriale (Institute for Industrial Reconstruction)
- IRSP** Industrie riunite della strada Puricelli (Puricelli United Roads Industry)
- LL.PP.** Lavori pubblici (Public Works)
- OIAR** Office International des Auto Routes (International Office for Motorways)
- PCM** Fondo Presidenza consiglio ministri (Prime Minister's office files)
- PNF** Partito nazionale fascista (National Fascist Party)
- PRA** Pubblico registro automobilistico (Public Motoring Register)
- SAASTM** Società anonima Autostrada Torino–Milano, later ASTM Autostrada Torino–Milano, Spa (Turin–Milan Motorway Company)
- SIP** Società idroelettrica piemontese (Piedmontese Hydroelectric Company)
- SNIA** Società di Navigazione Industria e Commercio (Navigation, Industry and Trade Company)
- SPD, Co** Fondo Segreteria particolare duce, Carteggio ordinario ("Duce" private secretariat, ordinary documents)
- SPD, Cr** Fondo Segreteria particolare duce, Carteggio riservato ("Duce" private secretariat, confidential documents)
- Stufa** Studiengesellschaft für den Automobilstraßenbau (Motor Vehicles Road Research Company)
- TCI** Touring club italiano (Italian Touring Club), later CTI, Consociazione turistica italiana (Italian Tourism Association)





# Introduction



On the morning of 26 March 1923, newly appointed Italian Prime Minister Benito Mussolini participated in the inauguration ceremony of the construction work for the Milan–Alpine lakes motorway: the first motorway in Europe. That day, Mussolini arrived in Milan in the early morning and visited the Italian Touring Club’s headquarters. Then, driving himself in his official car (as the Italian newspapers were careful to report), he arrived at the nearby village of Lainate, the starting point of the future motorway. There, in front of the very best of the Milanese establishment, the tyrant was handed a pickaxe and gave the soil forty-one solid strikes, an undertaking that must have required a good three minutes to accomplish. Finally, Mussolini made way for the four hundred workers employed for the motorway construction.<sup>1</sup>

As in a thousand other cases, this ceremony was mainly propaganda, giving the actors involved a chance to shape the public image of construction activities. Some elements, however, were unusual, such as the detail, unheard of in Italy, of a prime minister driving himself in a motor vehicle. Or the forty-one pickaxe strikes that the newspapers claim Mussolini made: not just a figurative gesture, more of an exhibition of virility. Both of these features were part of a political strategy that featured innovative propaganda elements and political appropriation of technology (such as the motor vehicle and the motorway itself), as well as technology as the main medium of this process of staging the political activities.<sup>2</sup>

The motor vehicle and the motorway were thus the enabler and enhancer of the tyrant, and of his ability to perform. Indeed, like science, technology was “conceived by the fascist regime as a crucial propaganda element, instrumental to its display and indispensable to legitimizing Mussolini’s power; his image as elaborated by the mass media has a twofold value: he is portrayed while he harvests grapes to evoke a rural dimension; as a motor vehicle driver or a plane pilot to show the symbols of innovation, modernity and progress.”<sup>3</sup> It is therefore appropriate that the legacy of that motorway’s inauguration ceremony, and others that followed in the period from 1923 to 1935, stood out in the

public's imagination regarding Italian motorways, and in the historical investigations too.<sup>4</sup> For the Italians gathered there, for those reading newspapers, and for those passionate about modernity, technology, and speed, the Milanese motorway was a first step toward a visionary innovation made of motorways, cars, and subjugated environments.

This volume analyzes the history of Italian interbellum motorway programs and construction from 1922 to 1943. It is mainly, but not exclusively, a political history that focuses on the motorways' conception, implementation, and symbolic value as landmarks of Italian and European modernity culture in that period, as the technological artifacts assumed an iconic value. We know how artifacts are entangled with politics,<sup>5</sup> and how politics are entangled with artifacts.<sup>6</sup> Though this volume puts political actors at the center of the stage, I am aware of the huge benefit that such a history gains by using works from Science and Technology Studies (STS), and naturally in taking advantage of the relevant development of transport history. In other words, the aim of this book is to write the history of Italian motorways in Fascist Italy as a history of Italian fascism: that is, framing motorways as an inner part of the Mussolini regime's attempt to mobilize technocrats and entrepreneurs toward innovative visions of the future, as well as a way of mobilizing the regime by technocrats and entrepreneurs.

This research path needs to keep in mind the visionary and palin-genetic value of the motorway project, and, eventually, scrutinize why the Italian experience led the European debate. The key words of the subtitle—"Technology", "Experts", and "Politics"—define three research paths: technology as a central asset to achieving desired targets (desired at least by a part of society); experts and their relationship with modernity and power; and politics as a third element, considering the highly political value of the motorway projects.

The most recent and inspiring research on Italian fascism has shown how Italian motorway projects were part of a wider plan in which railways, aviation, and bicycles were used to strengthen a vision of modernity within fascist self-representations, giving rise to ideologies of speed and technological nationalism.<sup>7</sup> As suggested in Griffin's works, what "assured a degree of mass consensus behind fascism was not the utopian vision of its theorists but its promise to most people of a stable system in which to plan their lives as well as access to a lifestyle associated with modern urban civilization (e.g. cinema, sport and mobility), both of those prospects infused with a fervent patriotism."<sup>8</sup> In this regard, Mussolini's regime openly used transport technologies as political tools, instrumental to building a "banal nationalism."<sup>9</sup> Indeed, "drawing upon spatial, symbolic, phenomenological and performative

ideas about identity” a national common sense can be created, and this can also occur via “automobility”<sup>10</sup> and its “hybrid assemblage” or “machinic complex.”<sup>11</sup> Moreover, as we will see in the following pages, the Italian motorway’s success in the European and international imagination was vast. Given these elements, motorway history assumes a wider perspective, well beyond the transport field, and offers a chance to examine the Italian and European debate on technology and modernization in the interbellum, addressing principally, but not exclusively, the political appropriation of this debate.<sup>12</sup>

### The Invention of the “Motorscape”

Peter Merriman’s use of the concept of landscape in investigating—historically—the post–World War II English motorway is also very fruitful for the scrutiny of the Italian interbellum experience.<sup>13</sup> The ideas of “geographical knowledge,”<sup>14</sup> of *motorscapes* and of *taskscape*s, developed from the 1990s onward, are particularly appealing.<sup>15</sup> The shift toward a banalized mobility, including road-based freight transport, as happened during and after World War I, required new spatial arrangements, and new concepts of motorized vehicles.<sup>16</sup> In the 1920s, automobilism moved toward daily, trivial, and economically driven attitudes (or at least, that’s how it was depicted), calling for time efficiency, and therefore requiring innovative spatial arrangements. World War I introduced the “systems” perspective in automobile mobility,<sup>17</sup> leading to the creation of new infrastructural solutions, in which the imperative of motor vehicle drivers was to perform mobility with the best cost-benefit outcome, with efficiency and efficacy as the main goals. Driving was accountable, targeting time- and effort-saving, which meant the expulsion of the slow (as inefficient) and the old (as out-of-date) was fully legitimate and therefore a top priority for the expert community and for policy makers.

The goal of resource-saving could be achieved by shaping the road according to the vehicle,<sup>18</sup> forging a new transport platform devoted to motorized mobility, which would reduce the efforts of drivers. The final aim was quasi-automatic driving. The hope of “routinized time-space”<sup>19</sup> devoted to motor vehicles was difficult to obtain on ordinary roads, as it collided with the resilience of the old use of public spaces. It took, at least in Europe, some decades to achieve a near-total dominance of ordinary roads by motor cars. However, drivers still needed simplified “routes and places in which shared, synchronized movement, work and recreation [were] carried out,” linking “individual time-space paths, identifying points of spatial and temporal intersection.”<sup>20</sup> The motorways

fulfilled this requirement. If we put the *autostrade* (Italian for motorways) in this framework, they were above all an answer to the new needs of a trivialized attitude toward the practice of driving and moving, offering a simplified environment, creating the greatly desired *motorscape* made up of familiar, coordinated, and recognizable elements. In this *motorscape*, the motor vehicle owner of the 1920s no longer had to deal with drunk cart-drivers, slow bicycle riders, and disrespectful pedestrians. The previous model of “aggressive motoring” by wealthy and careless drivers up to World War I, a well-established metaphor of political values,<sup>21</sup> was suddenly becoming a bottleneck for further automobility development.

The Italian 1920s motorway proposals went further, promising to manage not only the driving landscape, but also the mechanical apparatus, e.g., the motor car itself. The emphasis of engineer Piero Puricelli’s earliest pamphlet on the network of mobile and fixed car mechanics addressed this anxiety over the reliability of the technology. In this vein, the Italian motorway was framed not just as a geographical artifact, but as a complex sociotechnical system, able to deal with the highly diverse needs of drivers. Indeed, the invention, *ex novo*, of the motorway was not just forging the landscape and the everyday use or the technicalities of the vehicle: the *autostrada* was also reshaping the image and the symbolic universe of automobility. Motorways were an invention to domesticate the fierce driving of the antebellum, and at the same time to target new layers of users, namely, middle-class and petty-bourgeoisie (both male and female) elements. Being part of a wider plan to open motorization to new masses, Piero Puricelli—the “inventor” and builder of the 1920s Italian motorways—focused the experience of driving around safety and comfort.

Puricelli himself clearly presented the ambition of the motorway in 1922:

On the motorways there will be just motor vehicles, and our aim is to give the network a level of assistance and comfort that is not yet known in our country, and more inclusive than even the United Kingdom and the United States, from where we got the model.

On the motorway,

- There will be several road inspector’s houses, which will be home to the road inspectors and will also offer frequent points for shelter and refueling;
- The distances, the routes, and the obstacles will be carefully indicated with international signs also visible at night;
- There will be petrol and oil stations, with automatic dispensers and controlled quantity and quality;

- Mechanical and medical first-aid points will be opened, while motorway “mechanics” will patrol the carriageway with “flying workshops” to carry help wherever it is needed.<sup>22</sup>

The 1920s motorway users would have mainly come from middle- and lower-middle-class arenas, addressing trivialized needs like daily commuting or more occasional family-oriented vacation trips. This did not kill drivers’ dreams of speeding and wandering, but surrogated and contained them according to petty-bourgeois desires: “The car and its components become a reservoir for societal symbolism, as an icon of a particular kind of domesticated, automotive culture. Around it, a lower-middle-class culture coagulated, celebrating the nuclear family, experimenting with new values of civility . . . and creating a narcissistic, individualist fantasy.”<sup>23</sup> In other words, the *autostrada* offered a domesticated use of cars, but still kept the promise of (risk-free) speed.

Later in the book, I will address the (different) paths of mobilizing a *motorscape* and *taskscape* in the United States and Europe. Here we can state that the *autostrada* emerged as a time-space apparatus, with the role of increasing mundane driving performance. As suggested by Billig, these performances acted as “enhabilitation,” where “thoughts, reactions and symbols become turned into routine habits.”<sup>24</sup> In these ways, the motorways both were legitimizing and favored the shift toward a different use of motor vehicles, (i) asserting motorized transport as a national and economic priority, (ii) simplifying its sociotechnical system, and (iii) reassuring drivers about the manageability of motor vehicles’ time-space coordinates. The target was a “desensitized physical experience” of driving.<sup>25</sup>

A large set of agencies and financial resources was required in order to achieve this aim. After World War I, “we also witness a shift in the way the car was seen by central government, industry, and car and touring clubs alike: whereas in the previous period the car was perceived as a seemingly autonomous artifact providing the motorist with an individualized pleasure . . . , now the automobile was taken up in a system of maintenance by a service infrastructure, and of registration and taxation by a bureaucracy on several governmental levels.”<sup>26</sup> It is not surprising to note how the state, especially the Italian Fascist one, backed (to some extent) the motorway proposal both for its practicality and for its symbolism. Altogether, similar to Jeremy Packer’s commentary on the United States, in Europe the “disciplining of mobility organized though traffic safety is . . . a means of keeping the system running smoothly, even as it often works as a means of keeping systems of social inequality intact.”<sup>27</sup> Later, automobility domestication and danger

avoidance became a “biopolitical obligation to life,”<sup>28</sup> a central element of 1920s political discussion. “Adventure, the secret behind the success of the *emergence* of automobility, threatened to collide with order, the secret behind the successful *persistence* of automobility during the interbellum.”<sup>29</sup> In this vein, the *autostrada* could have been enlisted in the fight for control, overturning the anarchist violent and bottom-up use of motor cars to a top-down management of movement: “You do not control people with a highway. But by making highways, you multiply the means of control.”<sup>30</sup> This would have led to the creation of good drivers, who could also easily be good and obedient citizens.<sup>31</sup> The *autostrada* can therefore also be framed as a form of social engineering, and like other social engineers, Puricelli “had a vision of a future society, and ways to form it.”<sup>32</sup>

### Motorway Politics, between Tradition and Modernity

The 1920s motorway advocates openly targeted the middle class as future drivers, offering that social strata a better future in which they could combine the latest outcome of technology (motor vehicles) with traditional lifestyles (family oriented), and the achievement of aspiration (such as the petty-bourgeois desire to live in the countryside in one’s little villa). Puricelli, in 1922, went further, forecasting that also a cook (*una cuoca*) could one day drive a motorcycle (and avoid any engagement in social revolution, as Lenin wished a few years earlier), if only a “virtuous cycle” could occur. What was needed was

therefore, propaganda on the use of motor vehicles and the prompt replacement of horse-drawn carts. . . . Therefore, a new development of the road network; therefore, new popularization of car use; therefore, a garage in every house; therefore, every family with a car: the clerical worker, the laborer and also the [female] cook with a motorcycle, with a sidecar, with a little truck; therefore, distance annihilated; therefore, country life, well-being, pleasure. . . . Here is the ‘virtuous cycle’ for mankind: the road, the car and prosperity—in those happy countries with motor vehicles for the roads and roads for motor vehicles.<sup>33</sup>

Motor vehicles (including here the usually historically forgotten motorcycles) would no longer be a special object, but a “working tool,” to quote the title of a 1921 TCI (Italian Touring Club) campaign in favor of motor vehicles.<sup>34</sup> The motor vehicle as a personal mobility instrument; the motorway as a catalyzer of this process, permitting widespread motorization, and housing developments in the countryside, with a

positive cascade effect for individuals and society as a whole. Indeed, for the “road lobby” the motorway had a social and political function. It was Luigi Vittorio Bertarelli, the Italian Touring Club’s influential president, who wrote that with the motorway everyone could finally leave the crowded cities and move to the countryside. The combination of cars (or motorcycles and sidecars) and motorways enhanced the traditional model of the garden city movement, because it was now possible to avoid (at least for those blessed with a motor vehicle) the discomforts and fixed schedules of tramways and trains.

The car owner who has to commute . . . from within the radius of 25 km from Milan takes the train, although the trip to the station, the ride on the train, and the time spent to reach the final destination takes double the time of traveling by car. Those who have to travel 30 or 40 km simply renounce purchasing a car. Those who must travel to have dinner with their families at the countryside villas cannot do so: it would be practically impossible with an average speed of 30, maybe 40 km/h without endangering their own and others’ lives.

[However,] the Varese area [about 40 km from Milan], which has some thousands of little villas for professionals, could be the evening destination of similarly small cars or motorcycles if it were possible to travel without dust, at 60 to 80 km/h, and with complete safety of the drivers and others.<sup>35</sup>

The motorway would be targeted at middle-class elements, commuting between the city and the countryside, without forgetting the use of the new *autostrada* for tourist and commercial purposes. The motorway became the incubator of a new Italy, modernized but not transfigured, speedy but also idyllic. “Let the car have, for the first time in Italy, its own safe road, so that mankind’s activities can progress more easily and deftly. Let the automobile have its own safe road, so that the humble cart, pedestrian or cyclist can travel more safely and untroubled. Let the automobile have its own safe road, so that those looking for a day of peace and serenity, away from the frantic pace of city life can have a more intimate and complete joy, penetrating and understanding the divine beauty of the Italian landscape.”<sup>36</sup>

This, then, was the weak link in Italian progress: the awful conditions of the roads. But once transformed, they could become the springboard of modernity. We have here a mixture of modernity and tradition, the technologizing of everyday life and the hope of achieving a pastoral lifestyle. Here comes the pertinence of investigating the fascist relationship with technology, and the manner of framing this link, keeping in mind the categories of an “alternative modernity” and palingenesis.<sup>37</sup> As

Jeffrey Herf recalled in his groundbreaking work on “reactionary modernism,” fascism also had to deal with two poles: how could “national tradition be reconciled with modern culture, modern technology and modern political and economic institutions?”<sup>38</sup> This dilemma was, as we know, even more relevant after World War I, and naturally it was a crucial point also for Italian fascism. It is not the ambition of this book to investigate in detail the relationship between fascism and technology, but this link is crucial once we analyze 1920s motorway plans. In addressing this research path, we need to say that the role of science and technology in Fascist Italy is a topic largely underrepresented in the national debate,<sup>39</sup> and to be fair, dwarfed by the attention claimed by the more notorious Nazi German parallel.<sup>40</sup>

We must consider that the 1920s Italian motorway plans were maybe too visionary and a little bit odd for a country like Italy that was still agricultural. However, they were real, and they had real and tremendous impact: we must take them seriously. In this vein, we need to reframe a banalized view of Mussolini’s regime, which emerges—also in historiography—as a “somewhat harmless dictatorship.”<sup>41</sup> This benevolent and dismissive attitude toward Italian fascism can be extended to Italian technology in the interbellum, in which the Italians are considered possibly creative, but not suited to technological challenges, emerging as romanticized rascals at best.<sup>42</sup> We have also a dominant historiographical approach, which posits a robust cultural and political dependency of Italian fascism on Nazi Germany: the most recent works, however, have unveiled counterflows, in which Italian Fascist social and technological experiments were followed abroad with great attention, and often replicated. The motorways emerge as the most evident example of the above, going beyond Nazi Germany: aside from other European milieus, we know that English experts were visiting Italian motorways in 1929,<sup>43</sup> and that “Puricelli’s plan from 1932 . . . circulated in American policy circles in its revised 1940 version.”<sup>44</sup>

This leads us to frame the role of experts in Fascist Italy. The experience of World War I bestowed a great relevance on technocrats, mainly “for initiating a change in attitude toward a belief that the state has to accept responsibility for the running of the economy and large technological systems.”<sup>45</sup> This means that also in Italy we can speak of “the hour of the experts” as typical of the whole interbellum Europe,<sup>46</sup> in which technocrats were striving for long-term planning and implementation of large-scale projects, a line of action which, eventually, also “often made them prone to follow authoritarian political concepts.”<sup>47</sup> Additionally, focusing on Italian society, “it seems—though more research is needed—that engineers, surveyors, veterinarians and agronomists saw



in the Fascist movement the chance not only to confirm their status *vis-à-vis* the working class, but to improve their status in relation to the older professions.<sup>48</sup>

In this regard, the Italian motorways should not be framed in terms of a cost-benefit analysis, which would lead to economic inconsistency and to transport policy flimsiness. The Italian motorways should, instead, be regarded according to the concept that technology transcends market needs. As for the Nazis, I go so far as to state that also Italian fascists "sought to present themselves to engineers as a movement dedicated to emancipating technology from its misuse by market interests and then to placing it in the service of the state."<sup>49</sup> In this vein, technology could be a bridge between past (tradition) and future (a transcendent future), in which engineers were the main celebrants.<sup>50</sup> In other words, the "juxtaposition of permanent technology and evanescent capitalism"<sup>51</sup> was an important theme in the reactionary modernists' milieu and this line of thought seduced Italian technocrats as well, as part of this "myth of renewal."<sup>52</sup> This myth, this transience, was achievable also via "megalomaniac structures like the planning and building of national freeway networks."<sup>53</sup> So, how should motorways be defined within this perspective? How should the desire for speed and thrill be combined with the middle-class search for reassurance, especially after World War I? How can technocrats' ambitions be combined with political goals? How was fascism able to mix all those elements, so apparently distant from each other, and still present such a *pastiche* as a coherent outcome?

It seems to me that Thomas Rohkrämer's work on *Antimodernism, Reactionary Modernism and National Socialism* offers a fitting perspective. While innovation is accepted by fascists as central, they present technology under reassuring aesthetics. This can also be said for Puricelli's program, more precisely once he offered an *understandable modernity*, in which technology was not portrayed as openly encompassing any political flag (in its visual form or otherwise), and in which the choreography of the motorway embeds elements of the past. So "while the industrial sphere was thus supposed to be functional and the political sphere awe-inspiring, the private sphere was aiming to give a feeling of warmth and cosiness."<sup>54</sup>

The technical age was accepted as a practical necessity, but not celebrated in a technical style; people had to fulfill their function, but relaxation and distraction were granted; and culture was consciously employed as an escape from a dreary or horrifying material reality. In this respect, the National Socialists arrived at a more sustainable lifestyle within modern reality than the modernists: in their openness to compro-

mise in all but their core beliefs they accepted that the demands of the modern functional age were only bearable if allowance was made for compensation and escapism.<sup>55</sup>

Puricelli proposed top-notch modernity and speed, but designed the tollhouses constructed along the motorway in quasi-art nouveau style. The order given to the motorway personnel to give a military hand salute to any driver passing through not only reinforced social ranking, but also tempered the motorway's hypermodernity into recognizable (and traditional) performances. So, speaking of Fascist Italy, "the political language in this way carries scientific values, but without referencing technological, logical, concise and rational scientific jargon. On the contrary, the scientific language aims to assimilate the rhetoric of the political language."<sup>56</sup>

### **Motorways beyond Transport, and Their Impact beyond Italy**

This volume aims to address the history of Italian motorways well beyond the history of transport, and well beyond Italian borders. As stated, road renewal was the core of infrastructural enhancement, and it was perceived as a tool to force modernity: good roads were often seen by prominent and ruling groups on both sides of the Atlantic Ocean as fundamental tools to drive economic and social development, as well as a physical and figurative symbol of modernity in the territory and in society. Using Gij's Mom's words, "the emergence of the limited-access highway is presented as a turning point in the history of mobility."<sup>57</sup> Such infrastructural planning has parallels with the beginning of the twentieth century when an extremely fast, large, and unquestioned diffusion of car culture around the world was observed (unquestioned, at least, by some parts of society).<sup>58</sup> The implementation of modernity and—most relevant to this volume—of transport modernity, was presented and represented as an unavoidable and linear process, though it had a messy and complex realization. We should not consider the Italian 1920s motorways as projects that were clearly defined, planned, and implemented by several extraordinary political and entrepreneurial figures. On the contrary, this volume centrally assumes that the Italian experience of road renewal was messy, complex, and even accidental: like the early 1920s fascist economic decisions that were indeed "an instrumental action rather than a coherent, long-term policy,"<sup>59</sup> 1920s motorway programs were short-sighted, regional in scale, and left to the enthusiasm of the local supporters and to the wishes of the empirically based decisions of Mussolini. I assert that Piero Puricelli conceived

motorways by chance (if he actually did invent them, an assertion that I investigate in this book), in an attempt to achieve other goals. Moreover, Mussolini's regime supported those plans because it was pleased—and, sometimes, forced—to by circumstance, including the need to repay some of its sponsors.

In approaching this large theme, we can count today on a broad historiography. The construction of a road system adapted for the use of automobiles has received much attention from historians in the past few decades. The research has offered a wider understanding of the mobility shift that occurred in the twentieth century, exploring promising new fields, such as the social use of the roads, the technical and political aspects of this change and—last but not least—road renewal as a step to generate genuine mass motorization. In other words, automobile infrastructure is no longer seen as granted by invisible hands, but as the result of social and political decisions, as well as the outcome of technical and social attitudes and behaviors. This process was not smooth at all, but involved resistance, compromise, mediation, and failure, and involved many players.

Moving back to the Italian motorways in the interbellum, the above framework gives me the opportunity to offer innovative elements of examination, as well as different axes of interpretation.

1. The motorway projects did not land in an empty landscape; on the contrary, they were the result of the particular Italian situation. A part of the book is devoted to the history of the "ordinary" road network, because it is necessary to understand that network's characteristics and its mismatch with the shift toward new automobilism landscapes in order to fruitfully investigate the motorway proposals.
2. Additionally, the infrastructure contractors emerge as a leading force, driving the action. I call this constellation of actors the "road" lobby (similar to the "road gang" acting in the United States in the 1940s<sup>60</sup>) and I argue that—at least in Italy—the automobile industry (or "car" lobby) was rather tepid about, even opposed to, any monumental road programs beyond the cities. As shown below, further elements must be considered, such as the still-influential Italian Touring Club (TCI), and the Italian Automobile Club (ACI), both of which offered support to the road lobby.
3. On the political side, I argue that during the 1920s the Italian context had an inherent contradiction between the proclaimed will to modernize the transport arena and the weakness of any political action to support this goal. According to the evidence

presented here, the (small) infrastructural gains in 1920s Italy were not a triumphal march to modernity, nor were the different interests subjugated to an intrusive dictatorship that was able to forge a new nation and pave the country with thousands of brand new motorways.

The third point moves us back to the idea that the leading force in envisioning motorways was a group of contractors with strong interests in the road construction field, in alliance with (already) declining but still powerful car user associations.

So while we can expect fascism to be a turning point in the mobility (and, by extension, modernity) field, all the research (on roads, railways, and aviation) shows that although Mussolini's regime did achieve relevant, widely recognized, and visionary outcomes, its role seems much less coherent and comprehensive than previously thought. What fascism did, more modestly, was find acceptable compromises with the leading actors. For a decade after World War I, any step toward the implementation of the road system was linked to the prewar program, while the variegated and ambitious plans on the floor after 1922 were largely designed by industrialists, and not by fascism or central public apparatuses. This is true beyond the motorway case: as Eric Lehmann also noted regarding fascist aviation,<sup>61</sup> far from being a solid, monolithic, and sturdy producer of transport infrastructure and systems, fascism had no clear strategy or master plan, and, instead, showed indecision and contradictory governance. However, as Mussolini understood well, building 84 kilometers of "hyper-modern" motorway shifted attention away from the inadequate (for motor vehicles) 20,000 kilometers of road network.

On top of this, it was not Mussolini or any other Fascist Party member who was the driver of this game. We know that Piero Puricelli, Silvio Crespi, and the Italian Touring Club were—backstage—calling the shots, creating a wide social acceptance of the master narrative in the mobility field, and spreading the gospel of modernity conceived through the rallying cries of speed, technology, and efficiency. The lobby showed significant ingenuity, proposing an extraordinary variety of flexible administrative models, not to mention detailed surveys and construction programs. Those experts had a good grip on the international debate, promoting inquiries into foreign reforms and taking part in global umbrella associations (Italo Vandone, as a TCI delegate, participated as early as 1908 in the first PIARC conference; Silvio Crespi was leader of the League of the Nations transport committee; while Piero Puricelli himself was a resolute business traveler).<sup>62</sup>

As the history of Italian motorways shows, these actors were surely visionary but they were playing a game that was too big for them. The indefatigable “road lobby” lost the main battle, but left a strong heritage nonetheless. The colossal road renewal plans faced long delays—ultimately implemented only in the 1960s—because of their huge scale. The proposals advanced by those contractors and industrialists were surely innovative, imaginative, and leading the European trends. However, as soon as the fascist system had definite domestic consensus, it exploited (and very generously paid for) the scheme that fit Mussolini’s party’s needs better, with no further consideration of the proponents. The National Road Agency—formed in 1928—allowed the regime to show off its centralized attitude, put an end to seventy years of provincial council control of the main roads, and created a brand new bureaucratic organization, which was easier to lead than the complex and unreliable ministry staff (not to mention the treacherous provincial administrations).

This trivialized and banalized road management did not obscure the visionary idea behind motorways. The media success of the Italian 1920s *autostrade* and their presentation as pacesetters of the future was a favorite theme of fascist propaganda. The Italian air raids on South and North America in the 1930s certainly wouldn’t have convinced too many Italians to become pilots, but they did spread the very idea of aviation as (fascist) modernity.<sup>63</sup> In the same way, while motorways did not make every Italian a driver, they made the concept of motor vehicles appealing—no longer a tool for wealthy people, but an everyday device for commercial and practical uses.

But although it was envisioned and developed nationally, the appeal of the 1920s Italian motorways went beyond domestic borders. The Milan–Lakes motorway “became a Mecca for civil engineers as well as municipal or governmental officials interested in a modern road adapted to automobile traffic,” while Puricelli was seen as the “*Spiritus rector*,”<sup>64</sup> and “Father” (“*père*”)<sup>65</sup> of all European motorway proposals. This book is focused on the Italian motorways built in the interbellum, but it investigates how they influenced European and non-European discussions. In the 1920s and 1930s, thousands of foreign technicians, policy makers, and journalists visited the Italian motorways, contributing to making them an icon of modernity, the feature that motor car diffusion needed for its rapid growth. Most likely, the audience was waiting for this kind of groundbreaking sociotechnical system, and, at the same time, its success was carefully planned. Already in April 1923, Mussolini and Puricelli, a month after the start of construction, proposed Milan as the seat for the 1926 Permanent International Association of Road Congresses (PIARC) conference. Milan was chosen precisely because of its

role in the motorway programs. The PIARC conference further boosted the international recognition of those projects; fascism obtained a great propaganda success, while Puricelli dreamed of European and non-European motorway schemes (and works, including a 1920s motorway plan for the Beijing–Sea route in China). If, in Italy, Puricelli's star had already declined in 1927, the zenith of that worldwide debate was the period between 1928 and 1932, during which the idea of European motorways was conceived as a political and economic tool. Political, because the building of a European network was seen as a tool to consolidate the ephemeral diplomatic distention following the 1928 Kellogg–Briand Pact; economic, because the 1929 crisis was becoming evident and the motorway construction work could be used as a sort of European New Deal. Puricelli's restless dynamism made Italy part of that plan, but the 1929 crisis was too strong to support those dreams. The rise of Hitler in Germany was the final blow, enclosing each country within its nationalism and putting a European plan out of reach, even though the Nazi regime exploited and developed the Italian example to a level that was unheard of, making *Autobahnen* one of the main pillars of its propaganda.<sup>66</sup>

### Who Conceived the Motorways?

There is little doubt about the role of Piero Puricelli in the events surrounding the motorways. He was the motorway "inventor," its enthusiastic prophet, its planner, and its builder. He was more than a road engineer or a talented entrepreneur. Born in Milan, he obtained his degree in Switzerland, took over the family company, specialized in road construction, and made the company into the main Italian player in the sector. During World War I he already understood—a lot better than his Italian peers—that road renewal was relevant as part of a larger discussion about modernization, and through his entrepreneurial activities he built a large and strong network of supporters.<sup>67</sup> He visited the United States as early as 1919, and later sent one of his assistants there to develop a better grasp on the technical and social developments on the other side of the Atlantic and to be able to imitate the mechanized construction systems in Italy. In the same period, he founded (with the Italian Touring Club) and funded a road materials laboratory (1919); conceived, planned, and built a racetrack in Monza, still in use today (1922);<sup>68</sup> founded and funded a chair devoted to road engineering at the Polytechnic University of Milan (1925); and coordinated a road renewal inquiry on the entire Italian road network, which included

Build-Own-Operate-Transfer (BOOT) project financing (1925–1927). He had a good relationship with the socialist Milan city administration, and very likely also generously financed Mussolini's party. Puricelli was the president of the city annual fair and later vice president of the Bureau of International Expositions. He was appointed senator in 1929, and in 1940 was made count of Lomnago.<sup>69</sup> He was also a man with fortunate timing when it came to motorways: a few months after his proposal for a motorway connecting Milan with the Alpine lakes, Mussolini was appointed prime minister. Two weeks after this appointment, Mussolini's government approved (and cofinanced) Puricelli's project. Puricelli not only built the motorway in sixteen months, but soon implemented a project of renewal for 20,000 kilometers of Italian roads.

However, if I have no doubts about Puricelli's extraordinary presence and energy, he was not always passionate about his creation. For Puricelli the motorways had an instrumental business role, which is shown very well in his private letters and confidential reports. By 1925, he was already claiming that the Italian motorway fever could have negative effects on the road renewal programs, while between 1929 and 1931 he was simultaneously fantasizing about mammoth continental European road plans and dismissing many—if not all—of the Italian proposals for new construction as flimsy and inconsistent. So I believe that his motorway projects should be framed first and foremost as a business campaign of personal and professional affirmation: for Puricelli they were an extraordinarily valuable (and successful) public relations strategy, which further boosted his relevance in the Italian and international industrial landscape. This also explains Puricelli's political role, a role that has been forgotten by historiography. Despite the fact that his archives are not accessible, and probably will never tell us the whole story, we can say with confidence that Puricelli acted as a hidden ambassador for Mussolini. We find him visiting foreign dignitaries and even prime ministers of Germany, France, and Austria in the same weeks that diplomacy antennas were twitching. He was in Germany to meet Hitler in 1934 while the Dollfuss crisis affected the diplomatic agenda, and in Paris in late 1935 when the Italian government was promoting French and U.K. neutrality about the forecasted Ethiopia invasion.<sup>70</sup>

Puricelli, naturally, was not alone. He was *primus inter pares* in a very large network, in which it is difficult to differentiate between a real, passionate engagement with modernity and more trivial economic targets. The Milanese economic and political establishment was largely tied up in the 1922 motorway program. The program matched the widespread ideas of speed, efficiency, and novelty, but it also appealed to the desire to open a new period of infrastructural development, explicitly recalling

the golden era of nineteenth-century railway fever. The Milan establishment was also charmed by the idea of being at the core of such a program, not only in terms of entrepreneurship, but also geographically, with Milan at the center of the network. So the motorway programs mirrored the city's ambitions of modernity, dynamism, and up-to-date infrastructure developments. Of course, some entrepreneurs were happier than others to develop motorways: Piero Pirelli (rubber industry) and Ernesto Reinach (lubricant oil) had additional reason to support Puricelli's ambitions. The same can be said about the Milan Automobile Club, or the Italian Touring Club, considering the latter had (and still has) its headquarters in Milan. However, the involvement was broader: the entire Milanese bourgeoisie, as well as the socialist local administrations, rotary club members, and bankers, industrialists from all sectors, top-ranking road technicians, Lombardy Chambers of Commerce, and provincial councils. It is difficult to believe that experienced bankers like Giuseppe Toeplitz considered the motorway to be good business. More likely, they considered Puricelli's proposal as a pie in which to put their fingers, aiming at potential long-term benefits, and maybe fascinated personally by the audacity of such a big vision for the future. As happened for the railway fever in the nineteenth century, in 1922 the Milan-Lakes motorway generated a domino effect and irrepressible enthusiasm: in every city from Naples to Bergamo, local committees mushroomed with the aim of building motorways. However, just a couple of years later, Piero Puricelli found himself unable to control his own creation. And, as early as the late 1920s, Mussolini's regime no longer saw any appeal in financing motorway programs; following the 1929 crisis, new motorways were definitively out of the question.

In comparison with the big vision and multitude of plans, the actual outcomes realized in Italy in the 1920s and 1930s were meager and incoherent, left to the fate and will of local committees and to the power of their patrons (and their limited aspirations and short-term speculations). Altogether, only 500 kilometers of motorway were built, without any real coordination by the central authorities, although Milan was at the center of the embryonic network. After 1933, in the same period that Nazi Germany began a program that overshadowed any previous outcomes, the Italian government found itself constrained to buy back the private motorway companies. The government took on the management of the few motorways that had been built, while Puricelli lost his empire.



## The Italian Motorways and Their Historic Legacy

The history of the Italian motorways is still an underdeveloped area. While Puricelli pops up today in many publications dealing with the European technocrats and we have good investigations of the interbellum European motorway lobby, Italian historians have given little attention to the country's motorways. Lando Bortolotti's works, published back in the 1980s and 1990s, are an exception. They were pioneering publications, breaking down the rhetoric of Italian primacy in building motorways (the first in the world), and those texts are still a major source of information on this issue. On his own, Carlo Mochi offered a careful reconstruction of the entire Italian transport policy throughout the twentieth century,<sup>71</sup> while in the past two decades, in parallel to a renewed international debate,<sup>72</sup> Andrea Giuntini, Federico Paolini, Enrico Menduni, and Stefano Maggi, among others,<sup>73</sup> have added to the literature.

The legacy of the 1920s motorway program is controversial: the 1929 crisis crushed Puricelli's companies (although he himself received very generous severance pay). After World War II, he was too involved in the fascist plot to be back on the stage, and most likely not interested in defining a new political role for himself.<sup>74</sup> In the 1950s, during the launch of the new national motorway programs, the events of the 1920s were an embarrassment due to the involvement of Mussolini. The plans from the 1920s and 1930s were surely on the desks of the new planners,<sup>75</sup> but the new building season followed other models and rhetoric, and the Italian technicians (usually those from the prewar period) did not need any creation myth to legitimize their actions—even less one as politically cumbersome as Puricelli's.<sup>76</sup> They looked with admiration at the United States model and the International Road Federation's activities.<sup>77</sup>

The 1973 oil crisis showed the limits of the motorway (and motor vehicle) model, leading to self-reflective analysis. The private companies involved in the motorway business started to show interest in their remote history, which culminated in some self-celebratory volumes and articles devoted to rediscovering the 1920s plans, after carefully removing any political or ideological implications. After a long purgatory, Puricelli was often presented as a visionary, albeit an ingenious and politically clumsy genius.<sup>78</sup> According to a simplified vision of technology history, motorways were the outcome of a one-man band, Piero Puricelli. Experts and technicians of motorway engineering, such as Francesco Aimone Jelmoni,<sup>79</sup> a pupil of Carlo Isnardo Azimonti and planner of the Milan–Naples motorway in the 1950s, Giovanni Da Rios, and Savino Rinelli, in their 1970s and 1980s publications, depicted

Puricelli as a visionary entrepreneur, audacious to the point of fearlessness, with a strong vision that was unaccomplished due to bad luck. In this rosy version of his profile, it was only thanks to his 1920s plans and construction that 1950s Italy was able to implement a modern program after World War II. The misunderstandings of Puricelli's contemporaries or even the aversion of the fascist leaders prevented him from reaching his ambitious and idealistic goals.

Engineer Puricelli had from the beginning a realistic and rational concept of the real function of motorways, and foresaw with astonishing clearness the developments and diffusion they should have had. We feel we must say that due to a mix of circumstances and external factors, the prevailing (and not prudent or careful) interference of the political powers of the times [i.e., the Fascist regime] and the enthusiasm generated by the first proposals together mutated the correct implementation of Puricelli's ideas. These were, therefore, incorrectly understood, promoted by means of superficial opinions and poorly considered assessments, which were sometimes malevolent.<sup>80</sup>

For Jelmoni, the inauguration of the first completed leg of the Milan–Lakes motorway in 1924 was a landmark, though its historical relevance was not fully understood. It was in that moment that it was possible to define the true profile of Puricelli: a genius. “Nobody could have imagined what that first short (but for the period, great) motorway would represent. Really, nobody? No, one person understood: a gentleman just in his forties, tall and sharp, with pleasing manners, an open and charming smile that sweetened his severe face; that gentleman who, in a frock coat and top hat, was next to the [Italian] king in the motor vehicle during the inaugural trip from Milan to the lakes: it was the engineer Piero Puricelli, count of Lomnago, the first in the world to conceive of the motorway.”<sup>81</sup>

In opposition to these hyperbolic statements, other views of Puricelli's actions soon emerged in the Italian literature, developed in a new season of studies of the fascist period. Lando Bortolotti, after his 1978 book on the fascist housing policy, painted the Milanese entrepreneur critically, depicting him as a champion of arrogant and ruthless speculations, with muddy relationships with the finance world and shadowy dealings. Puricelli was indifferent to the cost of his “bizarre” initiatives because he was backed by ample political protection, including by Mussolini himself. Puricelli was an antihero, ready to suck money from the treasury, cunningly using public resources to implement his lavish—and pointless—motorway programs. The political system was vulnerable to this plot, making it possible to create a useless and meaningless motor-

way network for a country with practically no cars. For Bortolotti, the costs of the disgraceful operation were a burden on the public treasury, while the profits enriched the unscrupulous and swashbuckling contractors. Puricelli emerged as the villain of that period.<sup>82</sup>

The most recent investigations frame Puricelli in a broader context in which the motorway programs were (correctly) only a part of a wider professional and financial biography. Annabella Galleni and Nicola De Ianni worked on Puricelli's professional adventures, opening a new stage of studies on road renewal in the first part of twentieth-century Italy.<sup>83</sup> Their archival research and their historical analysis allow us to better understand Puricelli—his success and his failure. His role as a visionary is confirmed, defining him more as a pathfinder than as a classical contractor, with an international vision of his company in his mind. Puricelli was, in other words, an entrepreneur, able to move easily in the finance salons, with strong contacts with political actors (democratic, socialist, and then fascist), and with international ambitions for his business. However, he was overwhelmed by his ambition, by too many speculations, and, to be fair, by a new financial landscape that emerged after the 1929 crisis.

### **This Volume**

This volume has, like any other book, a history itself. My historical interest in Italian and European motorways is now fifteen years old. I have spent this time reading, exploring historical archives, and discussing the topic with many colleagues. As a major outcome of that activity, in 2007 I published a volume in Italian, through the Turin publisher Trauben—a book that can now be enjoyed in English. However, this volume is a lot more than a translation. After the Italian version was published, I continued to work on the topic, publishing other papers, articles, and essays in Italian and English journals and books.<sup>84</sup>

Therefore, this book includes additional material, newly written, in order to position the Italian case study to an international audience, and to better highlight the relevant international connections, impact, and influences of the Italian motorway programs of the fascist era. In this volume I not only considered the evolution of my research and thought, but also the rich changes that have occurred in the historical debate on roads, transport, and mobility.

The volume is organized in eight chapters, which describe, in roughly chronological order, the Italian motorway history in the interbellum period. As explained above, to better understand the reasons behind

the Italian motorway programs, the first chapter explores the history of Italian roads before motorways, between national unity in 1861 and Mussolini taking power in 1922.

The second chapter describes the early 1920s construction proposals and their outcomes, also presenting the main actors, while chapter 3 focuses on the propaganda uses of this work and on the 1926 International Road Congress (PIARC), which represents the peak of propaganda using Italian motorways. Chapters 4 and 5 discuss the weak elements of the motorway projects, and how the above elements clashed with or integrated into the wider fascist politics regarding transport.

The analysis of a large-scale event like the Italian motorways often results in losing a grip on some details. For that reason, chapter 6 is devoted to a single motorway, the Turin–Milan, detailing a case study and scrutinizing the role of Fiat in the motorway business.

Chapter 7 analyzes the final 1930s crisis in the motorway field and the state's role in covering the debts in order to save its prestige, while chapter 8 explores the late 1930s and the long-term legacy of the interbellum plans.

Finally, the conclusion analyzes the success and the originality of the Italian motorways in a European framework, claiming that Puricelli's proposals were part of a debate about Europe, in which motorways were icons of a political and technological achievement, autonomous and independent of the U.S. and U.S.S.R. models.

## Notes

1. "Lon. Mussolini a Lainate inizia i lavori per le autostrade," *La Stampa*, 27 March 1926. See also Italo Vandone, "Il primo colpo di piccone per le autostrade da Milano ai laghi," *Le Strade* 5 (1923), 133–134 (claiming that Mussolini dug about a metric cube of soil!).
2. For a critical assessment of the fascist "aestheticization of politics," see Roger Griffin, *Modernism and Fascism: The Sense of a Beginning under Mussolini and Hitler* (New York: Palgrave Macmillan, 2007), especially 271–278.
3. Lorenzo Benadusi, "Il mito della scienza," in *Storia d'Italia. Annali 26. Scienze e cultura dell'Italia unita*, ed. Francesco Cassata and Claudio Pogliano (Torino: Einaudi, 2011), 157–176, here 162.
4. See Ernesto Ragionieri (and his overstatement of the fascist territorial program), ed., *Storia d'Italia, vol. 4, Dall'Unità a oggi: La storia politica e sociale* (Torino: Einaudi, 1976). For an international framework, see Wolfgang Schivelbusch, *Three New Deals: Reflections on Roosevelt's America, Mussolini's Italy, and Hitler's Germany, 1933–1939* (New York: Metropolitan Books, 2006).
5. Longdon Winner, "Do Artifacts Have Politics?," *Dedalus* 109, no. 1 (1980), 121–136.
6. Bernward Joerges, "Do Politics Have Artifacts?," *Social Studies of Science* 29, no. 3 (1999), 411–431.

7. See Eric Lehmann, *Le Ali del potere. La propaganda aeronautica nell'Italia fascista* (Torino: UTET, 2010); Andrea Giuntini, "Nascita, sviluppo e tracollo della rete infrastrutturale," in *Storia d'Italia. Annali 15. L'industria* (Torino: Einaudi, 1999), 551–616; see also Stefano Maggi, *Storia dei trasporti in Italia* (Bologna: Il Mulino, 2005); Federico Paolini, *Storia sociale dell'automobile in Italia* (Roma: Carocci, 2007).
8. Roger Griffin, *The Nature of Fascism* (London: Routledge, 1991), 79–80.
9. Michael Billig, *Banal Nationalism* (London: Sage, 1995).
10. Tim Edensor, "Automobility and National Identity: Representation, Geography and Driving Practice," *Theory, Culture & Society* 21, no. 4/5 (2004), 101–120, here 102.
11. Mimi Sheller and John Urry, "The City and the Car," *International Journal of Urban and Regional Research* 24, no. 4 (2000), 737–757.
12. Besides the seminal work of Charles S. Maier, *Recasting Bourgeois Europe: Stabilization in France, Germany, and Italy in the Decade after World War I* (Princeton, NJ: Princeton University Press, 1975), it is appropriate to remember here Jeffrey Herf, *Reactionary Modernism: Technology, Culture, and Politics in Weimar and the Third Reich* (Cambridge: Cambridge University Press, 1984) as well as Monika Renneberg and Mark Walker, eds., *Science, Technology, and National Socialism* (Cambridge: Cambridge University Press, 1993) and, naturally, Griffin, *Modernism and Fascism*. Unfortunately, the Italian debate on fascism and modernity and more particularly on technology, is embryonic: see Cassata and Pogliano, *Storia d'Italia*.
13. Peter Merriman, *Driving Spaces: A Cultural-Historical Geography of England's M1 Motorway* (Malden: Wiley-Blackwell 2007).
14. David Crouch. "Introduction: Encounters in Leisure/Tourism," in *Leisure/Tourism Geographies: Practices and Geographical Knowledge*, ed. David Crouch (London: Routledge, 1999), as quoted in Edensor, "Automobility and National Identity," 109.
15. See, among others, Tim Dant, "The Driver-car," *Theory, Culture & Society* 21, no. 4–5 (2004), 61–79; Edensor, "Automobility and National Identity"; Mike Featherstone, "Automobilities: An Introduction," *Theory, Culture & Society* 21, no. 4–5 (2004), 1–24; Jonathan Crary, *Suspensions of Perception: Attention, Spectacle and Modern Culture* (London: MIT Press, 1999); Jeffrey T. Schnapp, "Crash (Speed as Engine of Individualization)," *Modernism/Modernity* 6 (1999), 1–49.
16. Gijs Mom, *Atlantic Automobility: Emergence and Persistence of the Car, 1895–1940* (New York and Oxford: Berghahn, 2015).
17. *Ibid.*, especially chapter 7.
18. Gijs Mom, "Building an Automobile System; PIARC and Road Safety (1908–1938)," Proceedings of the PIARC conference, Paris, 17–23 September 2007, CD-Rom.
19. Edensor, "Automobility and National Identity," 109. See also Sheller and Urry, "The City and the Car."
20. Edensor, "Automobility and National Identity," 109.
21. Kurt Möser, "The Dark Side of 'Automobilism', 1900–30: Violence, War and the Motor Car," *The Journal of Transport History* 24, no. 2 (2003), 238–258, here 242.
22. *Le autostrade da Milano ai Laghi* (Milano: Società anonima Autostrade, 1923), 22.
23. Mom, *Atlantic Automobility*, 648.
24. Billig, *Banal Nationalism*, 42; see also Edensor, "Automobility and National Identity," 113.
25. Edensor, "Automobility and National Identity," 115.

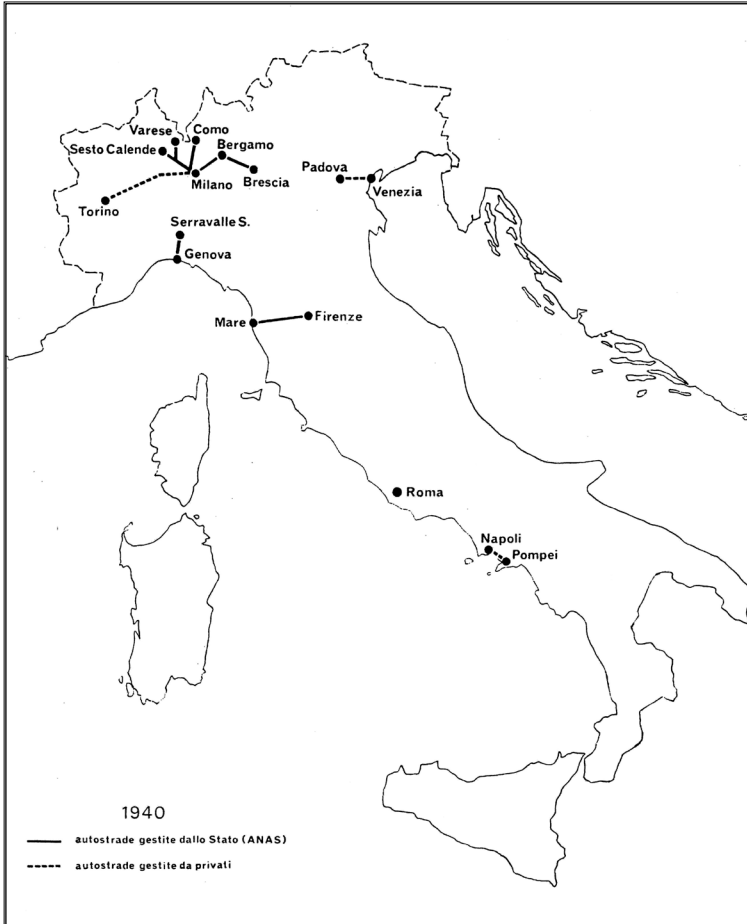
26. Mom, *Atlantic Automobilmism*, 286.
27. Jeremy Packer, *Mobility without Mayhem: Safety, Cars, and Citizenship* (Durham, NC: Duke University Press, 2008), 271.
28. *Ibid.*, 73.
29. Mom, *Atlantic Automobilmism*, 603. Italics in the original.
30. Gillie Deleuze, *Two Regimes of Madness: Texts and Interviews 1975–1995* (New York: Semiotext(s), 2006), 322, quoted in Cotten Seiler, *Republic of Drivers: A Cultural History of Automobility in America* (Chicago: University of Chicago Press, 2008) 144.
31. Massimo Moraglio, "European Models, Domestic Hesitance: The Renewal of the Italian Road Network in the Interbellum," *Transfers: Interdisciplinary Journal of Mobility Studies* 2, no. 1, 87–105.
32. Jon Alexander and Joachim K.H.W. Schmidt, "Introduction," in *Social Engineering*, ed. Adam Podgórecki, Jon Alexander, and Rob Shield (Ottawa: Carleton University Press, 1996), 1–19, here 3.
33. *Le autostrade da Milano ai Laghi*, 9.
34. See Consiglio del Tci, "Per l'automobile e per la bicicletta 'strumenti di lavoro'. Prima parte," *Le vie d'Italia* 7 (1921), 692–700, and "Seconda parte," *Le vie d'Italia* 8 (1921), 803–808.
35. Luigi Vittorio Bertarelli's notes in *Le autostrade da Milano ai Laghi*, 14–15.
36. Piero Puricelli, *Rete stradale per autoveicoli Milano–Lago di Como Milano–Varese Milano–Lago Maggiore. Relazione* (Milano: Umberto Gioni, s.d. [1922]), 10.
37. Thomas Rohkrämer, "Antimodernism, Reactionary Modernism and National Socialism: Technocratic Tendencies in Germany, 1890–1945," *Contemporary European History* 8, no. 1 (1999), 29–50.
38. Herf, *Reactionary Modernism*, 217.
39. For a first approach see Cassata and Pogliano, *Storia d'Italia*; Benadusi's work, "Il mito della scienza," contained therein, deals with this issue.
40. Griffin, *The Nature of Fascism*, 225.
41. See Patrick Bernhard, "Hitler's Africa in the East: Italian Colonialism as a Model for German Planning in Eastern Europe," *Journal of Contemporary History* 51, no. 1 (2016), 61–90, here 66.
42. See, among others, Attilio Brilli, *Un paese di romantici briganti. Gli italiani nell'immaginario del Grand Tour* (Bologna: Il Mulino, 2003).
43. Merriman, *Driving Spaces*, especially the first chapter.
44. Frank Schipper, *Driving Europe* (Amsterdam: Aksant, 2008), 191.
45. Rohkrämer, "Antimodernism, Reactionary Modernism and National Socialism," 30.
46. Martin Kohlrausch, "The Hour of the Experts? Reflections on the Rise of Experts in Interbellum Europe," in *Scientists' Expertise as Performance*, ed. Kaat Wils and Joris Vandendriessche (London: Pickering & Chatto 2015), 67–79.
47. *Ibid.*, 71.
48. Adrian Lyttleton, "The 'Crisis of Bourgeois Society' and the Origin of Fascism," in *Fascist Italy and Nazi German: Comparisons and Contrasts*, ed. Richard Bessel (Cambridge: Cambridge University Press, 1996), 12–22, here 21.
49. Herf, *Reactionary Modernism*, 221.
50. *Ibid.*
51. *Ibid.*, 194.
52. Griffin, *The Nature of Fascism*, 47.
53. Mom, *Atlantic Automobilmism*, 592.

54. Rohkrämer, "Antimodernism, Reactionary Modernism and National Socialism," 47.
55. *Ibid.*, 49.
56. Benadusi, "Il mito della scienza," 162.
57. Gijs Mom, "Roads without Rails: European Highway-Network Building and the Desire for Long-Range Motorized Mobility," *Technology and Culture* 46, no. 4 (2005), 745–772, here 746.
58. A good panorama of "Atlantic" national road policies can be found in Gijs Mom, "Decentering Highways: European National Road Network Planning from a Transnational Perspective," in *Die moderne Strasse*, ed. Hans-Liudger Diel and Hans-Ulrich Schidt (Frankfurt am Main: Campus, 2010).
59. Germà Bel, "The First Privatisation: Selling SOEs and Privatising Public Monopolies in Fascist Italy (1922–1925)," *Cambridge Journal of Economics* 35, no. 5 (2011), 937–956, here 953.
60. Seiler, *Republic of Drivers*, 94. For the "freeway lobby" in the interbellum see also Mom, "Building an Automobile System; PIARC and Road Safety (1908–1938)."
61. See Lehmann, *Le Ali del potere*.
62. On Vandone, see Daniele Bardelli, *L'Italia viaggia. Il Touring Club, la nazione e la modernità. 1894–1927* (Roma: Bulzoni, 2004), 216–217. On Crespi, see Schipper, *Driving Europe*.
63. On the fascist "raids" in South America, see Federico Caprotti, "Overcoming Distance and Space through Technology: Connecting Fascist Italy with South America," *Space and Culture* 14, no. 3 (2011), 330–348.
64. Reiner Ruppmann, "The Development of the European Highway Network: A Literature Survey of Studies on Highway History in European Countries," in *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency*, ed. Colin Divall and Ralf Roth (Surrey: Ashgate, 2015), 275–314, here 278.
65. Schipper, *Driving Europe*, 104.
66. Thomas Zeller, *Driving Germany: The Landscape of the German Autobahn, 1930–1970* (New York: Berghahn, 2010), 48.
67. See Annabella Galleni, "Strade, autostrade e fascismo: un memoriale di Piero Puricelli (1940)," *Imprese e storia* 19 (1999), 47–82; Nicola De Ianni, "Vecchi e nuovi documenti sullo stato industriale," in *La storia e l'economia, volume 2*, ed. Anna Maria Falchero, Andrea Giuntini, Giampietro Nigro, and Luciano Segreto (Varese: Lativa, 2003), 291–316.
68. On the Monza racetrack see Italo Vandone, "Il 'circuito di Milano' nel parco di Monza," *Le vie d'Italia* 8 (1922), 817–824, and Lando Ferretti, "Il circuito di Milano," *Le vie d'Italia* 10 (1922), 966–976.
69. For Puricelli's personal details and his titles see the Italian senate website, which also contains some documents regarding the Milanese entrepreneur: <http://notes9.senato.it/Web/senregno.NSF/ed09445904d7899dc1257114003829b4/c8d9d90adee649064125646f005eca80>, accessed on 6 February 2015.
70. See chapter 7 of this volume.
71. Carlo Mochi, "I trasporti," in the volumes *Annali dell'economia italiana 1923–1929; 1930–1938; 1939–1945* (Milano: Ipsoa, 1981–1984).
72. See Colin Divall and George Revill, "Cultures of Transport: Representation, Practice and Technology," *The Journal of Transport History* 26, no. 1 (2005), 99–111; Gijs Mom, "What Kind of Transport History Did We Get? Half a Century of JTH and the Future of the Field," *The Journal of Transport History* 24, no. 2 (2003), 121–138.

73. For a reference framework about the Italian transportation system, see the Giuntini, Maggi, and Paolini works quoted above. See also Enrico Menduni, *L'autostrada del Sole* (Bologna: Il Mulino, 1999).
74. See again the Puricelli file regarding his (meager) activities as a senator, available at [http://notes9.senato.it/web/senregno.nsf/All/c8d9d90adee649064125646f005eca80/\\$file/1839%20Puricelli%20Piero%20fascicolo.pdf](http://notes9.senato.it/web/senregno.nsf/All/c8d9d90adee649064125646f005eca80/$file/1839%20Puricelli%20Piero%20fascicolo.pdf), accessed on 6 February 2016. He was not back in Italy as late as spring 1946, nor did he oppose the loss of his position as a senator.
75. Giuseppe Pini, "Piano regolatore delle autostrade italiane," *Politica dei trasporti* 5 (1951), 151–157.
76. See, among others, Bruno Bolis, "I piani per il miglioramento della viabilità," *Le vie d'Italia* 3 (1953), 369–376, and Quinto Zechini, *Le strade italiane nel primo centenario dell'unità nazionale* (Roma: Editoriale Firema, [1961]).
77. Menduni, *L'autostrada del Sole*.
78. See the articles published in 1974 in the journal *La rivista della strada* [The road review], then also presented in monographic issues for the Milan University Polytechnic, and finally as essays for the volumes *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984) and *Le autostrade della seconda generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1990).
79. For Jelmoni's profile see Giovanni Da Rios, "Francesco Aimone Jelmoni," in *Dizionario biografico degli italiani, volume 72* (Roma: Istituto della enciclopedia italiana, 2004), available at [http://www.treccani.it/enciclopedia/francesco-aimone-jelmoni\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/francesco-aimone-jelmoni_%28Dizionario_Biografico%29/), accessed on 3 April 2016.
80. Francesco Aimone Jelmoni, "Il 21 settembre 1924, la prima autostrada nel Mondo," *La rivista della strada* 398 (1974), 21–26, here 22.
81. Francesco Aimone Jelmoni, "Autostrada Milano–Laghi (inaugurazione)," in *Le autostrade prima generazione*, 30–34, here 31.
82. Among Bortolotti's main works, it is worth remembering: *Storia della politica edilizia in Italia* (Roma: Editori Riuniti, 1978); "Viabilità e sistemi infrastrutturali," in *Storia d'Italia. Annali 8. Insediamenti e territorio*, Cesare De Seta (Torino: Einaudi, 1985), 289–368; "Origine e primordi della rete autostradale in Italia, 1922–1933," *Storia urbana* 59 (1992), 35–69; "I congressi autostradali internazionali del 1931 e 1932 e le prime proposte di un sistema autostradale europeo," *Storia Urbana* 75 (1996), 5–26; and finally, Lando Bortolotti and Giuseppe De Luca, *Fascismo e autostrade. Un caso di sintesi: La Firenze-Mare* (Milano: Franco Angeli, 1994).
83. See Galleni, "Strade, autostrade e fascismo"; De Ianni, "Vecchi e nuovi documenti sullo stato industriale."
84. Among them, it would be appropriate to refer to my essays on "Transferring Technology, Shaping Society: Traffic Engineering in PIARC Agenda, in the Early 1930s," *Technikgeschichte* 80, no. 1 (2013), 13–32; "European Models, Domestic Hesitance: The Renewal of the Italian Road Network in the Interbellum," *Transfers: Interdisciplinary Journal of Mobility Studies* 2, no. 1 (2012), 87–105; "Real Ambition or Just Coincidence? The Italian Fascist Motorway Projects in Interwar Europe," *The Journal of Transport History* 30, no. 2 (2009), 163–182, and in the same year "Per una storia dell'autostrada Roma–Napoli," *Annale di storia regionale* 3, no. 4 (2009), 243–266; in 2007, "A Rough Modernisation: Landscapes and Highways in Italy in the 1900s," in *The World Beyond the*



*Windshield: Roads and Landscapes in the United States and Europe*, ed. Christoph Mauch and Thomas Zeller (Athens: Ohio University Press); also in 2007, "Highway Networks in Italy and Germany Between the Wars: A Preliminary Comparative Study," *Road History: Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchatel: Alphil).



**Figure 0.1.** Italian motorways built from 1922 to 1943.

Source: Author elaboration from Aipcr/Piarc 1909–1969 (Paris: Aipcr/Piarc, 1970).  
 Courtesy of World Road Association.

## CHAPTER 1



# The Roads before the Motorways

## Road Policies in Italy in the Second Half of the 1800s

When compared with other European nations, mid-1800s Italy had a noticeable deficit in its roads network, which was accentuated by the peninsula's complex orography. It was a country that had achieved national unity late, in 1861. Even more, the development of a coherent roads network program was prevented by the contemporary railway frenzy, and by the scarcity of resources.<sup>1</sup>

The lack of a systematic project of road growth and improvement did not mean there was a lack of initiatives: The political establishment of the time saw the theme of transport as one of the fundamental aspects of nation building, but efforts were disjointed, without a precise policy, and too often had no real effects. Naturally, the political and administrative difficulties caused by unification also significantly impacted the roads sector. A few years after unification, in 1865, the country had new national laws on the Italian administrative system, which had a double impact on the roads field. First, there was a new systemic framework for the public works sector, including a precise listing of the roads, which would be categorized as state, provincial, and municipal roads (in its turn derived from the eighteenth-century French model). Second, there was a clear definition of the activities of the local authorities for the whole country: in particular, the provinces acquired a broad administrative autonomy.<sup>2</sup>

The 1865 roads classification took a long time to complete. It was a multifaceted operation that involved municipalities (although not all would prepare the lists), provincial councils, and the ministry of public works.<sup>3</sup> The results varied according to the different regions: Lombardy and Veneto had a dense roads network; Piedmont and Emilia-Romagna had a reasonable provision. Elsewhere, from Liguria to the south of the country, the roads network was mostly limited to several major road axes, and almost completely lacked local roads.<sup>4</sup>

The national government undertook several initiatives to improve the situation, promoting road construction, particularly at a local level. The first example of this was the 1868 law no. 4613, on the "Compulsory

construction and renewal of municipal roads." The intention of the legislature was to rectify the lack of resources and willingness that characterized the roads sector at its weakest administrative level (weak both in resources and technical competence), that is, the municipalities. The law instated state and provincial subsidies, a special municipal tax to raise funds, the re-establishment of feudal corvée obligations, and army deployment to defend construction sites (or to control the workers?), even requiring the soldiers to provide manual labor for building. The compulsory roads law was designed to reproduce the effects of France's 1836 law "*sur les chemins vicinaux*," which had allowed the transalpine country to endow its entire territory with an efficient roads network.<sup>5</sup>

In 1869 another law was approved, for the "construction of national and provincial roads in the southern mainland provinces," to fortify the provincial and national roads in the Italian south and make those areas accessible: an answer to the peasant riots against unification, which lasted for a decade.<sup>6</sup> In 1875 and again in 1881, further interventions were approved to construct a substantial number of provincial roads. The "Law 30 May 1875 for the construction of roads in the provinces most lacking" approved state spending of 47 million lire (about USD 220 million today), to be used for the construction of sixty-two provincial roads. Almost this entire sum was destined for the south, and the construction was entrusted directly to the state, with responsibility passing to the provinces once the necessary works were completed. The subsequent "Law 23 July 1881 authorizing spending of 225,126,704 lire (about USD 1 billion today) for the construction of new special roads and hydraulic works in the fifteen years from 1881 to 1895" abundantly added to the amounts dedicated to provincial road construction outlined in the 1869 and 1875 laws. In addition, it raised the annual amount destined for compulsory municipal roads from 3 to 4 million (USD 13 and 17 million respectively) and detailed a hefty list of road works.

Despite the severity of the laws, the broad substitutive powers, and even the direct assumption by the Ministry of Public Works of the territorial works, the road sectors could not change the state of things merely through decree. The inertia of the various actors involved in the road construction program—starting with the municipalities and provinces—could in fact slow down the projects discussed in Rome beyond measure.

Beyond the historical hypotheses that we can advance, we should not forget that despite the action and even energy displayed by the legislators with the various laws, an inherent contradiction within the sector weakened their fervor. As in the pre-unity regulations, the 1865

law of administrative unification stated that if a railway ran parallel to a national road, the latter would be officially downgraded to a provincial one. Given that in the second half of the 1800s, Italy was in the grip of railway fever, it is obvious that the state was continually ceding tracts of national road to the provincial administrations—unbalancing the scales—and progressively reducing its own commitment in the roads sector. At the same time, while the number of national roads decreased as they were assigned to local authorities, the state, using the savings obtained, was financing the same provinces now responsible for the devolved roads. So on the one hand, the state assigned the fundamental function of long distance transport to the trains, but at the same time, through new laws and regulations (which were as draconian as they were unrealizable), it recognized that the roads were an essential element for national cohesion.

In other words, blinded by the railway myth but obliged to act upon roads, the national ruling class oscillated visibly between the desire to abandon the entire sector to local authorities *tout court* and the firm desire to finally open the territory to mobility (and control). The single—ambiguous—way out was to involve the municipalities and the provinces in the roads sector even more dramatically. This explains the abundance of regulations, the redundancy of the laws, and the increase in roads listed as needing specific interventions. It also explains the state subsidies to the provinces and municipalities, which were necessary to stimulate local authorities that were either reticent or lacking in means.

### **The Roads Problem between the 1800s and the 1900s**

While the first decades after national unity in 1861 can be seen as the height of state action in the roads sector, 1894 saw the approval of law 338. This law indefinitely suspended the application of regulations for compulsory roads, defaulting on any support for local roadways. This did not mean that the minor municipal and rural roads were in good condition, or that the municipalities were able to find the resources to carry out the minimal works that everyone hoped would be completed. Rather, the push for works and the support of the provincial and municipal authorities that had persisted through the unification phase had abated. In addition, the law on compulsory municipal roads “had been a semi-failure, despite the pressure exercised by the specifically created intricate bureaucratic organization. Between 1869 and 1904, only 22,158 kilometers of these roads were realized: very few, if you think that . . . calculations indicated that to match France and England they needed

to construct 257,000 kilometers, and just to raise all of Italy to the Lombardian level, 121,000.<sup>7</sup>

The vast implementation difficulties that faced the 1868 law on compulsory roads—and that made the results so tenuous—were already evident at the time.<sup>8</sup> But the needs at the base of the law, that is, the insufficient quantity and quality of the Italian roads network, still had not been satisfied.

Overcoming the political crisis at the end of the century, in 1903 parliament approved a new tool to support municipal roads. It enacted a law for the construction of roads connecting inhabited centers with the railway stations,<sup>9</sup> a support that was more precise and specific in its aims. The objective of the law was not the generic construction of local roads, and certainly not rural ones, which were the focus of the first attention of journalists and deputies,<sup>10</sup> but rather the realization of roads between the principal inhabited centers and the closest railway stations. It was an apparently modest objective, somewhat defeatist regarding the more generous intentions of the 1860s and 1870s laws, but in reality it contained precise motives of realism: as Carlo Cattaneo—one of the most brilliant (and critical) observers of the Italian public works initiatives—had indicated as early as the 1840s, the existence of feed roads to the railway stations was one of the conditions of success of the railway.<sup>11</sup> The 1903 law on access roads to the railway stations “established that the municipalities that within eight years built roads or parts of roads to access their namesake railway stations would have the right to a subsidy from the state, equal to half of the effective costs sustained, and a subsidy from the province, equal to a quarter. . . . Equal subsidies would be granted to municipalities that constructed access roads to the nearest railway station, as long as the road was not longer than 25 kilometers in length, and comprised the existing roads for an eventual connection.”<sup>12</sup>

The more modest objectives, with their precisely defined ambitions and procedures, did not however mean that brilliant results were achieved. As in the past, the intentions were tied up in a thousand operative difficulties, such as the traditional diffidence of the local authorities to activate state contributions, the customary reluctance by the central authorities and their agents to enact the substitutive procedures, and the lengthy realization times. The disagreements between ministry, provincial councils, and municipal administrations over the various aspects of the law multiplied, muddying a mechanism that was supposed to be rapid and efficient.

The data shows that between 1904 and 1911 the increase in the roads network was, in total, little over 10,000 kilometers, of which 1,600 were

in the south.<sup>13</sup> The situation, in general difficult, was untenable in the south of Italy, where the municipalities could not contribute even a quarter of the total costs of road construction, as the law required. To try to offer solutions for the problem, in 1904, 1906, 1908, and again in 1910, special laws were approved for Basilicata and Calabria, the regions with the biggest problems. The laws for aid were intended to be temporary and limited, but the disastrous conditions of the infrastructure and the multiple difficulties of the plans inevitably prolonged the period of help.<sup>14</sup>

Although the Italian road system referred to the classical French model of three-tier networks (e.g., state, province, and municipality), in the first years of the 1900s the national political debate moved toward radical modifications of the administrative mechanisms. The constant and gradual reduction of the roads managed by the state (between 1866 and 1910 the length of national roads went from 14,000 to a little over 8,000 kilometers)<sup>15</sup> was matched by the equally constant and gradual increase of the provincial roads (which went from just under 10,000 to more than 40,000 kilometers in the same period). This led to the idea that the best configuration could have been to delegate all care of the roads to the provinces.

After an inconclusive governmental attempt in 1902, it was Giolitti's ministries that took on the first research aimed at reform: in 1909 the Minister of Public Works, Pietro Bertolini, promoted a commission and "a dedicated administrative study" on the management of the public roads network.<sup>16</sup> For the first time, a broad technical and political debate was opened on how to manage the roads network and it strongly advocated the idea that the state could completely abandon the sector. In 1911 a law was proposed (but not approved) to delegate the responsibility for all extra-urban roads to their respective provinces. The provinces would have received a state contribution of 1,200 lire (about USD 4,500 today) for every kilometer of road they took responsibility for, while the municipalities would have paid a contribution of 200 lire (i.e., USD 700).<sup>17</sup>

Partly due to the pressure from the *Unione delle province*—the association of Italian provincial administrations—the reform project involved the national government even more deeply, with three new commissions announced for 1912 by the new minister of public works, Ettore Sacchi.

Regarding *road management*, the board of directors [of the Union] advises, if not the realization of immediate reform, then at least a display of conviction by the government regarding the necessity of reforming the

legislative system governing roads. Three ministerial commissions have been created with the relative official participation by Union representatives, with the objective of studying:

- a) *The revision of the list of provincial roads.*
- b) *The legislation on private roads. . . .*
- c) *The assumption of management of the national roads by the provinces.*

The third ministerial commission is to do preparatory work, which is currently done by the central government offices, the district offices of the Civil Engineering Office, and the collaboration of the interested individual administrations. The questionnaire printed at the request of the Ministry of Public Works demonstrates the evident intention to study the problem with the aim of attributing the *cura viarum* to a single entity, without, however, that entity being financially burdened.<sup>18</sup>

In the cited questionnaire, the ministry expressly asked the provincial administrations if and how they could manage the national roads. This pleased the provincial administrations, as they would finally see the entire roads network entrusted to them: the valid reasons—practical, financial, and organizational—that supported their request actually concealed other motivations of a political nature. Becoming the sole, total manager of the roadways meant that the provincial authorities would have an irreplaceable infrastructural role and that their political weight would grow accordingly, assuming a decisional function on a national scale.

The hopes of the provinces were well founded, as in June 1912 the prime minister, Giovanni Giolitti, leaned in their favor on the theme of roads during a presentation to the Chamber of Deputies.

I believe that in substance, the best solution would be this: that everything should be a provincial road, that is, that the state cedes even the national roads, passing to the provinces what they are now spending on national roads; and that the provinces provide for the entire roads network by reallocating the spending governed by law. If we had just one roads network, the total cost would be a lot less, because we would not have three technical bodies: the state, the provinces, and the municipalities, which must provide this service; and also, with unified maintenance, we would have a more perfect roads network.<sup>19</sup>

It should not be forgotten that this proposal came from entities usually endowed with efficient maintenance services: many provincial administrations were at the avant-garde of the roads sector and had developed competences and functions that were comparable to the ministerial ones. At the frontline of this struggle were those adminis-



trations that had experienced strong social and economic demands, particularly for modernization of the roads network: Milan, Turin, Rome, Naples, almost all of those of the Po valley, followed by several in southern Italy.

The parliamentary inertia, the widespread resistance to the dispersion of decision-making processes, the heedless opposition of the ministerial apparatuses—which were fearful of losing control of the sector—led to doubts over the effective managerial capacity of the provincial authorities, above all in southern Italy. In the words of Minister Sacchi, “while on the one hand it’s doubtful if *all* the provinces are able to assume such a serious duty, on the other, we would like the important innovations to be surrounded with effective guarantees to ensure the integrity of the roads network, given the difficulty of the problem, which various commissions have studied, without finding sufficient data for an appropriate solution.”<sup>20</sup>

Once again, it was the old problem of a central state that was inclined to entrust the roads to local authorities, but that at the same time feared the loss of control over a central aspect of territorial management, above all in those places where the technical capacity and financial resources were the weakest. The entire process of delegation was additionally hampered by the officials of the civil engineering office. The work of the 1912 commissions ordered by Sacchi was conditioned by ministerial bureaucracy, which slowed the pace of the fact-finding surveys prepared by the minister—or, at times, simply prevented them altogether.<sup>21</sup>

Leaving aside these contradictions, the reform projects all had a small common denominator: the awareness of the impasse in which the roads sector found itself. This meant that, following the end of the conflict, the terms of the discussion in 1919 were the same as they had been in 1898, when a solution for the roads sector had been loudly called for in the course of the first meeting of the provincial representatives.<sup>22</sup> However, the war, economic development, the request from the local authorities to “devolve,” and finally, the establishment of the Fascist regime made the question much more complex than it had been at the start of the 1900s, leading to new and unexpected solutions.

### **The Postwar Proposals for Decentralization**

Starting in the 1920s, the development of motoring, although limited, called for profound changes to the roads, requiring—including in Italy—radical evolution of the technology used (cement or bitumen instead

of dirt roads or macadam),<sup>23</sup> modification of routes, reduction of level crossings over railways, and the construction of bypasses around built-up areas. At the same time, a new perception of roads as public spaces took hold, as the types of users were transformed and regulations of use became increasingly stringent.<sup>24</sup>

The roads sector reform proposals advanced in the early 1920s not only involved the administrative aspects, but they also touched on technical elements (curve adjustment, incline correction, widening). The drive to modernize the roads—which in the preceding decades had come firmly from several cycling associations, such as the Italian Touring Club (TCI), or from some of the provincial administrations—was by now the expression of a heterogeneous pressure group that included the TCI, the ACI (Italian Automobile Club), the motoring industries, the rubber industry, the petroleum and cement cartels, and the most relevant contractors for public works.<sup>25</sup> The Italian automobile and truck market needed to be supported by adequate infrastructure: improvements to the roads network were claimed to be indispensable for a broader modernization of the Italian transport system.

These were also the themes of the “Postwar Central Commission,” established in 1918, which contained a sub-committee for “Communication and transport,” presided over by Senator Maggiorino Ferraris. Motoring had become one aspect of the roads problem, and therefore “brought to the attention of the sub-committee one of the most recent and appealing aspects of progress favoring rural Italy: motor services, which have had such gratifying development in so few years.”<sup>26</sup> After celebrating the advantages of the automobile, the report noted how the development of motoring put “the importance of roads for the national economy into perspective.” The increase required “prompt, systematic, decisive measures, partly because Italy, in its entirety, has not yet achieved the roadways necessary for its economic progress.”<sup>27</sup>

In January 1920, in keeping with the choices of his predecessors (and following the indications of the Postwar Central Commission), the Minister of Public Works, Edoardo Pantano, ordered the umpteenth commission study. The study would “take into account the variations occurring in the traffic currents, the development of mechanical traction, and the widening of the state borders and the changed military needs; examine the national roads network and propose how to make it a systematic asset that better corresponded with current needs, also studying the eventual modifications to the regulations in force for the classification of the roads; and where it is deemed opportune, also study modifications to other regulations on the laws for public works, concerning provincial and municipal roads.”<sup>28</sup>

The principal work of the commission was therefore to reformulate the regulations, with particular attention to technological progress, and to formulate proposals to modify legislation regarding local roads, envisioning, when appropriate, provincial management of the state network. The delegation of functions from the state to the local authorities—that is, “decentralization” and “devolution” in the terms of the day—remained the main option.<sup>29</sup>

Caught between centralization and decentralization and between preexisting infrastructural requirements and limited resources, and immersed in the postwar political crisis, the debate on the roads network was confused and contradictory. The oscillating policies were unable to clarify a clear line of action for the government, parliament, and the various public actors involved. This ambivalence—which will be described in its essential details shortly—mirrored the more general state of confusion of the political class, unable to overcome the problems that had broken out during the global conflict. The country was by now embedded in the spiral that would carry it into the fascist dictatorship.

While the work of the Pantano commission continued, the decree of 19 November 1921 declared it possible for provincial administrations to substitute the public works office for national roads maintenance throughout the entire kingdom. In other words, the result hoped for by the provinces had been achieved, with the only—understandable—constraint being the ministerial agreement. In fact the delegation of national roads maintenance to the provinces never occurred; additionally, as the provincial representatives bitterly noted, the plans were opposed by the ministerial officers. These officers actually had opposing intentions: to subsume many provincial roads into the national scheme, with a ministerial structure governed by them to look after it all.<sup>30</sup> But while the public powers and their bureaucracy were involved in a bitter battle, private operators were not standing still. In 1921 the engineer Italo Vandone—director of the Experimental Roads Institute of the TCI and appointed by the Touring Club to the ministerial commission<sup>31</sup>—published a broad article in which he proposed subdividing the nation’s roads into four classes. Vandone abandoned the traditional scheme that assigned road maintenance based on the proprietary entity. He imagined a new subdivision, based on the importance of the road, estimating the distribution of kilometers in the Italian network among the various classes.<sup>32</sup> His idea was to break from the classical ternary subdivision from 1700s France, and instead introduce a system closer to the English one. In the United Kingdom, Vandone noted, the counties were the appointed maintainers of all the roads, but the national government was present through its technical supervision and a contribution to the costs.

The TCI proposal presented political and organizational elements of particular interest. Arranging a subdivision by class (type) and not by ownership would result in modernizing reform for the sector, overcoming the refusals of the public works office—because it did not directly target the responsibilities of the office. It would also provide an exit from the debate over which local authority—province versus region (the latter were likely to be created)—should be responsible for the roads. The success of the English roads reform of 1909 and 1919, with the formation of a Road Board and then Road Department, as well as the American legislation on highways in 1916 and 1921,<sup>33</sup> influenced the ministerial commission appointed in turn by Minister Pantano. In 1923, this body concluded its activities with a proposal to the ministry to cede all extra-local roads to the provincial administrations and to create a new roads classification with four categories.

The government was pressured by conflicting proposals, both of which had rich material and symbolic interests. Forced to move forward for political motives and unsure of which choice to make, they instigated a reform in 1923 that was a masterpiece of ambiguity.

Pushing them to this choice was the force of several interests in play, outlined concisely above, but there was also the wavering of the first year of Mussolini's government. The authoritarian direction did not translate *sic et simpliciter* into a clear governmental orientation in the administrative area. Statolatry was yet to come, and meanwhile the fascist government made choices that followed the indications of the preceding government, accompanied by economic interventions of a strict free-trade mold.<sup>34</sup> Fascism, inasmuch as it subverted the democratic political system, was not yet a stably constituted regime. It has been noted that "the reforms that the fascist government made between 1923 and 1925 were, for the most part, only the realization of projects elaborated during the preceding liberal-democratic government, and were as such not inspired by concepts of centralization and nationalization."<sup>35</sup>

In other words, the groundbreaking profile of the fascist government was tempered in the administrative field by inertia and a certain continuity with the past. So, in November 1923, when the reform of the roads sector was approved, accompanied by a new roads code, it reflected the work of the commission and the two decades of debate on the role of the state and the provinces in the roads sector, but at the same time it was burdened by the traditional doubts of state bureaucracy and the uncertainty of the government over ceding ground to subjects—in this case the local authorities—that fascism only partially controlled.

## The 1923 Reform and Its Failure

After twenty years of debate and fifteen years of commissions and studies, on 15 November 1923, royal decree 2506 was issued, governing "Regulations for the classification and maintenance of public roads." It was also known as the "Carnazza decree" or "Carnazza law," after the minister of public works, the Sicilian social-democrat Gabriello Carnazza. The selling point of the reform was that it abandoned the roads classification established in 1865 in favor of a new subdivision of the roads into four categories, following the English model. The maintenance of the first class of roads was entrusted to the state, with the option to delegate the task to the provinces; the second and third categories of roads were entrusted to the provinces, with the option for the Ministry of Public Works to take on the responsibility of maintenance; the fourth category of roads was entrusted to the municipality.

However, the law did not increase financing for the roads sector, imposing an insurmountable constraint on the program to modernize the roads. Article 21 of the decree established that: "'No increase in allocation can be made at the expense of the state balance for expenses relative to the implementation of the above regulations,' that is, the state, with the same amount of 58 million [about USD 65 million today] that it spent on maintaining around 10,000 km of national roads with not very intense traffic, now proposed to provide for maintaining all the most important roads in the kingdom."<sup>36</sup>

Two elements further tangled the already complex situation. The reform addressed only the maintenance of the roads, expressly leaving the old 1865 regulations concerning the *ex novo* construction of roads for motor vehicles intact. This was not a secondary question because, for example, the rectification of a curve or enlargement of a lane could be considered either as maintenance interventions or as new construction. This could have led to infinite disputes among the various public authorities about how to classify such interventions, and who should consequently bear their cost. In addition, the 1923 law subdivided maintenance expenses for every class among the various entities (state, province, and municipality), with the consequent imaginable increase and superimposition of bureaucracy.

The inherent contradictions and byzantine procedures formulated by the reform were the direct consequence of a partial and imperfect decentralization, and the highly superficial level of attention that the fascist government paid the roads problem. In other words, the Carnazza law was a bluff. The government found itself facing the deadline for the mandate of reorganization of public administrations set for

December 1923, and wanted to give the impression of a regime that was attentive to the transport sector and able to support developmental needs. Pressured by greater urgencies, the government reluctantly approved a reform that it had no intention of implementing, but that *seemed* decisive for a few years. Confirming this deceptive front, the government never promulgated the regulations of the reform, nor the planned law on the construction and maintenance of the roads.<sup>37</sup>

Despite their unfinished and ambiguous nature, the 1923 regulations represented a crucial passage in the history of Italian roads, which led to important decisions in the reallocation of public funds. The fundamental innovation was the retraction of the ban—existent since 1855 and reiterated in 1865—on national roads running parallel to railway lines. The new policy, an inevitable development in road transport, aggravated the disparity between northern and southern Italy. “It must be remembered that, while the railway was more developed in the richer provinces, the national roads barely existed there at all. . . . With the new law, many of the once-national roads declassified as provincial now became part of the first class, with the consequence that the state contributed to 50 percent of their maintenance.”<sup>38</sup> In other words, given that the local resources remained generally constant, there was a net *increase* in infrastructural investments, thanks to the state contributions provided for in the new law. However, “in the poorest provinces, where the railway network was less developed, the exact opposite occurred.”<sup>39</sup> In substance, the 1923 law favored the richest areas and penalized the poorer areas, aggravating the infrastructural problems of particular geographic zones, those that had always had fewer resources.<sup>40</sup>

Partly due to the disparities created, the government decided to take time and a provisory regime was settled until 20 June 1925. This administrative confusion and the power vacuum in the roads sector opened ample space for private interventions, as we will see in the next chapter.

## Notes

1. For the history of 1800s Italian roads, see Franco Borlandi, *Il problema delle comunicazioni nel secolo XVIII nei suoi rapporti con il Risorgimento italiano* (Pavia: Soc. an. Treves Treccani Tumminelli, 1932); Guido Guderzo, *Vie e mezzi di comunicazione in Piemonte dal 1831 al 1861. I servizi di posta* (Torino: Museo Nazionale del Risorgimento, 1961); Mario Di Gianfrancesco, *La rivoluzione dei trasporti in Italia nell'età risorgimentale. L'unificazione del mercato e la crisi del Mezzogiorno* (L'Aquila: Japadre, 1979); Alberto Mioni, *Metamorfosi d'Europa. Popolamento, campagne, infrastrutture e città 1750–1950* (Bologna: Compositori, 1999). See also Lando Bortolotti, “Viabilità e sistemi infrastrutturali,” and Massimo Moraglio, *Strade e politica* (Alessandria: Edizioni dell'Orso, 2003).

2. See the volumes edited by Antonio Amorth, *Le province*, and by Aldo Sandulli, *I lavori pubblici* (both Vicenza: Neri Pozza, 1969). See also Ettore Rotelli, *Il martello e l'incudine. Comuni e Province fra cittadini e apparati* (Bologna: Il Mulino, 1991); Paolo Aimo, *Stato e poteri locali in Italia 1848–1995* (Roma: Nis, 1997); and Guido Melis, *Storia dell'amministrazione italiana: 1861–1993* (Bologna: Il Mulino, 1996).
3. The national roads were classified in two separate moments with the decree of 17 November 1865, n. 2633, and 22 April 1868, no. 4361. The provincial roads took longer, and even after 1870 the work of listing the roads had still not been completed by many provincial boards.
4. On the repartition of the roads network, see *La strada in Italia dall'unità ad oggi, 1861–1987* (Roma: Anas, 1987), 25 et seq.
5. See Giulio Capitani and Giusto Emanuele Garelli della Morea, "Strade ordinarie," in *Il Digesto Italiano, volume XXII, part II* (Torino: Utet, 1895), 641–869.
6. See Law 27 June 1869, no. 5147.
7. Lando Bortolotti, "Viabilità e sistemi infrastrutturali," 339–340.
8. On the application of the 1868 law on compulsory municipal roads see Giovanni Bobbio, *Le strade ordinarie nella legislazione italiana* (Torino–Roma: Roux and C., 1894). See also Capitani and Garelli della Morea, "Strade ordinarie."
9. Law n. 312 of 8 July 1903, "Sussidio ai comuni per costruzione di strade d'accesso alle stazioni ferroviarie."
10. See Giovanni Battista Ceresetto, *Le strade vicinali* (Torino: Utet, 1894).
11. See Carlo Cattaneo and Giovanni Milani, *Ferdinandea. Scritti sulla ferrovia da Venezia a Milano 1836–1841* (Firenze: Giunti, 2001).
12. *La strada in Italia dall'unità ad oggi*, 81.
13. Bortolotti, "Viabilità e sistemi infrastrutturali," 340.
14. On the kilometers of road constructed and the entirety of the legislative interventions, see *La strada in Italia dall'unità ad oggi*, 83 et seq.
15. *Ibid.*, 85 et seq.
16. See Sileno Fabbri, *Il problema delle strade in Italia* (Milano: Coop. Graf. Operai, 1927), 43.
17. The text of the proposal of the law, advanced by Deputy Rosario Cutrufelli, is reported in full in *Atti della sesta assemblea generale dell'Unione delle Provincie. Milano 20–25 aprile 1913* (Roma: Coop. Sociale, 1913).
18. *Atti della quinta assemblea generale della Unione delle Provincie d'Italia, in Firenze dall'11 al 13 ottobre 1912* (Roma: Coop. Sociale, 1912), 38, italics in original.
19. *Discorsi parlamentari di Giovanni Giolitti, volume III* (Roma: Camera dei deputati, 1954), speech to the Chamber of Deputies on 19 June 1912, 1526.
20. Cited in Fabbri, *Il problema delle strade in Italia*, 44, italics added.
21. See *Atti della quinta assemblea generale della Unione delle Provincie d'Italia*, 231 et seq.
22. See *Primo congresso nazionale delle rappresentanze provinciali* (Torino: s.e., 1898).
23. See Gijs Mom, "Inter-artifactual Technology Transfer: Road Building Technology in the Netherlands and the Competition between Bricks, Macadam, Asphalt and Concrete," *History and Technology: An International Journal* 20, no. 1 (2004), 3–23.
24. For a critical appraisal of the road's conquest by cars, see Peter Norton, *Fighting Traffic: The Dawn of the Motor Age in the American City* (Cambridge, MA: MIT Press, 2008).

25. Federico Paolini, *Un paese a quattro ruote. Automobili e società in Italia* (Venezia: Marsilio, 2005).
26. "Commissione Centrale per il dopoguerra. I problemi economici urgenti. Voti e proposte della Sottocommissione economica," *Giornale del Genio Civile* (1919), 49–96, here 69.
27. Ibid.
28. 27 January 1920 decree from the Ministry for Public Works, cited in Fabbri, *Il problema delle strade in Italia*, 12.
29. See Roberto Ruffilli, *La questione regionale in Italia dall'Unificazione alla Dittatura 1862–1942* (Milano: Giuffrè, 1969).
30. See Unione delle Provincie d'Italia, *La provincia nell'ordinamento amministrativo moderno. Relazione e statistiche dimostrative* (Roma: F.lli Pallotta, 1923).
31. On the role of Italo Vandone see Jelmoni, "Il 21 settembre 1924, la prima autostrade nel mondo," 17.
32. Italo Vandone, "Per una radicale soluzione legislativa dei problemi stradali," *Le strade* 7 (1921), 219–225.
33. Cf. Bruce E. Seely, *Building the American Highway System: Engineers as Policy Makers* (Philadelphia: Temple University Press, 1987), particularly chapters 4 and 5.
34. See Vera Zamagni, *The Economic History of Italy* (Oxford: Clarendon Press 1993); Vera Zamagni, *Lo Stato Italiano e l'Economia. Storia dell'intervento Pubblico dall'unificazione ai Giorni Nostri* (Firenze: Le Monnier, 1981); Renzo De Felice, *Mussolini il Fascista. I. La Conquista del Potere 1921–1925* (Torino: Einaudi, 1966).
35. Leopoldo Mazzarolli, "Evoluzione storica degli organi istituzionali della Provincia con particolare riguardo al presidente della Giunta Provinciale," in *Le province*, ed. Antonio Amorth, 91–118, here 114. See also Germà Bel, "The First Privatisation: Selling SOEs and Privatising Public Monopolies in Fascist Italy (1922–1925)," *Cambridge Journal of Economics* 35, no. 5 (2011), 937–956.
36. Albino Pasini, *Relazione a S.E. il ministro dei Lavori pubblici on. avv. Giovanni Giuriati sul problema della strada moderna* (Milano: Stamperia Capriolo e Masimini, 1925), 59.
37. Article 22 of the Carnazza reform stated that the national government was authorized to issue a consolidated law on the materials.
38. Fabbri, *Il problema delle strade in Italia*, 15.
39. Ibid.
40. MR Buccella, "Le autovie nel sistema dei trasporti," *Giornale degli Economisti e Rivista di Statistica* 68, no. 12 (1927), 726–748, here 747.



## CHAPTER 2



# 1922: The Motorway from Milan to the Prealpine Lakes

## The First Proposals for a “Special Road for Motor Vehicles”

The idea of a more “efficient” use of the roads was not a twentieth-century invention. As historians have noted, road renewal has always received strong attention from policy makers,<sup>1</sup> who needed to gain and retain control of the people, vehicles, and animals present on roadways.<sup>2</sup> The arrival of motor vehicles further pushed experts and car enthusiasts (usually overlapping with the members of the ruling groups) to have better roads suited to motor vehicles, as well as a new age of traffic flow management.

The roads of the early 1900s, even those surfaced in macadam, were not able to withstand the weight and the speed of motor vehicles.<sup>3</sup> The rapid establishment of the automobile therefore posed new infrastructural problems, to which, early in the century, two possible solutions were offered: adapt motor vehicles to the roads, or adapt the roads to motor vehicles.<sup>4</sup> The latter was the mainstream action by experts and policy makers, and as early as 1908, European coordination was envisioned: in order to harmonize the renewal process, an international conference on roads was announced, to be held in Paris. It aimed to coordinate interventions in the “war on dust” produced by motor vehicles as they drove along the old dirt roads. The next year, the foundation of the *Association internationale permanente des congrès de la route* (or, using its English acronym, PIARC, with the telling motto of “Roads-Life”) was a part of the new awareness of the roads issues, opening the way to a process of renewal of the roads built in the 1910s and 1920s.<sup>5</sup>

Together with the renewal of roads came the radical idea to construct tracks for the exclusive use of automobiles. Such roads would have routes, inclines, and characteristics perfectly adapted to the needs of the new means of transportation.<sup>6</sup> Several of these proposals were justified not just by the desire to support the development of motorization, but also the protection of other users.<sup>7</sup> Moreover, the provision of exclusive roads for motor traffic would fully exploit the potential of the new

means of locomotion, which would no longer be impeded by slow animal-drawn wagons and “undisciplined” and “dangerous” pedestrians.

Limiting ourselves to Italy, the project of special roads for the exclusive use of automobiles can be traced to 1906. In that year, the engineer Giuseppe Spera presented a brochure for the construction of an *autovia* (motorway), a “road for the exclusive use of automobiles” between Rome and Naples.<sup>8</sup> A similar idea was suggested in 1914 by Francesco De’ Simone, head engineer of the Naples municipality, whose city plan proposed to relaunch commercial relations between Naples and Rome. “And to tighten the interests between these two great cities, it would be opportune to link them with means that are more direct, rapid and economical than that of the so-called direct [railway] line in construction. This could be achieved with a great artery running through an Apennine tunnel, and then following the route of the ancient Appia road over well-known ground. . . . On this artery, with a broad carriageway, an active tram service would be installed, and a smooth surface with many lanes for automobiles and other means of rapid communication.”<sup>9</sup>

Among the heritage of World War I, there was also a much vaster use of motor vehicles for commercial purposes and, in parallel, the development of domestic and international motor tourism.<sup>10</sup> That trend was lubricated by the sale of numerous military trucks to civilians, which further enlarged the vehicle fleet, increasingly casting it less as elite and more for daily use.<sup>11</sup>

It was in this context, between the need to modernize the roads and the timid but constant growth of motorization, that Milanese engineer Emilio Belloni put forward his proposal. Belloni’s idea was to improve the road connection between Milan and Venice with the construction of a “direct permanent road” reserved for motor vehicles and subject to a tax for use.<sup>12</sup> His project for a permanent road dated back several years, and included an equally poorly defined “road” ranging from Paris to Moscow,<sup>13</sup> but he rededicated himself decidedly to the project in 1921 with the support of the Milan Chamber of Commerce. The latter announced a “convention of representatives from the interested provinces, municipalities and Chambers of Commerce, to discuss the proposal of engineer Emilio Belloni.” The convention would “take place on 23 June 1921, with the participation of delegates from the invited administrations and fourteen other requests to participate by letter and telegraph.”<sup>14</sup>

In Belloni’s project, the permanent road between Milan and Venice would not pass close to the cities between the two poles (Bergamo, Brescia, Verona, Vicenza), but would cut an almost straight line across the plains. As Bortolotti notes in his 1994 book, it was an “unsustain-

able route, which the good Belloni would have discarded if only he had read the shrewd essay [dating back to the 1840s] of Carlo Cattaneo on the Milan–Venice ‘Road of Iron.’<sup>15</sup> The project’s lack of geographic and economic sense could be traced to its underlying blueprint, which evoked the 1700–1800s idea of navigable canals in northern Italy, rejecting the cities too close to the Alps. Sketched out in this way, the project was merely a connection between the port of Venice and the city of Milan, expecting exclusively commercial traffic. Nonetheless, the economic feasibility of the proposal was submitted for study to a commission composed of Senator Angelo Salmoiraghi, president of the Milan Chamber of Commerce, and engineers Guglielmo Gentili, conservative politician and provincial deputy of Milan, and Giovanni Gay, socialist and assessor of the Milan municipality. In November of 1921, the commission issued a positive judgment, claiming, in somewhat vague terms, that the project had “well-founded technical and economic bases and therefore merited being adopted and promptly translated into reality by the public authorities directly interested.”<sup>16</sup>

There was sporadic and little news about Belloni’s project over the course of 1922,<sup>17</sup> but compared to proposals from the past, the Milan–Venice road offered novel elements. Although it was a flaky project, without economic credibility, it was visionary. It was presented and welcomed in the major Italian Chambers of Commerce, was circulated widely in all of northern Italy, and went from a roughly sketched idea to a topic of public discussion. Perhaps it was the favorable welcome and great interest for Belloni’s project that moved another engineer, Piero Puricelli, at the end of 1921 and the start of 1922, to advance his own proposal for a special road for automobiles between Milan and the Lombard prealpine lakes.

### Piero Puricelli’s Initiatives

Between 1921 and 1922, Piero Puricelli prepared a pamphlet in which he presented a project to construct a “road network for motor vehicles,” connecting Milan with the Como, Varese, and Maggiore lakes.<sup>18</sup> The project was highly accurate in its interpretation of the automobile phenomenon and in its hypothesis of how to construct a road network for motor vehicles. In first place, Puricelli underlined the difficulties of transport in Italy, pointing out that

an objective gaze at the Italian reality of communication leads to this desolate conclusion:

*The railways:* many new lines have not been constructed due to lack of means, although they are necessary and desired, and some [of those] have already been investigated by committees or local authorities. The existing lines, apart from the question of high and complicated tariffs, do not give any security of prompt transport nor guarantee the integrity of the goods being sent.

*The roads:* this network, far from being complete, should lead to the railway centers and absorb all the local traffic, but in practice, does not respond to this scope due to poor maintenance.<sup>19</sup>

In order to achieve better performance, the transport system should be modified to favor motor vehicles, for eminently economic motivations. Motorization represented a factor of progress and rationalization, for which there should be a corresponding process of reorganization and renewal of roads.

Industry and modern commerce employ the automobile on the road in the same way that calculating machines are employed in offices. Such are the times.

The roads now maintained (so to speak) in macadam, could still offer a lot of service, or rather, before trying new systems of paving, we must start to rationally maintain, . . . the paving already in use. The day will certainly come in which the roads, even if well-maintained, will not be able to handle the increase in traffic, and then we will impose a distinction of roads for *kinds* of traffic and, like the distinction between railways and roads today, these latter *will be subdivided for diverse needs*.<sup>20</sup>

The project of an automobile roads network therefore was rationalized as favoring industrial and economic process, but at the same time it was a manifesto of the future destiny of the roads in an epoch that some claimed was marked by motor vehicles. On one side were the old roads, earmarked for local traffic of animal-drawn wagons; on the other was the new roads network—modern, fast, destined solely for automobiles.

The roads for motor vehicles will be real industrial roads and magnificent instruments of work.

The present report has precisely the scope of illustrating the need for construction in Italy of a *first roads network for motor vehicles*. Outside of Italy, this road is not a novelty. . . . Such a road will be a great line of easy, rapid connection between the grand Lombardy industrial centers, and therefore a necessary remedy to the railway's insufficiencies, as well as a healthy unburdening of the ordinary roads.

No one can doubt the advantages that such projects reflexively carry for the existing roads network, which will automatically find the circula-

tion of motor vehicles reduced to almost zero and where consequently the transit of pedestrians and animal-drawn vehicles can occur in the best conditions with a noticeable decrease in the cost of roads maintenance.<sup>21</sup>

A real road for motor vehicles, in Puricelli's vision, was one of savings and speed: with optimal conditions and stable paving. Automobile drivers would see consistent savings in consumption, and would also finally be able to use the full promise of their vehicles, no longer occupied with zigzagging cyclists, slow carriages, tight curves, dangerous bumps, etc., all elements that prevented drivers from deploying the potential of their automobiles.

Driving your powerful machines, capable of 100 [km] per hour, and your light, small cars, leads to disillusionment due to the modest average that you achieve, almost always inferior even to the modest permitted speed of 50 km[h]. It becomes a physical martyrdom due to the fatigue of the shaking, the steering, the braking, and distress of the dangers, disputes, and fights with undisciplined wagons. Finally, it is a surprise because the effective consumption is always a great deal larger than the theoretical one and the availability of the means is often truncated by the need for frequent repairs to the delicate organs of the mechanically perfect machine that the road ruins. And then . . . the duration . . .<sup>22</sup>

Drivers' problems included such things as the inadequate roads, "the indifference, indiscipline and the insolence of the carters and wagon drivers, and the variety of the regulations and customs on which side of the road to stay on."<sup>23</sup> The "motor car road network" would abandon all the disadvantages of the old artery: as it would be created *ex novo*, it would be perfectly matched to the needs of the new means.

The characteristics of this new road for motor vehicles should be different from those of the ordinary roads:

- a) the new road will avoid passing through inhabited centers, in order to permit greater speeds with lesser risk, but will not skip the industrial centers so that people can access the new artery with their vehicles. . . .
- b) the routes will be shorter than the provincial roads. . . .
- c) they will avoid, as much as possible, crossing railways, *and will absolutely avoid level crossings.* . . .
- d) according to the altimetric profile of mountainous territories, road routes should result in the *least possible number of curves and maximum radii.*<sup>24</sup>

This roads network, that is, what would come to be known as a motorway but was yet to be named, was to be constructed between Milan and

the prealpine lakes. It included the industrial areas of the zone, northeast of Milan, while the lakes themselves were the classical vacation places of the Milanese bourgeoisie, who were the main owners of automobiles at the time. According once again to Puricelli, "without any hesitation, the Lombardy region, which extends from Milan to the Maggiore, Como and Varese lakes, should be given preference and precedence. Milan—a great metropolis, rich with energy and full of activity, primed for further development; the world-famous Lombardy lakes, populated by enchanting villas and gardens; between Milan and the Lakes, one of Italy's most productive industrial zones."<sup>25</sup>

These few points show the force of Puricelli's proposal, which was at once more realistic and more visionary than all of the projects that had been advanced until then. Puricelli proposed the idea of a relatively short connection, roughly 80 kilometers of motorway, in the most motorized provinces in Italy, on a route that offered a high amount of traffic for the national context. The works would additionally satisfy both the industrial interests of the area northwest of Milan and the tourism that gravitated to the lakes, guaranteeing a solid clientele, up until then unsatisfied by the current state of the transport networks. Finally, and not least, Piero Puricelli was a major Italian contractor, with important and broad contacts in economics and finance.<sup>26</sup>

However, Puricelli's proposal contained not just a road project, but a radically innovative idea for transport that included the construction of special roads for automobiles, with characteristics that had never been seen before in Europe. Puricelli's project went beyond a mere calculation of existing traffic, which was characteristic of Belloni's project, for example, and plastically assumed the inevitable development of motorization: with little effort, he illustrated the strong limitations of the ordinary road network, which could impede this kind of exciting evolution. The futuristic proposal of roads just for automobiles was positioned as a logical conclusion: futuristic but always based on the solid knowledge that the future modernity and progress would be grounded on motorization.

His brochure on the project, ready by March 1922, was narratively engaging, probably the fruit of Puricelli's decision to involve Umberto Grioni's notorious Milanese advertising agency. He could also count on the staunch support of Luigi Vittorio Bertarelli, the charismatic president of the Italian Touring Club. At the start of 1922, the Milanese entrepreneur "printed a few copies of his report *Road networks for motor vehicles—Milan–Lake Como, Milan–Varese, Milan–Lake Maggiore*, distributing it in Milanese racing and industrial circles, and presenting it together with the president of our association, so that he could see

if the idea merited the patronage of the Italian Touring Club. With his usual rapidity and sure perception, L.V. Bertarelli understood the entire nature of the initiative, which is seriously documented in the previously mentioned report."<sup>27</sup>

### The Touring Club and Puricelli's Enterprises

The relationship between Puricelli and the Italian Touring Club dated back several years, to a common interest in the transport sector.<sup>28</sup> Since its foundation in 1894, the TCI (Touring Club Italiano) paid particular attention to the theme of mobility, continuously lobbying the government: the TCI advanced detailed proposals for legislative reform, while its representatives were present on ministerial reform committees. Between 1917 and 1918, a road materials laboratory, the first in Italy and well ahead of similar European and North American centers,<sup>29</sup> was housed at the TCI, proposed and financed by Piero Puricelli.<sup>30</sup> In 1918, the TCI went further and acquired the only Italian technical journal in the roads sector, *Le strade* (The Roads), founded in 1898 by engineer Massimo Tedeschi.<sup>31</sup> Some of the TCI's more notable initiatives include touristic guides (aimed at cyclists as well as motoring tourists), the publication of a complete series of road maps, and the placing of warning signs at the most dangerous points of the roads network. This last initiative was carried out with renewed energy soon after World War I. It was an evident support of the circulation of motor vehicles, and received consistent contributions from companies in the automobile sector, such as Fiat, Pirelli, and Standard Oil.<sup>32</sup> In spring 1921, the TCI board of directors approved a long report, published with the programmatic title "For Automobiles and Bicycles: Tools of Work" in the highly widespread social journal *Le vie d'Italia* (The Routes of Italy). The report was a precise compilation of the barriers to automobile development in Italy and the also numerous advantages that motor vehicles offered in terms of transport efficiency. It praised the role of trucks and buses in promoting connections to extra-urban areas, and noted that the car was "a wonderful multiplier of personal efficiencies," particularly "in cities and industrial regions."<sup>33</sup> Taxation of fuel and cars—the TCI lamented—was excessive, a constraint on the desirable growth of motorization. But the national roads system was just as lamentable: "Italian road assets, understandably neglected during the war, have entered, following the armistice, a period of *ruinous* decline."<sup>34</sup>

This portrait of a suffering roads network naturally interested Piero Puricelli. After earning a degree in engineering from the Institute of Technology in Zurich, he entered the family construction company and

was soon in charge. The roads activities and management of several quarries were an excellent starting point, and the Milanese entrepreneur knew how to take full advantage of it. The vertical control of production processes, from gravel extraction to contracted works on public roads, was improved thanks to agreements with the Gola e Conelli company of Milan, the biggest company of roads machines in Italy,<sup>35</sup> and with the development of intense political and financial relationships. Puricelli consolidated his relationship with the provincial administrations, soon becoming much more than their supplier, and positioning himself as an interested ally within the debate of Italian roads management. It is also worth noting his meeting with engineer Giacomo Tedeschi, trustee of the *Banca Commerciale Italiana* (Italian Commercial Bank, better known as Comit). The meeting with Tedeschi led to a strategic alliance between Puricelli's enterprises, in the form of a limited society since 1914, and Comit. Since 1920, the president of Comit had been Cristoforo Benigno Crespi, father of Silvio Benigno Crespi, who was in his turn the head of the Italian Automobile Club and future president of the limited company Autostrade.<sup>36</sup> The alliance with Comit would see Puricelli take a seat on its board of directors in 1928 and go on to be vice president until 1943. He was also appointed president of the Milan Fair Agency and nominated as a senator in 1929.

Puricelli's profile emerges as an upper-class Renaissance man, well integrated in the Milanese social and financial circles of the day, an entrepreneur who strongly developed the family business—but, at the same time, a more complex figure. The noteworthy and unscrupulous development of his businesses confirms his attention to entrepreneurial matters, although Puricelli was always ambitiously open to new endeavors, frequently characterized by visionary elements, often giving little thought to their financial aspects.<sup>37</sup> During World War I and immediately after, the Milanese businessman constructed an extensive relational network. Then, between 1922 and 1927, as we will see further in the next chapter, he showed his unbridled activism in the roads field. He ranged from the promotion and construction of the Monza speedway in 1922<sup>38</sup> to the proposal of a private entity to manage state and provincial roads (1926–1927) and the establishment of a roads engineer chair at the Polytechnic University of Milan in 1925.<sup>39</sup> The motorway projects happened within this context of entrepreneurial and social affirmation: in today's terminology, Puricelli used these elements as an extraordinary tool for company public relations.

The project reverberated soundly among Milanese entrepreneurs, politicians, and policy makers because the motorway program matched the *Zeitgeist* of the city. After the 1870s, Milan "changed into an industrial



city,” becoming the main Italian financial center, as it is today. It also had a wider meaning: at the verge of the twentieth century, Milan “was identified with its industries, in which industry was a synonym of modernity in the economic field, as well as in social behavior.”<sup>40</sup> So, the opening in 1882 of the Gotthard railway tunnel, or the city’s inauguration—in 1883—of “the small thermo-power station in via Santa Ragedonda, among the first ones in the world”<sup>41</sup> were not just technological achievements, but were identity-building factors, confirmed by a growing population, which reached about 800,000 inhabitants in 1921. Milan was not just a busy economic city, but a cultural hub in the Italian landscape, seat of the most prestigious national newspaper, *Il Corriere della Sera*, as well as of many of the principal publishers. The title of Italian “Capitale morale” (moral capital of the country), facing off with Rome as the purely political capital, was an appellation that summarized the city’s self-esteem as well as its economic and social achievements. The motorway project perfectly fit this landscape, promising innovative technological outcomes that were avant-garde and something to be proud of, backed by a (supposedly) solid cost-benefit analysis.

### From Plan to Approval

Even before submitting his proposal to the TCI, Puricelli “prepared the plan, . . . collecting supporters including attorney Mr. Bolchini, Dr. Piero

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**Figure 2.1.** First Milan–Lakes project, 1922.

Piero Puricelli, *Rete stradale per autoveicoli Milano–Lago di Como Milano–Varese Milano–Lago Maggiore. Relazione* (Milano: Umberto Grioni, s.d. [1922]). Courtesy of Autostrade per l’Italia S.p.A.

**Figure 2.2.** Second Milan–Lakes project, 1923.

*Le autostrade da Milano ai Laghi* (Milano: Società anonima Autostrade, 1923). Courtesy of Autostrade per l’Italia S.p.A.

Pirelli, Commander Ernesto Reinach, Commander Ernesto Vaccarossi, and Piero Ostali.<sup>42</sup> Reassured by these first positive informal meetings and sure of the converging interests, it is not surprising that

The Touring [Club] put all its influence and organization at the service of the good idea. To this purpose, the [TCI] president appointed a study commission with many experts to examine the project from every point of view. The aim was to create the elements that would lead to effective action by the public powers, so that they would consent to and favor the realization of the project itself. This commission met for the first time on 11 March 1922 and was subdivided into several sub-commissions to examine the project in terms of technical, economic, and legal elements, not to mention the necessary propaganda.<sup>43</sup>

The commission boasted the most important names of the Milanese upper class, many of whom were founders of the Rotary Club, such as Bertarelli and Puricelli, Silvio Crespi, Piero Pirelli, Giuseppe Toeplitz, and Ernesto Reinach. But it was the municipal council member, socialist Alessandro Schiavi, who prepared the agenda that was voted on at the meeting in March 1922.<sup>44</sup> During the sub-committee meetings, the unarguable need emerged to find a concise but easily understandable name for the "special roads for motor vehicles": rejecting the *autovie* (literally "car ways") that had already been in use from 1906, the word *autostrade* (literally "car roads") was suggested, but it is not known today by whom. In the course of its activities, the legal sub-commission prepared "a 'framework for a law to establish an agency for motorways [*autostrade*],' which was personally presented by the president of the TCI to the government and the major competent authorities, illustrating the spirit and the scope, and obtaining the best assurances of a benevolent examination of the question."<sup>45</sup> The proposal demonstrated how the Milanese committee and the TCI had passed from planning to realization, finding a political advocate in Minister Luigi Rossi, in the summer of 1922.<sup>46</sup>

The rapid end of the last democratic government in October 1922 was an unexpected but favorable event for the creators of the motorway. Testimonies from contemporaries, often written just a few months later and not yet polluted by the ritual and apologist tributes to the Fascist regime, all agreed that the project accelerated under the first Mussolini government. Italo Vandone, fully involved in the business, noted as early as February 1923, with some surprise, that "the new directors of the public policy instantly seem not just benevolent toward the project, but enthusiastic."<sup>47</sup> Today a detailed reconstruction can be made of the events between the end of October 1922, with Mussolini's appointment

to office, and January 1923, when the agreement for the construction of the motorway was signed.

In September of 1922 the newspaper *Il Popolo d'Italia* (founded and directed by Mussolini) had already printed words of approval for Puricelli's motorway project.<sup>48</sup> The next month, Mussolini was appointed prime minister, and he seemed extremely interested in the initiative, coming as it did from Milan, the city that had guaranteed his political fortunes. It did not take great political savvy to understand the aspects that appealed to him, even those beyond his personal link to Puricelli and Crespi.

As Carlo Mochi notes, the trauma of possible socialist subversion conferred "a strategic collocation on the functioning and improvement of transport activities. On the one hand [this latter objective] became almost emblematic of a rediscovered social order and the return of respect for state rule. On the other hand, it returned to a tacit pact, sanctioned by the middle classes, of a newfound consolidation of social hierarchy, deeply shaken by the growth of political weight and negotiation power of the working classes."<sup>49</sup>

The motorway seemed innovative, and met the Fascist regime's need for "palingenetic" initiatives, complementing a series of other initiatives that had had a strong impact on public opinion, like the special commissioner for the railways.<sup>50</sup> Alert to this mood, the advocates for the motorway—as Bertarelli recalled in January 1923—were persuaded to drop "those reasons of opportunity that had originally suggested the adoption of an independent agency as the organ for the execution and management of the motorway and instead reintroduced as a better option the idea of a limited company, as previously explored."<sup>51</sup> In this way, the project was far more consistent with the ambitions of the new government, with one less obstacle to its realization. This was also linked to the change of pace of the first fascist governments, which until 1925 managed a wave of privatization of public utilities, including telecommunications, and even suggested the privatization of the (government-owned) railways company,<sup>52</sup> a goal soon abandoned. In this framework, the concept of a concession gained momentum, and this new political landscape was immediately well understood by Puricelli and his partners.

On 13 November 1922, Piero Puricelli and Arturo Mercanti, director of the Milan Automobile Club,

had a first meeting with the honorable Mr. Finzi and the honorable Prime Minister Mussolini, in which the support of the government was assured,

considering the economic advantages deriving from the execution of the work proposed and the social benefits for the relief of unemployment.

In the meeting, the honorable Mussolini asked his government collaborators to arrange for the legal needs by the end of the month, in order to ensure recognition of the public utility of the work.

The prime minister then asked that he himself be able to inaugurate the works with the first strike of the pick on the first of January 1923, and to have the work completed in the shortest time possible. "Within a year," he said, evidently recalling the astonishing rapidity of the completion of the Milan speedway in the royal park of Monza.<sup>53</sup>

From that moment on, the events ran with a speed that undoubtedly showed Mussolini's unconditional support. On 18 November, five days after the meeting between Mussolini and Puricelli, the limited company *Autostrade* was constituted, funded with a symbolic initial capital of 20,000 lire (about the same amount in today's USD), contributed in equal parts with the TCI and the Milan Automobile Club. Less than two weeks later, on 1 December 1922, a month after the constitution of the cabinet, Mussolini's Council of Ministers authorized the Ministry of Public Works to draft a convention "for the construction of a great road between Milan and the lakes, . . . destined exclusively for automobile and truck traffic."<sup>54</sup> The haste to begin the project was such that the deliberations approved on 1 December were not "sufficient to establish the relative decree." And so on 17 December, a new ministerial approval finally authorized the concession.

The government decree equated the motorway to a public work, with the relevant rights of expropriation. This further guaranteed it an annual state contribution, which however, would need to be repaid. The promoters now had to source the necessary capital for the effective construction of the motorway: with that aim, on 5 January 1923, at the Milan Chamber of Commerce, a public presentation of the initiative was made. This invited the participation "of the representatives of the provinces and municipalities, and notable citizens, to illustrate the project of construction and management of the motorway." Aldo Finzi, undersecretary of the interior (and manager of the secret funds granted to Mussolini),<sup>55</sup> represented the government at the meeting, at which Bertarelli and Crespi presented the project and asked for share subscriptions.<sup>56</sup> Meanwhile the *Autostrade* company increased its share capital, due partly to investments from Puricelli and Comit. The honorary presidency of the society was filled by the TCI president. The effective president was Silvio Crespi, the vice-president was Stefano Benni (future president of *Confindustria*, the Italian industrial association), and

the CEO was Piero Puricelli. The board of directors included the names of Piero Pirelli, Arturo Mercanti, and Ernesto Reinach, among others.

On 26 March 1923, as promised, Mussolini participated in the ceremony of the first strike of the pick, which started the construction work for the motorway.<sup>57</sup> The affair had unfolded so quickly that it had even caught its promoters off guard: in the spring of 1923, after the approval of the convention, Puricelli still did not know the technical details of the future motorway.<sup>58</sup>

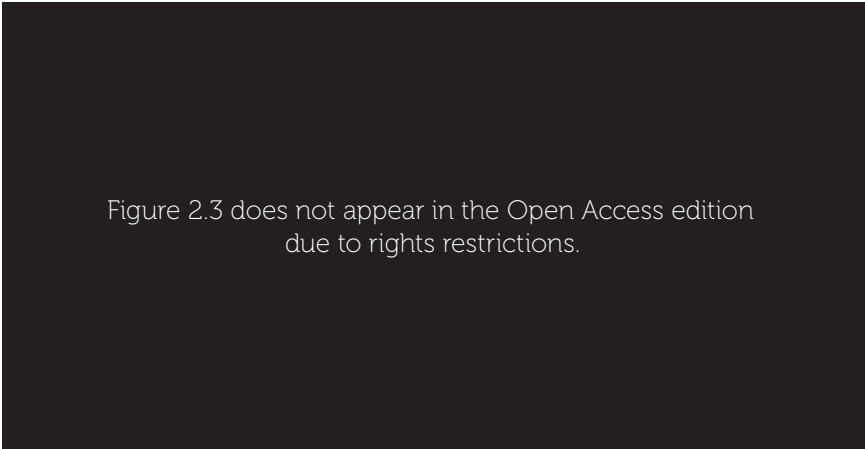


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**Figure 2.3.** Celebration for Benito Mussolini during the inauguration of the Milan–Lakes works, 1923.

Piero Puricelli, *Le autostrade e la Milano–Laghi* (Milano: Bestetti e Tuminelli, 1925). Courtesy of Autostrade per l'Italia S.p.A.

### How Were the First Motorways Made?

The construction works on the motorway between Milan and the lakes, formed by three different trunks and a total length of 84 kilometers, were effectively begun only in June 1923, once all the necessary authorizations had been obtained.<sup>59</sup> The Milan–Varese section was completed, inaugurated on 21 September 1924 by King Vittorio Emanuele III, accompanied by the new mayor of Milan, Luigi Mangiagalli, and obviously, by Puricelli.<sup>60</sup> The event was covered by the highly popular *Domenica del Corriere* weekly newspaper, and was even given the cover of the 5 October 1924 edition. In June 1925 the trunk between Lainate and Como was opened, while on 3 September 1925 the last tract, between Gallarate and Sesto Calende, was also opened to traffic.

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**Figure 2.4.** Inauguration of the Milan–Lakes motorway, 1924. Puricelli, *Le autostrade e la Milano–Laghi*.

Courtesy of Autostrade per l'Italia S.p.A.

But what kind of motorway would users find, in this first realization and in all those roads completed between the two wars? Like all subsequent Italian motorways of the period, the Milan–Lakes motorway had just one carriageway to serve both directions, which was 8 meters wide and had two lateral shoulders of a meter each.<sup>61</sup> The subdivision in lanes was purely theoretical, as there was no center line, nor any road surface marking. The users had to stay on the right while driving.<sup>62</sup>

The entrance to the motorway was from ordinary roads and could occur only at determined junctions, equipped with tollhouses, and non-motor vehicles were excluded.<sup>63</sup> On arrival at the motorway, motorists found a closed gate, which the road inspector, who lived in the tollhouse with his family, would hasten to open. Just as in railway stations, drivers would purchase a ticket by declaring the route they intended to take. The cost of driving the Milan–Varese tract, for example, for a vehicle of average engine size, was 17 lire (USD 13 today). It was not a cheap deal for those times.<sup>64</sup>

Once he had sold the voucher, which had to be shown to the road inspector at the exit tollbooth by the driver, the (always male) employee would open the gate and check that no other vehicles were coming down the motorway, and then leave the way free for entrance. A “road inspector cyclist” policed the motorway. All employees wore a uniform and were required to greet “every car in military style.”<sup>65</sup> The motorway closed at night: “the hours of service, which correspond with those

of the daily opening and closing of the motorway, are from six in the morning until one at night."<sup>66</sup>

Jelmoni—on the occasion of the fiftieth anniversary of the Milan–Lakes—drew on his personal memories to describe the procedure of entering the motorway. The result was a truthful account, but one that is intentionally tinged by folklore to emphasize the primitive aspects of the first motorway constructions, especially compared to “modern” post–World War II realizations.

These motorway entrances would be on one side or the other of the road, but on one side only, with the so-called “tollbooth” next to it. This was a little house, with slightly elaborate architecture, wanting taste and which perhaps was meant to be picturesque.

This was where the “toll collector” lived with his family, and he collected the toll (at night, however, they all slept, and you might have to wait a half hour for him to wake up). These entrances were the point of direct access for motor vehicles in both directions on the motorway (but who could have ever imagined acceleration and deceleration lanes then?). This therefore entailed, for those turning left, crossing the lanes, because (naturally) overpasses did not exist. Nor, in reality, were they needed, since the traffic that traveled on the motorway back then, and in following years, was far enough apart that it was possible to cross the road without great danger. After all, the diligent toll collector—if it wasn’t raining or too cold—would go into the middle of the motorway, and, inspecting first one then the other horizon, guarantee the safety of those entering.<sup>67</sup>

In effect, the design of the Milan–Lakes motorway was such that the flow of vehicles in each direction interfered with traffic in the other direction while entering and exiting the road, but it was true that motorists were relatively scarce. For example, the Milan–Lakes motorway had an annual average of a thousand motor vehicles per day, with an average distance traveled less than the total length, equal to about half the distance.<sup>68</sup> Considering that the opening hours spanned 20 hours, this meant that in each direction, about ten cars an hour would pass a single point, one every 6 minutes; on the Bergamo–Brescia, the stretch of road with the lowest traffic, the average was one every 10–15 minutes.<sup>69</sup>

The frequency of passing cars in the 1920s was the subject, after World War II, of several statements by engineer Bruno Bolis, one of the shrewdest engineers of the era. He confirmed the statistical data.

When the motorway was born in Italy between 1922 and 1924, the speed and intensity of the traffic was still very modest and did not cause particular problems. Between 1925 and 1930, on the Milan–Como, one drove

at a maximum of 70km/h (from personal memory) and along the entire route did not meet more than four or five cars. The visibility on hills in the road appeared insufficient as early as those years, but the access to the tollbooths and the collection of tolls meant that one did not get bored. Next to the desired entrance, one would stop, the toll collector would run over and, checking the voucher, indicate the exit road and

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**Figure 2.5.** Milan–Lakes motorway, 1924.

Puricelli, *Le autostrade e la Milano–Laghi*. Courtesy of Autostrade per l'Italia S.p.A.

Figure 2.6 does not appear in the Open Access edition due to rights restrictions.

**Figure 2.6.** Milan–Lakes motorway, 1924.

Source: Puricelli, *Le autostrade e la Milano–Laghi*. Courtesy of Autostrade per l'Italia S.p.A.



supervise the maneuver; a short track connected the motorway to the state or provincial road.<sup>70</sup>

In other words, the Italian motorways of the era were desolately empty, seen not just through our own eyes, but also through those of contemporaries, and even more so through the eyes of foreign guests, who began to visit a few years later, animated by strong interest and curiosity. Recalling those events a couple of decades later, Bolis noted: "Around 1930, attracted by the fame of the motorway, engineers arrived in Milan, especially from South America, and often made their base at the Polytechnic University: I was required to accompany them on their visits. The motorways in that time were almost deserted and we often had to wait more than a quarter of an hour before we saw a car pass. . . . I'll never forget the sense of astonishment of several of those visitors and the guaranteed final questions: But why did you do it? Where's the traffic? What's it for?"<sup>71</sup>

The absence of traffic, and the perfect road surface in sheets of concrete, covered with "a layer of Mexican bitumen,"<sup>72</sup> made the travel experience unique in Italy (and Europe) for the time, offering—at least as long as the company that owned it ensured good maintenance—the possibility to drive at maximum speed of motor vehicles. It was an almost unbelievable thing to be able to drive in a car on a road without holes, without suffering juddering, without causing dust, and without encountering animal-drawn carts that noticeably slowed the speed.

Unused to such traffic conditions, the drivers often forgot the limits of their vehicles and ruined their motors. The problem was widespread enough that, a year after the motorway opened, during the international congress of roads held in Milan in 1926, Edmond Chiaux, vice-president of the French Automobile Club,<sup>73</sup> contested the idea that the motorway represented a savings on oil and fuel. "I believe that the motorway consumes more oil than on ordinary roads. Mr. Puricelli, like Mr. Michelin, must have observed that the drivers get overexcited and are not careful of the speed or the heating of the motor."<sup>74</sup> It was Édouard Michelin himself, present at the congress, who responded to the observation, confirming that, in fact, only an expert driver, perhaps only a professional, paid attention to the risk of pushing his car beyond its limits, although the motorway was incomparable in the safety it offered.

Before arriving in Milan, I was curious enough to drive the motorway. On the road leading to it, we did an average of 46 km per hour and ran the risk of three accidents. Once we entered the motorway, we drove at 90–100–110 km per hour; all of a sudden, my driver slowed and told me: "The oil is at 111° and it can't go higher than 114°."

So we slowed down. So, on an ordinary road in good conditions, with reasonably intense circulation, I did 46 km per hour, while on the motorway I did an average of 79 km per hour without risk of accidents. I think this constitutes a great success.<sup>75</sup>

As in the case of the railways, the motorways were intended to integrate the system of ordinary roads. While to use the train one had to buy a ticket, one could use the motorway in exchange for a toll, obviously proportional to the length of tract used. The earnings were meant to cover the expense of management and construction. Regarding financing, the government had issued a decree—after the signing of a convention—that entrusted the construction and management of the motorway to a limited company with private holder rights to a multiyear concession, usually of fifty years. When the appointment expired, a final transfer back to the state (the state buyback) would take place.<sup>76</sup>

The relationship between the state and the constructing entity, the framework of which followed the old institution of railway concessions, was formalized in the following characteristics:

- obligation for the concessionaire to construct and manage the motorway and collect the tolls;
- surveillance from the state over the construction and management, including fixing of the toll fee; . . .
- devolution of the motorway to the state on the expiry of the concession.<sup>77</sup>

The exceptions to these arrangements—common to all the Italian motorways opened between the two wars—were Rome–Ostia and Genoa–Serravalle, both constructed directly by the state, with the former not subject to a toll.

The costs of completing a motorway were, for the times, not low, and the expenses differed greatly depending on the functions and difficulty of the work, the need for bridges, viaducts, and tunnels, and the attention paid by the concessionaire company to the fairness of the subcontracts. They varied from a cost per kilometer of 875,000 lire (USD 900,000 in today's value) for the Turin–Milan to around 4 million lire (nearly USD 5 million) for the Genoa–Serravalle Scrivia.<sup>78</sup>

As for the method of financing, the resources for the motorway construction had different origins. One part came from the share capital of the limited company that held the concession. This capital was collected through voluntary subscriptions, which rarely went over 20 or 25 percent of the total. Another consistent part of the funds came from nonrepayable funds obtained from local authorities and the interested chambers of commerce. For its part, the state issued an annual

subsidy—generally for up to fifty years—which covered a third of the *estimated* cost. The limited company however, was obliged to repay the subsidy annually, before paying any share dividends. This meant that—in theory—the state would be reimbursed for its subsidy and the construction of the motorway would have cost the treasury nothing. In this scenario, the public sector would have profited from the buyback at the expiry of the concession as well as from the copartnership in the profits, as provided for, with enthusiasm, in the Milan–Lakes convention. The profits of the company, after any taxes, expenses, and the fifty-year depreciation rate were deducted, would be distributed using the following criteria:

- up to 4% [of profit]: 95% to the shareholders and 5% to the treasury;
- between 6% and 8% [of profit]: 70% to shareholders and 30% to the treasury;
- over 8%: half to the shareholders and half to the treasury.<sup>79</sup>

Finally, to cover the remaining costs there would be bonds issued, with the earnings guaranteed by the state or local authorities. The role of private bodies was therefore rather limited and the public subsidies—from the state, local authorities, and chambers of commerce—always covered the majority of the necessary finances. It must also be remembered that many contractors became, despite themselves, motorway shareholders, receiving a quota of the payments for the works carried out in the form of shares.<sup>80</sup>

## Notes

1. The realization of the American highway system received attention from many scholars, showing a vibrant market for the topic. Authors we can now consider classics in the field, like Rose, Seely, and Tarr, just to mention a few names, have published their works on the highway construction, followed in recent times by Gutfreund, Fein, and Sutter (again, just mentioning a few). On the European side, among others, Mom, Zeller, Schipper, Carreras, Moeser, Merriman, and Passalacqua have devoted their time to road construction in the interbellum period. Unfortunately, we have little literature (in English) about non-North-Atlantic road construction.
2. On this, see Arnaud Passalacqua, *La bataille de la route* (Paris: Descartes & Cie, 2010). See also Peter Norton, *Fighting Traffic: The Dawn of the Motor Age in the American City* (Cambridge, MA: MIT Press, 2008); Kurt Möser, "The Dark Side of 'Automobilism', 1900–30: Violence, War and the Motor Car," *The Journal of Transport History* 24, no. 2 (2003), 238–258; Uwe Fraunholz, *Motorphobia: Anti-Automobiler Protest in Kaiserreich und Weimarer Republik* (Göttingen:

- Vandenhoeck & Ruprecht, 2000); Ronald R. Kline, *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: Johns Hopkins University Press, 2000); Catherine Bertho Lavenir, *La roue et le stylo. Comment nous sommes devenus touristes* (Paris: Odile Jacob, 1999); Sean O'Connell, *The Car and British Society: Class, Gender and Motoring: 1896–1936* (Manchester: Manchester University Press, 1998); Clay McShane, *Down the Asphalt Path: The Automobile and the American City* (New York: Columbia University Press, 1994).
3. See James J. Flink, *America Adopts Automobile, 1895–1910* (Cambridge, MA: MIT Press, 1970), 211, and Gijs Mom, "Inter-artifactual Technology Transfer: Road Building Technology in the Netherlands and the Competition Between Bricks, Macadam, Asphalt and Concrete," *History and Technology: An International Journal* 20, no. 1 (2004), 75–96, here 78. See also Gijs Mom, "Roads without Rails: European Highway-Network Building and the Desire for Long-Range Motorized Mobility," *Technology and Culture* 46, no. 4 (2005), 750–753.
  4. See Gijs Mom, "Building an Automobile System; PIARC and Road Safety (1908–1938)," Proceedings of the PIARC conference, Paris, 17–23 September 2007, CD-Rom.
  5. On the activity of the Association Internationale Permanente des Congrès de la Route see *Aipcr/Piarc 1909–1969* (Paris: Aipcr/Piarc, 1970), and in particular, the essay contained there by E. Nuad, "Soixante ans de l'Aipcr/Sixty years of Piarc," 15–28. A historical appraisal is contained in Gijs Mom, "Building an Automobile System."
  6. See Gijs Mom, "Roads without Rails," 754–756, and Marc Desportes, "Le prime autostrade francesi. Resistenze e dilazioni," *Storia urbana* 26, no. 100 (2002), 55–84, here 57.
  7. See Wolfgang Sachs, *For Love of the Automobile: Looking Back into the History of Our Desires* (Berkeley: University of California Press, 1992), 12–23.
  8. See Giuseppe Spera, *L'autovia Roma–Terracina–Gaeta–Napoli e l'avvenire di Roma e Napoli* (Roma: Tip. Coop. Sociale, 1906).
  9. Francesco De' Simone, *Piano Regolatore della Città di Napoli. 2° edizione* (Milano Roma Napoli: Società editrice Dante Alighieri, 1922), 16.
  10. The increase of vehicles was in fact significant: in 1914, the total circulation in Italy of automobiles, trucks, and buses was around 24,000 (one for every 1,600 inhabitants); in 1920 it became 49,500 (one for every 760); and in 1925 rose to 117,500 (one for every 335). See Anfia, *Automobile in cifre* (Torino: Anfia, 1962), 28. For the data on European car density, see Brian R. Mitchell, *European Historical Statistics* (London: Macmillan, 1975), esp. 638–645.
  11. Trucks for civilian use in circulation in Italy went from 3,384 units in 1917 to 5,547 in 1918 and 17,410 in 1920; see Anfia, *Automobile in cifre*, 28.
  12. See Camera di commercio ed industria di Milano, *La strada permanente diretta Milano–Venezia* (Milano: Rovere, 1921).
  13. See Emilio Belloni, "La gran via del 45° parallelo," *Il sole*, 22 June 1916, and Emilio Belloni, "La via del 45° parallelo dalla Francia alla Russia," *Il sole*, 11 November 1918.
  14. Camera di commercio ed industria di Milano, *La strada permanente*, 6.
  15. Lando Bortolotti and Giuseppe De Luca, *Fascismo e autostrade. Un caso di sintesi: La Firenze–mare* (Milano: Franco Angeli, 1994), 45.
  16. Camera di commercio ed industria di Milano, *La strada permanente*, 14.
  17. See *Atti del III Convegno nazionale stradale promosso ed organizzato dal Touring Club Italiano. Napoli 30 marzo–4 aprile 1922* (Milano: Tci, 1922), 49.

18. On the events of the Milan–Lakes motorway, see *Le autostrade da Milano ai Laghi* (Milano: Società anonima Autostrade, 1923); Piero Puricelli, *Le autostrade e la Milano–Laghi* (Milano: Bestetti e Tuminelli, 1925); Giovanni Da Rios and Savino Rinelli, "Autostrada Milano–Laghi," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 35–55; Sergio Mattia, "La costruzione dell'autostrada Milano–Laghi," in *Costruire in Lombardia, volume IV, Rete e infrastrutture territoriali*, ed. Ornella Selva-folta and Aldo Castellano (Milano: Electa, 1984), 175–206.
19. Piero Puricelli, *Rete stradale per autoveicoli Milano–Lago di Como Milano–Varese Milano–Lago Maggiore. Relazione* (Milano: Umberto Grioni, s.d. [1922]), 3.
20. Puricelli, *Rete stradale per autoveicoli*, 4, italics in original.
21. *Ibid.*
22. *Ibid.*, 11, italics in original.
23. *Ibid.*
24. *Ibid.*, 5, italics in original.
25. Puricelli, *Le autostrade e la Milano–Laghi*, 12.
26. On the figure of Piero Puricelli, in addition to essays by Nicola De Ianni, Annabella Galleni, and Francesco Aimone Jelmoni, see Bortolotti and De Luca, *Fascismo e autostrade*, 26 et seq.
27. Italo Vandone, "Le 'Autostrade' da Milano ai laghi lombardi," *Le Strade 2* (1923), 33–37, here 34.
28. On the role of the TCI in the Italian panorama, see Daniele Bardelli, *L'Italia viaggia. Il Touring Club, la nazione e la modernità (1894–1927)* (Roma: Bulzoni, 2004), and Stefano Pivato, *Il Touring Club Italiano* (Bologna: Il Mulino, 2006).
29. Gijs Mom, *Atlantic Automobility: Emergence and Persistence of the Car, 1895–1940* (New York and Oxford: Berghahn, 2015), 579.
30. See *I sessant'anni di Touring Club 1894–1954* (Milano: Tci, 1954), 174 et seq.
31. See "La trasformazione della nostra rivista," *Le strade 12* (1918), 133–135.
32. See Luigi Vittorio Bertarelli, "Un anno del consorzio Touring-Fiat e Touring-Pirelli per i cartelli indicatori," *Le vie d'Italia 3* (1922), 225–233, and Luigi Vittorio Bertarelli, "Due milioni per diecimila cartelli di comune. Un consorzio fra il Touring e la Società Italo-americana pel petrolio," *Le vie d'Italia 10* (1922), 961–965.
33. Consiglio del Tci, "Per l'automobile e per la bicicletta 'strumenti di lavoro'. Prima parte," *Le vie d'Italia 7* (1921), 692–700, here 694.
34. Consiglio del Tci, "Per l'automobile e per la bicicletta 'strumenti di lavoro'. Seconda parte," *Le vie d'Italia 8* (1921), 803–808, here 807, italics in original. On these themes, see also Bardelli, *L'Italia viaggia*, 416 et seq.
35. See Nicola De Ianni, "Vecchi e nuovi documenti sullo 'Stato industriale,'" in *La storia e l'economia, volume 2*, ed. Anna Maria Falchero, Andrea Giuntini, Giampietro Nigro, Luciano Segreto (Varese: Lativa, 2003), 291–316, here 293.
36. On Silvio Benigno Crespi see Roberto Romano, "Silvio Benigno Crespi," in *Dizionario biografico degli italiani, volume 30* (Roma: Istituto della enciclopedia italiana, 1984), available at [http://www.treccani.it/enciclopedia/silvio-benigno-crespi\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/silvio-benigno-crespi_%28Dizionario_Biografico%29/), accessed on 3 April 2016.
37. The motorway society controlled by Puricelli is a good example of how financial and accounting conduct was not always exemplary, and pushed the limits of the penal code: see in particular Bortolotti and De Luca, *Fascismo e autostrade*, 26 et seq., and the letters of the Ministry of Public Works to the PCM dated 3 December 1931 in Acs, Pcm, 1931–33, 7/1–2/4549, Autostrada Torino–Milano.

38. On the Monza speedway see Italo Vandone, "Il 'circuito di Milano' nel parco di Monza," *Le vie d'Italia* 8 (1922), 817–824, and Lando Ferretti, "Il circuito di Milano," *Le vie d'Italia* 10 (1922), 961–965.
39. On the collaboration between the Polytechnic University of Milan and Puricelli, see Francesco Aimone Jelmoni, "Piero Puricelli," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 20–23, here 21.
40. Giorgio Bigatti, *Alberto Riva a la Milano del suo tempo* (Milano: Brioschi, 2013), 20.
41. *Ibid.*
42. *Le autostrade da Milano ai Laghi*, 17.
43. Vandone, "Le 'Autostrade' da Milano ai laghi lombardi," 34–35. See also "Le strade per automobili. Da Milano ai laghi e Varese con strade apposite," *Corriere della Sera*, 22 March 1922.
44. The complete list of the members of the commission, published in the January 1923 issue of *Le vie d'Italia*, was endless but merits being reported for the broadness of its components—political, social, and economic. Taking part were B. Belotti, L. V. Bertarelli, G. Bognetti, F. Guasti, F. Johnson, G. Mira, C. Moldenhauer, E. Moro, P. Moro, D. Rosetti, F. Sansoni, and A. Zaffaroni from the TCI board of governors; as well as A.G. Bianchi, journalist; F.E. Balzarotti, from Credito Italiano; lawyer F. Bolchini; the Hon. A. Beltramini; engineer E. Broggi from the technical office of the Milan province; Senator S. Crespi; A. Brusa Pasqué from the Como provincial deputation; engineer A. Castelli; engineer P. Cattaneo from the technical office of the City of Milan; Dr. B. Dolcetta, co-manager of the Banca Commerciale Italiana (Comit); Senator L. Della Torre; the Hon. G. De Capitani; Dr. A. Filippetti, mayor of Milan; the Hon. E. Gonzalez, president of the provincial board of Milan; U. Grioni, editor and publicist; engineer A. Lodolo from the Credito Italiano; lawyer N. Levi, president of the Milan provincial deputation; engineer E. Marchesi, president of the Unione italiana fabbriche di automobili; A. Mercanti from the Società incremento automobilismo e Sport; the Hon. A. Nosedà Como, municipality council member; P. Ostali; engineer P. Puricelli; Dr. P. Pirelli; E. Reinach; Senator A. Salmoiraghi, president of the Milan Chamber of Commerce; Dr. A. Schiavi, City of Milan council member; G. Toeplitz from the Banca Commerciale Italiana (Comit); R. Ugoletti, director of Credito Italiano; engineer I. Vandone, director of the Istituto sperimentale stradale del Tci; the Hon. P.G. Venino; E. Vaccarossi; and U. Weiss.
45. Vandone, "Le 'Autostrade' da Milano ai laghi lombardi," 34–35.
46. See Luigi Vittorio Bertarelli, "Le autostrade Milano–Laghi. L'opera del Touring," *Le vie d'Italia* 1 (1923), 73–75, here 73–74.
47. Vandone, "Le 'Autostrade' da Milano ai laghi lombardi," 34.
48. See "Una grande iniziativa milanese. Una strada per automobili Milano–Laghi," *Il Popolo d'Italia*, 6 September 1922.
49. Carlo Mochi, "I trasporti," in *Annali dell'economia italiana 1923–1929* (Milano: Ipsoa, 1981), 177–218, here 177.
50. See Stefano Maggi, *Le ferrovie* (Bologna: Il Mulino, 2003), chapter 4.
51. Vandone, "Le 'Autostrade' da Milano ai laghi lombardi," 34.
52. Germà Bel, "The First Privatisation: Selling SOEs and Privatising Public Monopolies in Fascist Italy (1922–1925)," *Cambridge Journal of Economics* 35, no. 5 (2011), 937–956, here 939.
53. *Le autostrade da Milano ai Laghi*, 18.
54. Copy of the decree in *Accs, Pcm, 1922, Ministero ll.pp.*

55. Aldo Finzi, who was a companion of D'Annunzio on his flight to Vienna and was subsequently involved in the murder of Matteotti, "was elected under-secretary of the interior by Prime Minister Mussolini and in this role it was his task to manage the 'secret funds' for the financing of the press," Giuseppe Sircana, "Aldo Finzi," in *Dizionario biografico degli italiani, volume 48* (Roma: Istituto della enciclopedia italiana, 1997), available at [http://www.treccani.it/enciclopedia/aldo-finzi\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/aldo-finzi_%28Dizionario_Biografico%29/), accessed on 31 March 2016. In the first months of 1923 he was implicated in corruption linked to the works for the direct rail line between Bologna and Florence (see "La direttissima Bologna–Firenze non sarà appaltata dallo Stato," *Corriere della sera*, 3 August 1923), though there is no archival evidence to prove similar activities in connection with the Milan–Lakes motorway.
56. The record of the meeting (see *Le autostrade da Milano ai Laghi*) does not report any discourse by Piero Puricelli, who rarely spoke in public. See also "La giornata dell'on. Finzi. La riunione per l'auto strada Milano–Laghi," *Corriere della sera*, 6 January 1923.
57. See "La giornata dell'on. Mussolini. La cerimonia per l'auto-strada a Lainate," *Corriere della sera*, 26 March 1923.
58. See *Le autostrade da Milano ai Laghi*, 20.
59. See *Atti del IV Convegno Nazionale Stradale promosso ed organizzato dal Tci. Perugia 25–28 giugno 1925. Atti del convegno* (Milano: Tci, 1926), 96.
60. See "Le cerimonie commemorative e inaugurali svoltesi domenica coll'intervento del Re," *Corriere della sera*, 23 September 1924 and Francesco Aimone Jelmoni, "Il 21 settembre 1924," 15.
61. The Milan–Lainate trunk was an exception, as the road plan was 10 meters wide in addition to the shoulders; see A. Mangarano and G. Pellizzi, "Les premières autoroutes réalisées en Italie/Italy's first Motorways," in *Aipcr/Piarc 1909–1969* (Paris: Aipcr/Piarc, 1970), 129–140, here 134.
62. At least until the reforms made in 1925 and 1926, in Italy every province established its own rules about the side of circulation, but it should be added that in the cities the trams circulated, like the trains, on the left, and therefore so did cars. The 1923 reform, applied within three years, homogenized the rule, making driving on the right side compulsory.
63. At that time even motorbikes were excluded; as on the Milan–Lakes, only motor vehicles with three wheels or more were admitted. See the "Regolamento per la circolazione sulle autostrade Milano–Laghi," approved by royal decree 1040 on 27 May 1926.
64. Federico Paolini, *Storia sociale dell'automobile in Italia* (Roma: Carocci, 2007), 27.
65. Puricelli, *Le autostrade e la Milano–Laghi*, 31.
66. *Ibid.*, 33.
67. Jelmoni, "Il 21 settembre 1924," 16.
68. See Vito Rocco, "La 'tassa' di pedaggio," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 164–169, here 166 and table 3.
69. According to Jelmoni ("Il 21 settembre 1924," 19), above all referring to the first years of operation: "from time to time we happened to meet another motor vehicle of fearless travelers, and I cannot describe the wild waving we would then do, us and them, to greet each other and reciprocally demonstrate our great satisfaction at being on the motorway!"

70. Bruno Bolis, "I punti di accesso alle autostrade," *Le Strade* 2 (1955), 51–59, here 51.
71. Bruno Bolis, "Ancora in tema di autostrade, di camionabili, e di strade automobilistiche," *Le Strade* 3 (1954), 65–79, here 66.
72. Giuseppe Centolani, "Le tecnologie costruttive e le sovrastrutture," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 138–151, here 142.
73. Shortly thereafter, Edmond Chiavari became the president of the Touring Club and, in 1929, vice president of PIARC; see Nuad, "Soixante ans de l'Aipcr/Sixty years of Piarc," 17.
74. Associazione internazionale permanente dei congressi della strada, *Quinto congresso internazionale della strada, Milano, 1926. Rendiconto dei lavori del congresso* (Rennes-Paris: Oberthur, 1927), speech by Edmond Chaix, 177.
75. *Ibid.*, speech by Édouard Michelin, 178.
76. For a more detailed description see Enrico Berbenni, "Paying for the First Italian Motorways (1923–1941)," in *Infrastructure Finance in Europe: Insights into the History of Water, Transport, and Telecommunications*, ed. Youssef Cassis, Giuseppe De Luca, and Massimo Florio (Oxford: Oxford University Press, 2016), 193–217.
77. Bruno Acquaviva, "La prima legislazione autostradale," in *Autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 26–29, here 27.
78. See "Sintesi dei dati tecnico-costruttivi ed avanzamento lavori delle 'autostrade della prima generazione,'" in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 137.
79. Giovanni Da Rios, "Le prime autostrade italiane," *La rivista della strada* 390 (1974), 1–24, here 9.
80. See the cases of the Florence–Sea (Bortolotti and De Luca, *Fascismo e autostrade*), the Turin–Milan (discussed further in chapter 5), and the Padua–Venice (Giovanni Da Rios and Savino Rinelli, "Autostrada Venezia–Padova," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 112–119).



## CHAPTER 3



# Motorway Mania in Italy in the 1920s

## The Proliferation of Promotional Committees

The Milan–Lakes motorway established an example that many others very soon wished to follow. From January 1923—as soon as news of the governmental decree for the concession broke—dozens of proposals and projects followed on each other’s heels. They were often supported by promotional committees that were instituted specially for the occasion, all determined to realize a motorway across diverse parts of Italy. The enthusiasm for these projects was shared by the TCI, which saw the opportunity for free private initiative in the face of the inertia of public actors. As Italo Vandone, TCI mastermind for road issues, stated,

we must conclude that the seeds sown with the Milan–Lakes motorway have rapidly led to the sprouting of many similar initiatives, which undoubtedly demonstrates, beyond an understandable regional emulation, that the motorway concept effectively responds to the felt need for circulation. It is possible that the poor maintenance conditions of some of our principal roads have given rise to these initiatives. This would not be the case if these great road arteries had already received a modern renewal, in order to permit rapid and convenient circulation of motor vehicles and animal-drawn vehicles side-by-side. Private initiative therefore tends to substitute the slow and imperfect activity of public administration where the extent of the traffic has made it too difficult to bear the damages of the unfavorable road conditions, and aims to take a standing jump over this obstacle by replacing ordinary roads with the motorway. This not only represents a more perfect solution to the problems complained of, but also gives a free hand to private business.<sup>1</sup>

The spirit of emulation pervaded many projects, transforming the motorway into a tool with a thousand uses, a messianic work that responded to the most disparate of problems. Where traffic was still developing, the motorway was seen as a valid support of motorization and a solid alternative to the disastrous conditions of the ordinary roads. In regions with a low index of motorization, the motorway was instead seen as an indispensable catalyzer that could trigger the desired development of motoring.

This was the frame of mind of one of the most passionate supporters of the motorway in Italy, Francesco La Farina, a department head in the Ministry of Public Works, and also an official speaker on the theme of the motorway at the fourth roads convention organized by the TCI in 1925.

We do not believe that preexisting local traffic, deduced just from the circulation and transit of private vehicles, should be an absolute condition for the construction of a motorway. Rather, we think that given the scopes that a motorway can respond to and that we have alluded to, it is in itself an element of success in regions in which determined extremes (cities, populous centers, weather conditions) destroy the good roads suited for motor traffic. We also take into consideration that regular [transport] services, both public and private, could be located along the motorway. This observation is true for southern Italy and for many zones with a touristic character, which have been impossible to exploit until now due to the lack of good connections.<sup>2</sup>

The zealous Farina was actually pointing his finger at the main features of the road-building policies, namely, "development by scarcity" versus "development by excess." As reported by Mauch and Zeller, the post-World War II debate saw how "in some countries, especially the Anglo-Saxon ones, roads were built to supply a scarcity that blocked economic activities, while in continental Europe roads were sometimes built far ahead of demand in the hope that they would stimulate commerce through excess capacity."<sup>3</sup>

Motorway enthusiasts in the mid 1920s tried to use both arguments, often related to the needs of the tourist industry,<sup>4</sup> an easy way of overcoming the resource allocation doubts linked to every project. The motorway project outlines of the early 1920s were actually often ideas and sketches done in completely individual style by engineers and other experts, referring to the zones that they operated in and knew best. Sometimes a rudimentary motorway project would gain passionate support from the local chamber of commerce or a group of important figures, who in turn created promotional committees and spread the proposal via brochures, publications, and even films.<sup>5</sup> Among the most precocious motorway proposals, the initiative of Turin's Count Secondo Frola is worth noting. As we shall see in more detail in chapter 6, on 16 January 1923, he organized a first meeting for the construction of a Turin-Biella-Milan motorway. Similar haste was seen in Tuscany, where the *Ente attività toscane* society organized a meeting to discuss a motorway from Florence to the maritime coast, which has been the subject of deep historical research by Giuseppe De Luca.<sup>6</sup> But the com-

mittee for the Bergamo–Milan motorway was more rapid than either of these. A brochure created for the inauguration of the Bergamo–Milan motorway in 1927 tells us:

Bergamo, perhaps the most neglected of the Lombard sisters from a railway point of view and which had in vain hoped for a direct [railway] line from Milan to Bergamo, promptly recognized the possibility of making a significant improvement to its connections by means of a motorway.

The local fascist authorities immediately occupied themselves with the question. Finding cordial support from the Chamber of Commerce, the administrations of the city and province of Bergamo, and a group of keen citizens, they created the Bergamo Limited Company for the construction and operation of motorways, which was instituted on 4 March 1923 with a small initial amount of capital for the first preparatory phase of the preliminary draft and the request for a concession for the construction and management of the Bergamo–Milan motorway.<sup>7</sup>

In the meantime there was no lack of motorway connection proposals: between Rome and Frascati;<sup>8</sup> a coastal road between Genoa and Ventimiglia, the latter town positioned on the French border;<sup>9</sup> a motorway between Milan and Bologna, via Cremona, Parma, Reggio Emilia, and Modena;<sup>10</sup> one connecting Bergamo through the Stelvio Pass, including a tunnel under the Alps;<sup>11</sup> a technical study by Puricelli on a Florence–Perugia–Rome trunk road;<sup>12</sup> a proposal by engineer Belloni for a new motorway project between Livorno and Ancona;<sup>13</sup> and the Palermo–Mondello motorway.<sup>14</sup> A plan for a Naples–Salerno motorway was prepared during 1923 by the same local notables involved in the foundation of the local Rotary club.<sup>15</sup> Also in the south, Francesco De' Simone dusted off his old (and confused) project to connect Rome and Naples, sending it—in vain—to the prime minister's office in the hope of finding interested patrons.<sup>16</sup> De' Simone explicitly cited the concessionaire agreement of the Milan–Lakes and the Milan–Venice, imitating their founding characteristics.

The proposed arterial road—between Naples and Rome—will be reserved exclusively and solely for cars and primarily traffic of people and postal services, without, however, excluding adequate transport of valuable and perishable goods. This dedicated infrastructure will have a separate carriageway for the entire route, without level crossings, will go close to inhabited centers without entering them, and will cross roads using viaducts and cross railways via underpasses, thus allowing cars to travel at greater speeds without risk of collisions, without the need for intermediate breaks, and with maximum liberty and safety for the drivers.<sup>17</sup>

But De' Simone—as early as 1923—went a lot further, and imagined a form of coordination of the various projects, dreaming up a national motorway system with two axes, one north–south between Naples and Milan, along the Tyrrhenian coast, and one east–west from Turin to Venice.

It should be part of this free-ranging fantasy that the Rome–Naples motorway proposal could be the start of a vaster conception and protract beyond Rome like a dorsal spine toward Tuscany, Liguria, and Lombardy and reach Milan, after a 650-kilometer route from Rome, thus shortening the distances of the peninsula, with its overly long geographical configuration. . . .

In Milan the imagined prolongation could connect to the in-construction Milan–Lakes and with Venice, thanks to the planned Milan–Venice. This latter, when it is lengthened in its turn in the opposite direction for another 120 km west, would reach Turin, and thus gather together the north of our continent [country].<sup>18</sup>

With the exception of De' Simone's futuristic intuition, the motorway projects between 1923 and 1926 reveal geographically limited and uncoordinated characteristics. Every city advanced projects with a local flavor, formed of brief or very brief trunks, rarely planning beyond a regional scale. The only common point was Puricelli: the notoriety of the Milanese entrepreneur made him an inevitable reference point, to the extent that nearly all the motorway promotional committees contacted him to ask for technical and logistical support. This was support that Puricelli was happy to give, freely and at his own risk, but with the promise that some of the construction work would be entrusted to him should the project be realized.

In 1925, to summarize the Italian motorway projects—with the brevity of citing only those where he was involved personally, including by founding *ad hoc* companies—Puricelli collected and showcased the fragmentary character of the proposals and the need for a new phase that could lead to a first master plan for motorways.

The gratifying results obtained by the "Milan–Lakes," and moreover the concept of the opportunity of the motorway, has captured the public imagination, seeing that there are many projects on the table, and some have already entered or are entering a concrete and definite phase.

These latter include:

- the "Bergamo–Milan," already being executed by the Bergamo Company for the construction and management of motorways. . . .
- the "Naples–Salerno" (50 km) in concession to the Southern Motorway Company;

- the “Rome–Ostia” (23 km) by the Motorway Company of Lazio.

But the field of planning is much vaster. From the studies and preliminary drafts already executed for the “Milan–Turin,” for the “Milan–Genoa,” for the “Genoa–Ventimiglia,” for the “Padua–Mestre–Venice,” and for the “Merano–Bolzano,” we arrive at a real master plan. With this, based on a single directive, governed by a single legislation, homogenized according to the particular usage [of motorways], we can join these sparse trunks of motorway, constructed or to be constructed, into one grand network at a national level.<sup>19</sup>

In reality, Puricelli was not so enthusiastic about the proliferation of motorway initiatives. In the same year, he denounced the excessive frenzy of promotional committees, writing that the “fervor of activity—regarding Italy—has perhaps run a bit ahead of the times, given that motoring is not yet adequately developed here.”<sup>20</sup> He revisited this theme many years later in 1940, in a draft of a report discovered by Annabella Galleni. On that occasion, Puricelli retraced the activities that were carried out, arguing that there had been an excessive development of motorway planning. “As soon as the first motorway was launched on the road to realization, similar ideas appeared and bred. Every city wanted its motorway. Now the seeds that had been sown threatened to grow too quickly. Because this abundance of initiatives might shift the terms in which the real Italian roads problem was posed. Now the idea of the motorway should have, yes, been affirmed and developed, but it should not have twisted the real question and distracted from the first hypothesis of the real Italian roads renaissance: the renewal of the entire principal roads network of the country.”<sup>21</sup>

Puricelli found himself unable to control his own creature, afraid that the theme of the motorway would supplant that of ordinary roads, where, it should be remembered, he had focused his major business interests. However, the devious fascination of the motorway contaminated a good part of Italy, making the less prudent forget that without a solution for the provincial and national roads, the land motor transport industry could not advance. Lando Ferretti, journalist, former athlete, and future president of the Italian Olympic Committee, represented this viewpoint in February 1925 when he commented that motorways, while beautiful and commendable, nonetheless remained a useless trinket in the hands of a wealthy few. “With very limited development, very high costs, open only to the privileged few who can afford the most onerous tariffs, the motorway represents a luxury that honors the spirit of initiative and the genius of our people but must not make us forget the needs, in terms of roads, of 40 million Italians. . . . At the risk of being paradoxical, we must have the courage to state that the motorway has

contributed only a little more to solving the Italian roads problem than the construction of the Monza speedway contributed."<sup>22</sup>

### **The Zenith of Puricelli's Success: The International Roads Congress in Milan, 1926**

The limits and difficulties of Italian motorway projects—despite Ferretti's statements—had not yet made themselves overly evident. Mussolini's enthusiastic support of Puricelli's project and the extraordinary communicative and networking capacity of the Milanese entrepreneur meant that the Milan–Lakes motorway assumed a public relevance that was quite disproportionate, becoming an icon of the social interest in motorization.

The support of the fascist government, as we have seen, was decisive in rapidly obtaining state approval. The impetuous diffusion of the motorway gospel, strongly promoted by the widespread TCI journal,<sup>23</sup> found fertile soil in Italian public opinion. The motorway was envisaged as a tool to bridge the gap with other European nations; even better, appealing to nationalism, it would place Italy at the avant-garde of the world. The fascist government understood very well that constructing 84 kilometers of hypermodern road could have a multifaceted propaganda benefit.<sup>24</sup>

And those elements of propaganda were also used on the international stage the moment the occasion presented itself. In April 1923, on the probable initiative of the Italian Touring Club, the government toyed with the idea of holding the fifth international roads congress in Italy, receiving ready government approval to do so. As mentioned earlier, the first international roads congress was held in 1908 in Paris, and was then repeated in 1910 in Brussels, under the auspices of PIARC, and in 1913 in London. After the congress of 1913, "Munich was fixed as the location for the next congress; but the war naturally interrupted this as it did any other form of international collaboration. When peace was achieved, the association restarted its activities and expressed the desire for the fourth congress to take place in Italy. The Italian delegates, in the meeting of the Permanent Commission [PIARC] that took place in June 1920, could not hide their pleasure. However, regrettably, the government of the time did not allow the gathering, citing as their reason the scarcity of accommodation and hotels to host the attendees."<sup>25</sup>

The fourth congress was therefore held in Spain, in Seville, in May 1923, but—after the poor showing of the liberal government—the occasion was ripe to offer to host the following congress. Mussolini, under-

standing the potential of the offer and the opportunity of the initiative, did not stop at gathering ministerial suggestions, and stated that "given the character of the congress, the proposal for the location could be Milan: this location is more advantageous than other cities, because of its motorway and position as the seat of the TCI."<sup>26</sup> During the 1923 congress in Spain, the Italian representatives (who notably included Italo Vandone as the TCI delegate) therefore advanced their candidacy explicitly justifying it with the creation of the motorway network in the peninsula. "The organizing commission desires that this new Italian conception and creation is not just an attraction but a theme of the Congress."<sup>27</sup> In fact, the motorway became one of the six themes dealt with at the congress, and this decision "was naturally a pleasing agenda for us Italians, since it gave us the possibility to bring the results of an experiment conducted for the first time in Italy to the awareness of an authoritative international meeting. And so, with the cordial consensus of the Executive Office of Paris, the issues regarding the motorway were designated as the sixth theme [of the congress]."<sup>28</sup>

As can be imagined, the Milan–Lakes motorway went from the unusual roads experiment of a private company to a subject of discussion and debate in the biggest roads organization of the time, guaranteeing international diffusion of Puricelli's idea and giving the fascist government something to preen over. In addition, the international event increased Puricelli's prestige and facilitated his access to the foreign market: he already had contacts and correspondence abroad, but after the Milan congress, he was able to write—in one of his numerous memoirs—that by the end of the 1920s half of his engineers and technicians worked in "Spain, France, Switzerland, Poland, and Brazil."<sup>29</sup>

As has been noted, well before the start of the 1926 congress—and in some cases before the construction of the Milan–Lakes—initiatives were developed in the European roads sector expressly aimed at automobiles, and with special characteristics. One of the earliest realizations in the motorway field was the German Avus (Automobil-Verkehrs und Übungstrasse), which in 1909 built a road without intersections in the Grunewald Forest, between Berlin and Potsdam, with work starting in 1913. The Avus was basically a test and race road for vehicles, as the name suggests, with its use broadened to include sports competitions.<sup>30</sup> In 1924, the same year in which the first stretch of the Milan–Lakes was opened to traffic, the *Studiengesellschaft für den Automobilstrassenbau* (Stufa) was founded in Germany. This company planned a German motorway network, publishing an ambitious project for around 22,500 kilometers of construction two years later.<sup>31</sup> The general proposal was imitated by Hafraba, another company originally created for a motorway

project on the north–south axis of the country, connecting the Hanseatic cities (Bremen, Hamburg, and Lübeck) with Frankfurt and Basel.<sup>32</sup> In 1925 a motorway project between Cologne and Aachen and to connect Düsseldorf–Cologne–Bonn was proposed, and indeed the Cologne–Bonn stretch of this latter project was completed in 1932, and was the only one effectively realized in Germany before the Nazi rise to power.

France also saw motorway plans advanced between the two world wars, including the routes Paris–Cherbourg, Paris–Deauville, Paris–Côte d’Azur, and Lyon–Saint-Étienne. The most advanced project was that of engineer Edmond Pigelet, who sketched a toll motorway between Paris and Lille. In 1927 he founded the *Compagnie des Autoroutes*, a private society that aimed to construct and manage the motorway. The Spanish,<sup>33</sup> English, and Dutch motorway initiatives did not meet with better success,<sup>34</sup> but they demonstrated the continental attention to the subject, and were often explicitly inspired by Puricelli’s project. Puricelli himself did not spare energy in spreading the motorway’s gospel. His companies were lobbying actively not only in Europe, but on a global scale, ranging from South America to China, and with the most different activities, from pamphlet production (among others, in 1929 a Finnish-language booklet about motorways was printed, leading the national debate on road development)<sup>35</sup> to project support, as in Germany, France, and Spain, up to direct engagement as contractor, as in Brazil, among other countries.

Puricelli was strongly engaged in the German plans: according to the German archival sources, in 1925 Puricelli was already in close connection with Prof. Robert Otzen, founder of Hafraba,<sup>36</sup> stating that “the real aim of his plans was a European road network.”<sup>37</sup> Puricelli was “a key inspiration for Hafraba’s initiators, such as Hermann Uhlfelder and Willy Hof,”<sup>38</sup> and was soon a member of Hafraba’s board (Vorstandsmitglied). Puricelli’s ambitions went further, aiming to stretch Hafraba’s motorway toward Milan and Genoa, to close the gap between the constructed Italian *autostrade* network and the Hafraba project. To lobby for the plan, “in 1927 Puricelli organized a conference in Zurich together with Hafraba that inspired the Canton of Basel-Stadt to organize a meeting resulting in the Association pour la Route Automobile Alliant de Bâle à la Frontière Italienne, later transformed into the Association des Autoroutes Suisses.”<sup>39</sup>

This was a sort of transnational scheme, the first evidence of which was published by Puricelli in 1927. With the title of “Carta probabile della rete futura delle autostrade d’Europa” (possible future map of the Motorway of Europe),<sup>40</sup> it was actually not a network, but a sum of national plans, often not even linked at all, as in the case of the road legs in Spain, Belgium, and the Netherlands. As Frank Schipper notes, the “straight



lines drawn on Europe's map testified of their highly fictitious character, further underlined by the fact that the map did not take political factors into consideration,<sup>41</sup> let alone the predominance of Milan as the network's hub.

This all demonstrates that, even without the PIARC meeting, "the interest engendered by the first motorway, and all of the studies, projects and initiatives that followed it, had caught the attention of foreign engineers and governments," including in France, "where important committees have been founded, with the involvement of Italian experts,"<sup>42</sup> as well as in Spain, Portugal, Egypt, and Argentina. But even U.S. technicians, to give one example, expressed interest in the Italian motorway, as in the 1925 visit of "Professor Duff A. Abrams of the Lewis Institute of Chicago" (the current Illinois Institute of Technology) and director of the influential Portland Cement Association.<sup>43</sup> In other words, the enthusiasm for Italian motorways was spreading well out of the country.

In this vein, the trajectory of the Spanish motorway debate seems particularly interesting. First, the Spanish discussion was openly fueled by the Italian example. Having similar background conditions, namely, a lack of resources and ordinary roads that answered badly to motor vehicle needs, motorways in the Iberian country were also conceived as a tool to force the onslaught of modernity. Second, as in Italy in the 1920s, in Spain between 1927 and 1930 "we can count about twenty motorway proposals,"<sup>44</sup> with the same concessionaire model that was envisioned by Puricelli in Italy,<sup>45</sup> and that were loosely linked, with no real national network. And as in Italy, there was a party against motorways, which claimed the motorway projects were distracting resources from the renewal of the ordinary roads.

However, the apex of success for the Italian motorways was at the PIARC congress in 1926, held in Milan, with the participation of almost two thousand participants and great journalistic clamor. On 6 September 1926, at the inaugural ceremony conducted by Senator Luigi Luiggi, all the Italian and foreign speakers glorified the Milan–Lakes motorway and its creator, while Gabriele D'Annunzio sent a poem—a tract of *Alcyone*—dedicated to Puricelli's work.<sup>46</sup> The laudatory tone of the presentations can be well summarized in the words of the president of PIARC, Frenchman Albert Mahieu: "We have also come to Italy to receive training, and I allow myself to congratulate the Italian engineers on the results already obtained, which they will present tomorrow. The results are the precursors to the creation of special roads for automobiles, putting Italy at the forefront of progress."<sup>47</sup>

The head of the U.S. delegation, John A. MacDonald, in the poorly written minutes, also had words of praise for the Italian example. "For

about ten years the new means of transport, which we call 'highway transport,' has undergone such considerable development that today it should be possible to transport in our automobiles, at one single time, the entire population of the United States. We are therefore able to give you useful training on the effect of automobiles on the road, but we come also to return together to the past and understand what your experience has been and the effect of the perfected road on the population of a country."<sup>48</sup>

The next day, under the presidency of Carlo Isnardo Azimonti of the Milan Polytechnic University, the congress discussed the sixth theme of the meeting, "Special roads reserved for motor vehicles (Motorway)." The official orator on the theme, Michele Carlo Isacco, was an Italian top official at the Ministry of Public Works. Seven presentations were received at the congress, from Belgium (by E. Cauterman and P. de Graer), France (E. Chaix and G. Raffard, both from the Automobile club de France), Great Britain (Sir Lynden Macassey), the United States of America (Th.H. MacDonald, head of the Bureau of Public Roads, J.A. MacDonald, and W.G. Sloan), Italy (F. La Farina and A. Depetrini from the Ministry of Public Works), the Netherlands (D.A. Van Heyst, G.J. Van Den Broek, and P.J. Van Voorst Vader, Jr.) and Sweden (K.K. Adler).

Summarizing the presentations, the U.S. and British representatives were opposed to motorways such as the one being constructed in Italy, the Belgians and Swedish were keeping open minds, and the others were in favor.<sup>49</sup> For Isacco—who would have the work of formulating the final resolution to be voted on by the attendees—there was no doubt about the worth of the motorway idea. He took comfort from the views of the many delegations from continental Europe, South America, and Asia. The congress therefore had to formulate an invitation to construct motorways not just where there was "heavy traffic [that] produces saturation or congestion," but also where "with its incoming prevalence, we should ensure that motorized traffic and its individual types (transport of passengers or of goods, rapid or slow vehicles) achieve maximum performance." The enthusiasm for the motorways clashed with the fear, repeated in the debate, that their construction could lead to a ban on the circulation of motor vehicles on ordinary roads. The Italian orator took care to underline that "the motorway could not in general substitute for the existing roads, and does not claim to exclude motor vehicles from such roads, even when routes are identical."<sup>50</sup> Finally, Isacco commented on preventing traffic streams from crossing within the motorway, by creating entrance and exit junctions separated for both directions, unlike those constructed for the Milan–Lakes.

Isacco's conclusions were approved by the congress, although with the important abstention of the British and American representatives, who could not come to terms with charging a transit toll, and maintained that the motorways were extravagant and anti-economic.<sup>51</sup> The vote of the Anglo-Saxon representatives confirmed a dichotomy within PIARC between the position of the continental European engineers and those from the United States and the U.K.: a difference of opinions had already been apparent in the Seville congress in 1923.<sup>52</sup> This is also the perspective from which the closing session should be viewed. The resolution hoped for the construction of motorways in Europe, which could give an idea of the atmosphere of confidence, if not exaltation, that the delegates of the old continent displayed for the theme. Proposed by the Italian delegates, including Vandone and Luiggi (but not Puricelli), the approved agenda read: "The congress hopes that at a subsequent event all the great capitals and the principal holiday locations of the continent will be united by means of motorways, and our resolution expresses that this idea is favorably regarded by the automobile clubs and the touristic associations of the various countries."<sup>53</sup>

On 9 September, around 1,700 attendees from fifty-three nations took part in the visit to the Milan–Lakes motorway, forming an "imposing" convoy of buses,<sup>54</sup> although not everyone found the experience interesting or pleasing. The Dutch delegates were worried about the driver of their bus, who in their opinion was dangerously drunk. They were even less enthusiastic about the motorway itself, badly constructed and defined as a horrible cement scar in the middle of the countryside.<sup>55</sup>

On 13 September in Rome, the "solemn closing ceremony" of the congress was held, obviously "presided over by S.E. Mussolini."<sup>56</sup>

### Conflicting Intentions

The 1926 roads congress was accompanied, as was the tradition, by an exposition on mobility, similar to a trade fair. On the roads stand of the international exhibition, Puricelli exhibited both the details of the motorway in Liguria from La Spezia to Ventimiglia (i.e., from Tuscany to the Italian border with France) and the project, already sketched out in 1925, to endow "Italy with a systematic motorway network."<sup>57</sup> The concept of a "national" master plan was also relaunched by engineer Carlo Cesareni, an important second-rank politician, linked to Giacomo Suardo and close to Puricelli. In 1926 Cesareni published a map of motorways to be constructed only in northern Italy—imagining motorways along the

axes of Turin–Venice, Milan–Genoa, and Genoa–Ventimiglia, in addition to the Milan–Lakes.<sup>58</sup>

What emerged, as Cesareni and Puricelli understood, is the need in the mid 1920s to achieve a new scale of planning, partly to overcome the impasse in which Italian motorway proposals had stalled: the fundamental limits of the initiative in the field were the enormous difficulties of finding resources for financing the works even partially. Even in cities like Turin or Brescia, where the manufacturing and automotive industries had a considerable presence, collecting funds was beset by a thousand difficulties and years could pass before a sufficient critical mass was achieved to activate the projects. Elsewhere, the initiatives were drastically limited, like with the Naples–Salerno. In some less fortunate cases, the local committees remained in an embryonic state and were not able to even fund the preliminary studies or surveys of the works. The uncertainty of the operations, the precariousness of the forecasts for traffic, and, more generally, the scarcity of capital, made it difficult to achieve the minimum of share and bond subscriptions. Despite these limitations, the response of local politicians, particularly those of the Fascist Party, to this river of proposals was nonetheless enthusiastic.



**Figure 3.1.** Bergamo–Milan motorway, late 1920s.

Author's collection.

The historically best-known initiatives were strongly supported by the local fascist politicians, while in general—with the exception of Milan—the representatives of the economic and financial establishment were absent or in second place.<sup>59</sup>

If locally the fascist politicians were keen on motorways, the attitude of the central government, after the enthusiasm for the Milan–Lakes motorway, was instead very cautious. The success that smiled on Piero Puricelli's 1922 initiative can be understood only if we frame it in its historical and political context. The substantial immobility of the public actors in the roads sector had made space for the initiatives of private actors, who were more alert and unscrupulous, and grasped the importance of the theme of modernization of transport and, more particularly, of the roads. The fascist government had therefore conceded the construction of a motorway from Milan to the lakes to Puricelli, but, as had happened to the Milanese entrepreneur, Mussolini also found that, despite his wishes, he was obliged to humor the many local committees that claimed a motorway in their turn, and he tried to limit their excessive proliferation as much as possible. The government concession became the subject of bargaining between the head of the government and the



**Figure 3.2.** Bergamo–Milan motorway, late 1920s.

Author's collection.

local fascist *ras*<sup>60</sup> who supported the promotional committees. From 1923 to 1927 only two motorways were approved: the Bergamo–Milan and the Naples–Salerno. In the case of the Bergamo–Milan, the activities of Giacomo Suardo, state undersecretary for the prime minister, were instrumental. Highly faithful to Mussolini, as well as the *ras* of Bergamo, he used all his influence to achieve the approval of the proposal. In the absence of deeper research on the Naples–Salerno (reduced in 1927 to just the Naples–Pompeii stretch), today we can only highlight Puricelli’s presence on the local committee<sup>61</sup> and the direct interest of Mussolini, who in May 1925—returning from the southern Italian city—pressured the Milanese entrepreneur to plan the works.<sup>62</sup>

Mussolini’s original impetus had cooled, thanks as much to the evident economic difficulties of the committees as to the resurfacing of the ordinary roads problem. In 1925, the Ministry of Public Works relaunched the theme of the ordinary roads renewal program, with the proposal for a national Roads Agency, which naturally reduced the margins of maneuvering for the motorway adventure. There were also open critics, coming from the same Italian technical and automotive world. The journal *L’auto Italiana*—as Federico Paolini notes—was, by September 1924, already caustic about Italian motorways. Making the evidence even clearer, their construction denounced the poor conditions of the ordinary roads. “We mustn’t forget that while today in Italy, purely due to private initiatives, the first motorways emerge; the need to ensure appropriate and modern roads for automobiles has risen imperiously from the current deplorable state of almost complete abandonment of the majority of important roads in our country, made almost unusable by the intense traffic.”<sup>63</sup>

The same journal made a more circumstantial attack several months later, predicting—mindful of the railway story—a ruinous future for the Italian motorway affair, without imagining that the reality would be even more onerous for the public treasury.<sup>64</sup> “We know well how these famous agreements of concessions for a certain number of years will finish. Either they will take advantage of the operation in a way that gives the state a company in disastrous conditions at the last moment, or a reshuffle will occur before the deadline that allows the concessions to be extended.”<sup>65</sup>

Enrico Cantalamessa, head of an engineering office in the province of Rome, made similar criticisms during the 1925 TCI roads convention. Cantalamessa, like many others, felt that motorways were a luxury that took already-limited resources from the roads sector, a concept that was to be repeated in the years to come.

The motorway, in my opinion, is a luxury expense, while until now we have not yet heard anything but the poverty of the roads network. . . . In these conditions, spending many millions on a motorway seems excessive, forgetting the real problem of equipping the entire roads network. When I hear that Italy is at the avant-garde of motorways, I ask myself if perhaps it is not true that Italy is a poor nation in regard to roads. I hear talk of the Naples–Salerno motorway; well, the roads in that region are the worst of all of Italy. They are spending 100 million [about the equivalent in today's USD] there to have an oasis in the middle of a desert.

We must remember that the cost of a kilometer of motorway is close to a million, a sum that could fix 40 kilometers of ordinary roads.<sup>66</sup>

In other words, after a promising start, and right in the moment that the entire world was celebrating the success of the Italian proposal at the fifth international congress of roads, the motorway projects were in trouble. However, the Bergamo–Milan and the Naples–Salerno, for which the concessions would be granted on 4 September 1925,<sup>67</sup> re-animated the hopes of the promotional committees, strong in the unshakable conviction of the validity of their own proposals and a determined perseverance.

## Notes

1. Italo Vandone, "A proposito di autostrade," *Le strade* 11 (1923), 328–331, here 328.
2. *Atti del IV Convegno Nazionale Stradale promosso ed organizzato dal Tci. Perugia 25–28 giugno 1925* (Milano: Tci, 1926), 97–98.
3. Christoph Mauch and Thomas Zeller, "Introduction," in *The World Beyond the Windshield: Roads and Landscapes in the United States and Europe*, ed. Christoph Mauch and Thomas Zeller (Athens, OH: Ohio University Press, 2008), 1–13, here 6. I agree with Gijs Mom: "Freeway and modern highway construction ran ahead of traffic development, including in the United States." *Atlantic Automobility*, 593.
4. For the German case and the need of the motorway to meet tourist needs, see Richard Vahrenkamp, *The German Autobahn 1920–1945: Hafraba Vision and Mega Projects* (Lohamr: Eul, 2010), 32.
5. A "propaganda" film was created for the Turin–Biella–Milan motorway; see "Una conferenza dell'ing. Giay per la Torino–Biella–Milano," *Torino* 1–2 (1928), 45.
6. See Bortolotti and De Luca, *Fascismo e autostrade*.
7. Paolo Bonomi, "Storia dell'autostrada Bergamo–Milano," in *L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927), 8–11, here 8.
8. Acs, Pcm, 1924, 7/1-2/2774, *Autostrada Frascati–Roma*.
9. Acs, Pcm, 1927, 7/1-2/395, *Autostrada San Remo–confine francese–Inaugurazione lavori*.

10. See Franco Botteri, *L'autostrada Milano–Bologna via Cremona, Parma, Reggio Emilia, Modena con allacciamento a Salsomaggiore* (Bologna: Società poligrafica editrice, 1926).
11. See Giuseppe Chito, *Le nuove comunicazioni nella provincia di Bergamo. Traforo dello Stelvio, Autostrada Bergamo–Milano, Strada prealpina orobica* (Bergamo: Istituto italiano d'arti grafiche, 1926).
12. See Bortolotti and De Luca, *Fascismo e autostrade*, 57.
13. *Ibid.*, 45; unfortunately, the volume does not give greater archival or bibliographical indications on Belloni's project.
14. See Michele Isca, *Linee generali di progetto di massima per un'autostrada Palermo (Piazza Porrazzi)–Pietrazzi–Inzerra–M. Billiemi–Torretta–Carini–Capaci–Isola delle femmine–Sferracavallo–Tommaso Natale–Mondello: Palermo (Piazza Campo) e cenni dei monti della Conca d'oro* (Vicenza: G. Raschi, 1926).
15. See Vandone, "A proposito di autostrade," as well as Giovanni Da Rios and Savino Rinelli, "Autostrada Napoli–Pompei," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 66–73.
16. Acs, Pcm, 1924, 3/11/2596, *Ing. Comm. Francesco De Simone. Progetto per un'autostrada Napoli–Roma*.
17. Francesco De' Simone, *Autostrada Roma–Napoli* (Roma: Società Editrice Dante Alighieri, 1923), 8.
18. *Ibid.*, 14.
19. Piero Puricelli, *Le autostrade e la Milano–Laghi*, 41.
20. *Ibid.*, 42.
21. Account by Piero Puricelli dated 23 April 1940 in Acs, Iri, numerazione rossa, busta 527; the text of the report is reproduced in Annabella Galleni, "Strade, autostrade e fascismo," 47–82.
22. Lando Ferretti, "Salviamo le strade ordinarie!," *L'Auto Italiana*, 28 February 1925, 23–24, here 23.
23. In January and December 1923, the journal of the TCI, *Le vie d'Italia*, published two long articles on the motorway and revisited the theme in the society's annual report published in the May issue; see Luigi Vittorio Bertarelli, "Le autostrade Milano–Laghi," 468–478; Italo Vandone, "Sei mesi di lavoro per le autostrade," *Le vie d'Italia* 12 (1923), 1283–1293.
24. As Antonio Gramsci sarcastically points out in his Prison Notebook, "The fact that a country [e.g., Italy] is gaining infrastructure, already achieved in other countries, is declared and blared out, and it is said to the others: do the same if you can. But the others cannot, because they already did, and this is claimed as their 'impotence.'" Antonio Gramsci, *Notebook 15* [1933] in *Quaderni del Carcere*, vol. 3 (Torino: Einaudi, 1975), 1751.
25. Letter from the Ministry of Public Works to the Pcm dated 25 April 1923 in Acs, Pcm, 1926, 14/1/2254, *Milano–Mostra internazionale strada*.
26. Letter from the Pcm to the Ministry of Public Works dated 5 May 1923 in Acs, Pcm, 1926, 14/1/2254, *Milano–Mostra internazionale strada*.
27. "I lavori del V° congresso internazionale della strada. Milano 6–10 settembre 1926, seconda parte," *Annali dei Lavori pubblici* 12 (1926), 981–1132, here 1131.
28. *Ibid.*
29. Account by Piero Puricelli dated 2 March 1932, in Acs, Spd, Cr, busta 60, Piero Puricelli. See also the interview conducted by Lando Bortolotti and Giuseppe



- De Luca on 2 November 1992 of Pacifico Pellis, engineer from Puricelli's technical office, also referred to in Bortolotti and De Luca, *Fascismo e autostrade*.
30. See Volker Ziegler, "Les Autoroutes du IIIe Reich et leurs origines," in *Les années 30. L'architecture et les arts de l'espace entre industrie et nostalgie*, ed. Jean-Louis Cohen (Paris: éditions du Patrimoine, 1997), 207–213, here 207, and Volker Ziegler, "Il progetto autostradale tedesco fra città e territorio: 1925–1955," *Storia urbana* 100 (2002), 85–120, here 87.
  31. The map is published in Ziegler, "Il progetto autostradale tedesco," 100.
  32. See, among others, Reiner Ruppmann's recent works: "Das europäische Autobahnnetz: Weiterhin Hoffnungsträger oder primär Funktionsraum für die Transit-Ökonomie? (Teil 1)," *Zeitschrift für Weltgeschichte* 14, no. 2 (2013), 81–107 and "Teil 2," *Zeitschrift für Weltgeschichte* 15, no. 1 (2014), 163–180.
  33. Between 1927 and 1930, the year that saw the end of dictator Primo de Rivera, around twenty motorway projects followed each other, all marked for failure, but that demonstrated the vitality of the theme in a country, like Italy, with a low automobile density. Puricelli was also present in Spain; see Teresa Navas, "Il riflesso della modernità: le autostrade spagnole, 1920–1960," *Storia urbana* 100 (2002), 26–54. In 1931 in Spain 177,900 motor vehicles were in circulation, one for every 122 inhabitants (a greater density than in Italy); see *ibid.*, 35. Puricelli visited Spain, after an invitation by Giuseppe Bottai, as early as 1927; see the documents preserved in Acs, Spd, Cr, busta 60, Piero Puricelli.
  34. See Gijis Mom, "Roads without Rails," 754–755.
  35. Kimmo Antila and Marko Nenonen, "Relief Works, the World Bank and Private Business," *Scandinavian Economic History Review* 48, no. 2 (2000), 47–71.
  36. Ruppmann, "Das europäische Autobahnnetz: (Teil 1)," 84.
  37. Frank Schipper, *Driving Europe*, 104.
  38. *Ibid.*
  39. *Ibid.*
  40. *L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927), 7.
  41. Schipper, *Driving Europe*, 105.
  42. Puricelli, *Le autostrade e la Milano–Laghi*, 41.
  43. It was Italo Vandone who in 1925 proudly recalled the occasion, remembering it as if it were a conversation with an American colleague in a long discussion on the tarring of the roads; see *IV Convegno Nazionale Stradale*, 25.
  44. Navas, "Il riflesso della modernità: le autostrade spagnole, 1920–1960," 43–44.
  45. *Ibid.*, 44–46.
  46. "Rapidity, rapidity, most joyful / triumph over the grievous burden, airy / fever, thirst for the wind / and all its splendor / first to be born from the strung bow / which people know as Life!" Message sent by D'Annunzio, cited in Italo Bonardi, *Le autostrade italiane, loro organizzazione e loro importanza turistica* (Bologna: Tip. de Il Resto Del Carlino, 1942), 4.
  47. Associazione internazionale permanente dei congressi della strada, *Quinto congresso internazionale della strada*, 56–57. On Albert Mahieu, president of PIARC and "Ingénieur en chef des Ponts et Chassées," see Nuad, "Soixante ans de l'Aipcr/Sixty years of Piarc," 17.
  48. *Quinto congresso internazionale della strada*, 62.
  49. We should recall that Germany was not represented at the conference; its experts rejoined PIARC only at the 1930 congress.
  50. *Quinto congresso internazionale della strada*, 157 et seq.

51. See Bruce E. Seely, "An Overview Essay: Roads in Comparative Perspective," in *Road History. Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchâtel: Alphil, 2007), 13–32, here 20, 21.
52. See *Quarte congrès international de la route, Seville, 1923. Compte rendu des travaux du congrès* (Rennes–Paris: Oberthur, 1924) and Italo Vandone, "Comenti al congresso di Siviglia," *Le Strade* 7 (1923), 197–198.
53. *Quinto congresso internazionale della strada*, 187; the agenda was presented by Luigi Luiggi, Italo Vandone, Paolo Bignami, and Osvaldo Fioroni.
54. See "Il congresso della strada. Le strade dell'avvenire," *Corriere della sera*, 9 September 1926.
55. See Mom, "Roads without Rails," 758.
56. *Quinto congresso internazionale della strada*, 38. See also "Un discorso dell'on. Mussolini alla chiusura del congresso della strada," *Corriere della sera*, 14 September 1926.
57. *Mostra internazionale della strada, Milano–Settembre 1926* (Milano: Bestetti e Tuminelli, 1926), 316.
58. Carlo Cesareni, "L'autostrada Bergamo–Milano e l'autostrada pedemontana Torino–Milano–Venezia," *I lavori pubblici* 2 (1926), 58–62.
59. The Tuscan case (studied by Giuseppe De Luca) and the Bergamo case (on which abundant materials are available, from both press and documentary sources) are two excellent examples.
60. The word *ras* ("head" or "chief" in the Ethiopian aristocracy ranking) has been largely used to define local bosses of the Fascist Party.
61. "Like the Milan–Lakes and Milan–Bergamo motorways, the Naples–Pompeii, built to a plan by the technical office of engineer Puricelli, ingenious creator of the motorway, will also signal the abolition of level crossings," V. Zanchi, "L'autostrada Napoli–Pompei," *Le vie d'Italia* 2 (1929), 153–155, here 153.
62. "Tell engineer Puricelli of *Autostrade* that after the Naples meeting I intend to confer with him and that I urge him to push forward a preliminary investigation." Telegram from the Prime Minister to the Milan prefect dated 13 May 1925, in Benito Mussolini, *Opera Omnia*, volume XXXIX, appendice III, carteggio II (Milano: Volpe, 1979), 419. See also Acs, Pcm, 1928–30, 7/1-2/2030 *Autostrada Napoli–Pompei–Salerno*. In 1927 Mussolini further wished that Rome—not yet imperial but already seeing imposing urban works—could also have a motorway, one toward Ostia. In fact, it was little more than a renewed ordinary road, but for a certain period it enjoyed the title of motorway: see Giovanni Da Rios and Savino Rinelli, "'Via del Mare' (Roma–Ostia)," in *Le autostrade della prima generazione*, 74–79. In this case the construction, began in October 1927 and concluded a year later by the omnipresent Puricelli company, was financed by the state, but the road was soon classified as a state road.
63. "L'inaugurazione delle autostrade," *L'auto italiana* (September 1924), 33–37, here 32.
64. After nearly 100 years of a concession system, not a single Italian motorway leg has been handed back to the national government. See the insightful work of Giorgio Ragazzi, *I signori delle autostrade* (Bologna: Il Mulino, 2008).
65. "Autostrade," *L'auto italiana*, 3 February 1925, cited in Paolini, *Storia sociale dell'automobile in Italia*, 33.
66. *IV Convegno Nazionale Stradale*, 25, 38.

67. It was Mussolini who wanted to endorse both the concessions in a single day, perhaps in the conviction that he should initiate motorway works in the south as well. In fact, in the papers preserved in the Archivio Centrale dello Stato, a letter from Giacomo Suardo to PCM, dated 3 May 1925, shows how the prime minister wished to make signing the Bergamo–Milan subordinate to the parallel realization of the Naples–Salerno. “Eng. Puricelli tells me that it is the intention of your eminence to not issue the decree of the concession for the Milan–Bergamo motorway if the decree for the Naples–Salerno is not first signed,” in Acs, Spd, Cr, busta 66, Suardo.

## CHAPTER 4



# The Ordinary Roads Problem

## From the 1923 Law to the “Road Agency”

While the motorway projects had their troubled lives, nothing was done to implement a road network renewal, and a great confusion ruled the enhancement of ordinary roads. We have seen how the democratic government left Mussolini’s cabinet a reform proposal to decentralize the roads sector, which it adopted in 1923. We have also seen how the reform was at first disregarded, and later suspended by the same government that had approved it.

We should also keep in mind that in 1923, “the Ministry of Public Works was reformed with the objective of stimulating cooperation between the State and private firms—particularly the large electricity companies—for the promotion of public works. This reform allowed the expansion of the concessions system and provided great legal flexibility, allowing public works such as the building of the motorways to be carried out either by the State or by means of concessions to private firms.”<sup>1</sup> This attitude, which was in line with the economic policies of the Mussolini government up to the end of 1925, gave political space for maneuvering to those economic actors and industrialists who were interested in public works. And while the railway industrial lobby was still strong throughout Europe,<sup>2</sup> the road-related interests were growing at a quick pace. The hope of achieving not just a motorway concession, but a contract regarding all of the Italian ordinary road networks, of about 20,000 kilometers, adding to that another 20,000–30,000 kilometers of concession regarding roads administratively in the charge of the provincial councils, was a breathtaking perspective. The contemporary example (also comparable to transport) of the telecommunications sector privatization (which between 1923 and 1925 led to a pure oligopoly of two big groups)<sup>3</sup> was encouraging, offering hope that a similar outcome would be implemented for the ordinary roads. Puricelli, as we will see in later in this book, was fully committed to the challenge.

However, although it was committed to a (cautiously) favorable policy toward the road interests, Mussolini’s government faced strong rivalries, both among transport sector interests (e.g., the railway lobby against

roads) and within the same sector (different players within the road lobby). As for the road lobby, Puricelli was surely 10 miles ahead of his peers in terms of political influence and network, as well as critical mass and technical competences. However, the entire road reorganization was too big even for his voracious appetite.

Additionally, despite the fanfare, the political situation was actually very fluid and the budget constraints very high, and neither Mussolini nor his closest supporters had much ambition to lock the government into stringent and binding action, preferring, as a first step, to focus on the railway company's tight control and on the purge of "unfaithful" and highly unionized workers.<sup>4</sup> The road lobby, with Puricelli leading the pack, was maneuvering backstage to achieve its targets: for a couple of years, the delay of any decision was seen as positive, offering them time to construct a favorable political landscape.

On the other hand, the car lobby was less satisfied with the delay in the action. In 1924 Gino Olivetti, member of parliament and secretary of *Confindustria*, the Italian industrial association, complained about this derailment. In an article in October of the same year, he expressed the need to begin a new season for the roads sector. Olivetti believed that state intervention was indispensable, because the roads were a theme with national relevance, but his article, disguised as an impersonal and detached consideration on the poor state of the roads, was a clear accusation against the choices of the government and the imprecision of the Ministry of Public Works. According to Olivetti, it was not prudent to "overturn an entire system of things if one does not have sufficient preparation for the new system. Now, in fact, planned preparation is missing, technical organization is not yet constituted, and there is not yet an adequate financing system. It is still not clear which of the old provincial roads belong to the third and the fourth classes. Not only that, but we do not know which methods the state will adopt for the maintenance of the roads it will take charge of, as the current roadbed system evidently cannot continue."<sup>5</sup>

Although there were no direct answers by the government to his statements, ten weeks later Italy was thrown into a new political regime. On 3 January 1925, Mussolini gave a speech that stamped a decidedly authoritarian change of direction on Italy, conditioning the national political orientation. Mussolini was moving to full dictatorship, which meant a change of pace for his policies, a shift of alliance, and new political compromises. This development transpired over a couple of years, and there were some winners and some losers. In this framework, there was an abundance of reasons preventing the government from resolving the roads debate immediately. In the first place, although the

national government did not want to concede power to local authorities, it could not burden itself with the minor roads. In addition, taking the roads problem in hand meant increasing the resources of the Ministry of Public Works or whichever entity was designated to manage the roads. A resource increase of the sort would open the delicate question of budget, and therefore the fascist government—like the democratic ones of the preceding decades—remained undecided on which option to choose. Finally, after the wave of privatization of the first three years, between 1925 and 1926 the government moved back to a traditional approach in public works, and the concessionaire system lost more appeal daily. However, this was not a matter of days, but of months and years: the hesitation regarding transport policies lasted for almost two years, from 1925 until November 1927. And while Mussolini was well known as a tactician, not all the actors necessarily had (or displayed) a clear strategy.<sup>6</sup> After 1925, some protagonists were therefore out of synch—and not just due to incompetence or lack of knowledge—still believing that the (colossal) concession for the ordinary road was feasible and achievable.

That was the case of the new Minister of Public Works, Giovanni Giuriati, who was in office from 1925 to 1929. Giuriati was apparently eager to reproduce the British model of the Road Department in Italy. As mentioned, the British Road Department had been instituted in 1909 in England as the Road Board, with a scope that encompassed functions ranging from direct construction to technical support and financing the counties. A new law in 1919 incorporated the Road Board into the Ministry of Transport, with the new name of Road Department, and classified the roads into three categories according to the amount of central government subsidy received. After the reform, the Road Department had the function of financing, monitoring and, in exceptional cases, taking over for the local authorities. In parallel, it also carried out research and experimentation at three technical test laboratories.<sup>7</sup> It should not be forgotten that England was seen as a European model for automobilism development, as unveiled in the past years by interbellum automobilism studies, emphasizing how much English road management was carefully followed by other European experts, and thus reframing the traditional approach that saw the United States as the only model.<sup>8</sup>

There is therefore little surprise in finding that the Italian road experts, in the mid 1920s, were also focusing their comparative studies on Europe. In the summer of 1925, just as the tireless Puricelli was promoting and financing highway engineering courses at the Polytechnic University of Milan, Minister Giuriati asked a professor at the same university, Albino Pasini, to study the roads problem. Pasini was charged

with "traveling personally to the major European countries, together with a top official from the Ministry for Public Works, Michele Carlo Isacco, in order to study in each individual country the organization and functioning of the roads services and to present concrete proposals for the solution of the roads problem in our country."<sup>9</sup>

On his return from his expedition abroad, Pasini submitted a heavy report, comprising a comprehensive compendium of the systems then in use in the various European nations. The greatest attention was paid to the English system, which, according to his research, even the French could have used as a model. The author's conclusions substantially recommended an adjustment of the 1923 road reform, modeled on the British example, but above all, an increase in spending. Essentially, Pasini recommended leaving all the extra-urban roads to the provincial administrations, while ensuring that they had a solid and flexible body of coordination and financing. Following the debate of the previous decades, and still under the conviction that the first fascist policies of privatization would continue, he felt there was a need for a "central roads agency, with full financial and administrative autonomy . . . This entity, to use a name that gives an idea of its independence, we will call the *Road Agency*. Talking of a central technical organization without adequate means will not resolve the problem."<sup>10</sup>

The theme of financing was fundamental to unraveling the knot and the comparison with the spending in the other countries—which Pasini could not sugarcoat—gave a sense of the gap between Italy and the other nations. "A comparison with the English network could be interesting, as it is the only one with large circulation in Europe that is modernized. The spending to maintain it, in 1924, was twenty-eight times greater than the amount spent on the same by Italy in the corresponding year."<sup>11</sup> In essence, Pasini proposed setting up the Road Agency as an agile and *decentralized* organization (the opposite of what fascism would later achieve with the National Road Agency, or AASS). It should be endowed with robust financing, which he imagined in variable growing figures, up to a grant of 380 million annually (about the same amount in today's USD), including bank loans.

The Pasini proposal, although it remained dead words, was acknowledged outside of the ministry, demonstrating a new interest in the roads. While the traditional road contracts of the provincial administrations were routine for contractors, the bigger industrial players understood that "the renewal of the entire state road network constituted a still broader problem, both because of the resources required and because until then it had not actually been confronted. Private business understood it as a potentially enormous affair, for which it was

necessary to be equipped with adequate organizational and financial structures."<sup>12</sup>

However, Pasini's proposal said very little about how to acquire the finances needed, and was rather ambiguous about the legal form of the agency, leaving it unclear whether it should be a state-owned company, as was the case for the railways, or a concessionaire. Although the proposal was written by an external expert, having the fingerprints of the client—e.g., the public works ministry—on the document was reassuring to those players most interested in the roads questions. The report did not stand alone, but was actually followed by an official declaration, by Giuseppe Volpi, just named Minister of Finance, to the Roman correspondent of the *Daily Express*, in which he stated that the use of British capital was possible.<sup>13</sup>

The background of those attempts to drive the discussion was, as we have seen, based on the concession of public works to third parties "with annual installments including capital and interest" from the state. This was a model already present in Italian legislation and starting in 1919 could potentially have been extended to *all* public works,<sup>14</sup> a trend confirmed by the public works ministry reform in 1923. The activity of renewing and coordinating the ordinary roads could in fact be transferred in concession to a private company, with the capacity to advance the necessary finances to conduct the work, naturally with the annual state reimbursement. Obviously, such massive work could only be entrusted to a company, or a pool of companies, with adequate capacity for works on thousands of kilometers of road, that enjoyed a consolidated relationship with the provincial and national technical offices, and that could count on consultancy from the several faculties of engineering. And that, finally, had robust contacts with the banking world, in order to acquire financial capital. Puricelli's holding company met all these requirements and he had already drafted some in-depth documents in 1924 and 1925 (files today unfortunately no longer available in the state archives).

In autumn 1925, the prime minister, Mussolini, seemed inclined toward the Road Agency solution, but refrained from saying whether this would be public or in concession. He referred to it both in a speech in October 1925 to the representatives of the Touring Club in Rome,<sup>15</sup> and in a telegram to the Minister of Public Works a few days later.

Dear Giuriati,

I forward you these notes. We must follow these ideas:

- (a) nationalize the roads (except for the private roads);
- (b) create a Road Agency under your control, regarding which Puricelli has sent me a specific project.<sup>16</sup>



The government showed a desire to resolve the roads problem; however, they once again failed to carry out concrete acts, due in part to the great resistance and doubts surrounding the issue. Certainly, the prospect that Puricelli would become the only manager of roads in Italy was unpopular with the other contractors. The bureaucracy of the Ministry of Public Works showed strong resistance against all of the proposals advanced. In winter 1925, Mister Isacco, the ministry's top manager encountered earlier in this book, sent two reports to the minister of public works, in which he substantially criticized the plan for a Road Agency and, aware that Mussolini had declared himself in favor of the option, selected Pasini's report as the target of his unfavorable opinion.

Initially, Isacco observed that the data reported by Pasini on the extension of the Italian roads network and his estimated costs for the renewal were incorrect. Then he noted that it was the government itself in the preceding years that had abolished many independent government agencies, while the Road Agency plan proposed to institute one *ex novo*. It would be a countertrend act, out of sync with the politics currently being practiced: it would be better to follow the indications of the 1923 law, that is, the creation "within the Directorate General of Roads [at the Ministry of Public Works], of a Technical Inspectorate for the maintenance and improvement of the roads."<sup>17</sup> Additionally, pouring salt into the wound, not many provinces would be able to meet the demands of decentralization. Finally, to create an organization like the Road Department in Italy, massive financing was required: to meet the expenses, such funds would need to be independent of the state balance. According to Isacco, meeting these conditions was currently impossible, and so the only achievable solution was to increase the powers of the Ministry of Public Works. Immediately, Minister Giuriati sent Isacco's report to Mussolini, declaring the need to locate sufficient resources and confirming, as a subordinate alternative to the creation of a Road Agency, the second choice of "separating the General Directorate of roads and ports in two, creating a single administrative organ for the roads."<sup>18</sup>

### **Proposals from Puricelli and the Automobile Club**

Although all the actors were rather ambiguous and careful, so to speak, to keep a foot in both camps, Isacco's report certainly did not help provide a rapid solution for the problem, and it did not exactly reflect an approach that Puricelli favored. The opposing views and the bureaucratic inertia added up to a lack of political initiative, heightened

by the status of the economic resources. The government was also musing on the autonomy of local authorities, moving toward a proposal of abolition *tout court* of the provincial administrations. Obviously, if the provinces were abolished, all the extra-urban roads, about 100,000 kilometers, would pass into the competence of the state, as Mussolini emphatically suggested. This would have enormous costs for the treasury and would prevent the establishment of the Road Agency, which was based, as noted in the memo, on the existence of local authorities delegated to and financed by the state (including via private concessionaires). There was enough to call for a new delay: the minister of public works in April 1926 prepared a decree that put off any decisions until 1927. This choice was "made indispensable by the fact that the studies for the reform of the current situation were still underway, and required regulations that couldn't be quickly achieved once they were issued."<sup>19</sup>

So while in October 1925 the Road Agency seemed a step closer to being created, over the course of 1926 the situation was once again up in the air, although with the possibility that the private sector would take care of the modernization of the roads on behalf of the state. Puricelli, after the first advances of 1925, found himself first in line the following year to offer his companies as candidates to manage the public roads. A few days after the closure of the PIARC congress in Milan, in November 1926, at the zenith of his success, the Milanese entrepreneur began a new, deeper colossal survey on the renewal of Italian roads, with the aim of defining the necessary work to optimize and maintain the 20,000 kilometers of road. The work was begun by Puricelli's technical office with "the approval of the Ministry of Public Works, which, to facilitate the task, agreed to involve the Civil Engineering office, while, at the same time, the individual provinces supported the company, placing the respective technical offices at its disposition."<sup>20</sup> Additionally, in 1927, Puricelli also reorganized many of his business ventures into a holding company, in order to be ready for greater financial ventures.<sup>21</sup> Meanwhile, the outcome of the work by Puricelli's engineers was systematic, with the preparation of seventy-six dossiers—one for each Italian province—prefaced with a general report, estimations of cost, and the detailed plan of each road on a 1:25,000 scale map. The aim was not just the renewal of the road surface, but also the improvement of the routes, the elimination of dangerous curves, the enlargement of the lanes, and the modification of the crossing of inhabited areas, etc. The study, today lost, "was conducted and completed in three successive moments. The work regarding the 'first-class' northern Italian roads network, of 7,440 km, was completed on 31 March 1927, precisely six months from the start of the study. The work on the central Italian network, of 4,494.131 km, was

ready 1 July. And today—15 September 1927—we present the southern Italian and islands network, with a complex of 8,707.048 km.”<sup>22</sup>

The 1927 estimated costs for the northern Italian intervention were almost a billion and half lire (1.4 billion in today's USD), equal to around 200,000 lire per kilometer (USD 170,000). This sizable financing would then need an additional 2 billion for the renewal of the central-south, coming to a total of 3.5 billion. But considering the very high costs, Puricelli suggested reducing the work to just 13,000 km of network, covering those with the most traffic, with a complete cost of a little more than 2 billion lire (e.g., the same worth in today's USD). The realization of the works would be entrusted to a limited company established specially and named “United Industries of the Road, entity for participation and financing,” with an initial capital of 50 million, which could be increased to 100 million (more or less the equivalent of today's USD).

The proposal went beyond the ordinary relationship of public-private concession, suggesting a symbiotic relationship. To use the words of Annabella Galleni, it was not a simple integration “on an operative level, in which the most competitive and trustworthy company was chosen to enact decisions of public relevance, according to centrally defined times and priorities. Rather it was a self-attribution of duties, which was only fully understandable in the framework of ‘privatization’ of the state. This constituted one of the legacies of the most representative personalities of Italian industry in wartime production during the First World War (the so-called wartime mobilization).”<sup>23</sup>

In other words, in autumn 1927, Puricelli proposed relaunching the concessionaire policy, creating a public-private authority that would carry out the activity of road renewal. The Milanese entrepreneur wanted this authority recognized by private law, in its executive as well as financial nature, with a part of the shares “having preferred voting, with a shareholders’ agreement to ensure absolute control of management.”<sup>24</sup> The effective control of the realization of public works worth over 2 billion lire (worth about the same in today's USD) would in this way be guaranteed to the possessors of a share portfolio equal to a few tens of millions, ensuring a restricted business group would receive state, province, and municipal contracts of enormous value never before seen in Italy. The “United Industries of Roads, entity for participation and financing” would in fact have carried out the works with their own financing, and would naturally be repaid 2 billion by the state over the course of twenty years. That meant “this new and specially formed entity must provide for the financing of the entire project, which must be executed in the most rapid manner possible through subconcessions: the state will pay for the work of renewal over twenty years with

guaranteed resources from the treasury, which represent the capital invested plus the amortization interest."<sup>25</sup>

Sileno Fabbri, a cohort of Puricelli's and national president of the Union of Provinces, hurried to clarify for the state that to settle the expenses, only half "the annual revenue that the state earned (directly or indirectly) from the taxes on customs, fuel sales, and circulation of motor vehicles" would be required.<sup>26</sup> The Union of Provinces was one of the many pillars of support for Puricelli's project. The TCI was going through a definite period of crisis, linked to the death—in January 1926—of its highly active president Luigi Vittorio Bertarelli, but its support for Puricelli's initiative could be taken for granted. The Italian Automobile Club (ACI, itself involved in changing its status to a semi-governmental organization, with the grand appellation of "Reale") would, as we shall see, help the project of the Milanese entrepreneur (mainly due to the fact that its president Silvio Crespi was a member along with Puricelli of the administrative board of Comit and—as we have noted—president of Puricelli's limited company, Autostrade).

In October 1927, Puricelli's activities became frantic. As established above, his technical office had just completed the study on the 20,000 kilometers of national road, and Mussolini received the Milanese entrepreneur himself at the end of October. Two days earlier, for the same purpose, Mussolini had met with Silvio Crespi in his role of president of the Italian Automobile Club, an appointment that the Milan press had emphasized strongly, taking it for granted that government interest was certain. Crespi had submitted a copy of Puricelli's project to the prime minister, championing the government approval.<sup>27</sup>

Additionally, in the winter of 1927–1928 a solution to the controversy surrounding provincial authorities was found: their ongoing existence was confirmed but they would have reduced autonomy. Finally, in the late months of 1927, Mussolini had completed his move toward a complete dictatorship, and a new political landscape was settled. The solution to the road problem was within reach, with the establishment in 1928 of the National Road Agency, in Italian the Azienda autonoma statale della strada, or AASS. But before the formation of AASS however, there was no lack of faux pas, twists, and vendettas.

### **The Creation of the National Road Agency (AASS)**

Puricelli's true ambition—supported by the new political and economic landscape created by World War I—was to be the only manager of the Italian road network modernization process, but after the enthusiasm

of the first half of the 1920s, both his peers and the government were unhappy at how much power this would give him. It was Mussolini who, in expectation of a confidential government meeting on the roads theme to be held in November 1927, *did not want to have Puricelli among the attendees*. "Engineer Puricelli, whom Commendatore Chiavolini has invited in the name of the Hon. head of the government, has communicated that he can participate in the meeting that will take place on the 14th of this month for the problem of the roads. The Hon. Suardo believes that this invitation was a misunderstanding, insofar as he did not hear the Hon. head of government express his wish in words."<sup>28</sup>

Although convoluted, this note from Mussolini's secretary was unequivocal: Puricelli, the Duce wrote, "must not participate," and the "not" was underlined three times by the head of government. The choice to exclude the Milanese businessman from the meeting that should have decided the fate of the roads was the effect of both the personal and political evaluation of Mussolini, and of the debate within the rooms of power triggered by the imminent reform. While the Ministry of Public Works and the office of the prime minister were rediscovering Pasini's 1925 study, accepting its ideas and information (but avoiding any role for the provincial councils and even less prone to a concessionaire system),<sup>29</sup> elsewhere an argument on the blatant support of the ACI (Italian Automobile Club) for Puricelli's project had broken out, as it had infuriated the other companies in the sector. Such backing by the ACI was seen in many circles as excessive and inappropriate. In January 1928, Puricelli himself responded to the criticism of the mixed interests between his companies and the ACI, in a confidential meeting with Arnaldo Mussolini, the prime minister's brother, where he restated his defense in writing. What emerged, on the contrary, was a more sinister picture, in which the links between the public association (which was the ACI at that point) and the private interests of the Milanese businessman were confirmed.

Puricelli believed that the criticism of the ACI's support for his project was manufactured. He confessed with (suspect) candor that the ACI roads commission had repeatedly held their meetings at the offices of Puricelli's company, to the extent that the paternity of the roads renewal project had become confused. The links were such that, *naturally*, "the president of ACI was asked last October by the head of the government to present a report on the development of the association [ACI]. He decided autonomously to include both my project and my study."<sup>30</sup> Puricelli, who with good reason considered himself one of the greatest operators in the Italian and European roads sector, noted in

the letter that he did not feel troubled by such small-minded criticisms. But, evidently, this time the businessman and his allies had crossed the line. Romolo Vaselli, an important Roman contractor and a competitor of Puricelli's, did not stop at discrediting his competition, but also, in record time by the end of November 1927, submitted his own proposal of renewal for the national ordinary roads.

In his memoirs, written after the Second World War, Vaselli describes his own proposal as "a tribute" by his company to the destiny of motor-ing: it aimed at the "rational renewal of the first-class roads conceived and founded on solid technical and economic premises."<sup>31</sup> In fact, it was a blow at the heart of competing projects: in few words, Vaselli underlined that he had been compelled to "study a solution to compare with that championed by the ACI" due to his "astonishment upon reading the heavy burden that would be put on the state treasury."<sup>32</sup> Vaselli's project would have avoided "exceptional financial requirements, as the sum currently supplied for the roads would be sufficient if integrated with the greater income suggested by the ACI. In fact, the economy would come from the savings on interest that the advance of the billions necessary for the ACI [that is, Puricelli] project would entail, and by the execution of the works gradually." In other words, with the same costs, instead of renewing just 13,000 kilometers of roads as in the ACI/Puricelli project, Vaselli would renew *all* the first-class roads, all 20,000 kilometers. The savings were the effect of the simplicity of the offer, which consisted of the obligation "of the contractor to assume the maintenance, in this way ensuring its interest in doing and maintaining the works better . . . all done with an annual lump sum per kilometer, avoiding the need for the current technical and administrative offices for measurement, accounting, surveillance of execution etc. etc."<sup>33</sup>

Perhaps Vaselli was not the only one to make a move in those frenetic days. According to testimony by socialist MP Lionello Matteucci released after World War II, in the 1920s Giovanni Agnelli, Fiat president, wished to establish a sort of road management company and "presented a project. Mussolini had it examined and then called Agnelli and said: 'I thank you, but with these conditions, the state will do the roads.'"<sup>34</sup> Research done in the Fiat Historical Archives and the State Central Archives has not confirmed the reported testimony, but it seems valid to assume that the Puricelli and ACI initiative was also noted by Fiat top management.

In sum, the criticisms raised, the strong opposition to alternative projects, and the great confusion that resulted allowed Mussolini to make a decision in full autonomy, and to appropriate Puricelli's project without entrusting him with the roads management. On 1 December 1927, the

major Italian papers reported verbatim from a press release from the prime minister, that

the head of the government has convened a meeting in Viminale [the Italian prime minister's office] with the ministries of Public Works, Finance, Communication, the undersecretary of the interior, the president of the national federation of the provinces, Grand Official Fabbri, the president of the Italian Automobile Club, and Senator Crespi, to discuss and resolve the motoring problem as was projected in the report of the Automobile Club presented last 22 October. For the minor points of this complex problem that form the first eleven requests of the Automobile Club, the agreement has practically already been achieved in discussions between the individual ministers and Sen. Crespi: now the same agreement has been sanctioned by the head of the government. For the big problem of the roads, the Ministry of Public Works has proposed the institution of a National Road Agency [AASS] under its direct government, which will assume the work of renewal and maintenance of all of the roads that service the most intense national traffic.<sup>35</sup>

The National Road Agency was instituted by law on 17 May 1928, reporting to the Ministry of Public Works and assuming the duty of managing a state network of 20,000 kilometers, much more extensive than the prewar network that the state had managed. The list of state roads determined in 1928 substantially retraced the first-class roads defined in 1923, enumerating the roads starting from Rome and where possible using the names of the consular roads of Roman times, in deference to the fascist imperial mythology.<sup>36</sup> Although subject to the control of the Ministry of Public Works, AASS was nonetheless an autonomous organism, with a separate balance and managed by a board of administration appointed by the government. The authority received an annual endowment of 180 million lire (about the same in today's USD), plus a share in other fiscal revenue, mostly linked to motor traffic.

Puricelli's and Vaselli's proposals were, overall, not acceptable to the government because they implied a company taking on an excessive role, overshadowing other actors in the sector. In other words, if they had to speak of a government agency for roads, it could not be directly controlled by just one of the many players on the scene. While Puricelli was in line with the *Zeitgeist* of fascism's wishes and policies up to 1926, he was no longer able to stand close to Mussolini's new direction, let alone anticipate the government's actions. This did not change the fact that, partly due to political pressure,<sup>37</sup> AASS turned for the most part to the two major entrepreneurs of Italian roads, Puricelli and Vaselli, who obtained large contracts.<sup>38</sup>

However, establishing a state authority for roads meant finding and directing resources for the works of maintenance and intervention for the roads. On the one hand, this would cut the already undernourished municipal and provincial balances, which during the dictatorial regime saw their percentage of spending on public works drastically cut. The provinces, at the beginning, were even obliged to contribute to the partial financing of AASS. On the other hand, it once again changed the sphere of the interventions: in 1928 for the first time, the spending on works in the roads sector carried out with partial or total financing by the state was more than that of the railways, reaching 425 million, and climbing to 868 million in 1930<sup>39</sup> (again, more or less equivalent to today's USD).

Part of the income came from the taxation linked to motoring (taxes on purchase and circulation, imposed on fuel), despite the complaints of the car lobby, which nonetheless in 1927 saw the favorable institution of a public motoring register. Thanks to the register, mortgages on motor vehicles began to be legally recorded, making purchase by installment safer for the seller and cheaper for the buyer, and increasing motor vehicle sales. The constitution of AASS occurred therefore in a context that was much vaster than the pure and simple administrative management of the roads, inevitably assuming implications for economic policies and industry support.

## Notes

1. Bel, "The First Privatization," 944. See also Buccella, "Le autovie nel sistema dei trasporti," 726–748.
2. Robert Millward, *Private and Public Enterprise in Europe: Energy, Telecommunications and Transport, 1830–1990* (Cambridge: Cambridge University Press, 2005), 154 et seq.
3. De Felice, *Mussolini il Fascista*; Bel, "The First Privatization," 947.
4. See Maggi, *Le ferrovie*, esp. chapter 4.
5. Gino Olivetti, "Il problema della strada," *Gazzetta del Popolo*, 19 October 1924.
6. See De Felice, *Mussolini il Fascista*.
7. Mick Hamer, *Wheels within Wheels: A Study of the Road Lobby* (London: Friends of the Earth, 1987).
8. Catherine Bertho Lavenir, speaking about the French debate on tourism infrastructure of that period, with an emphasis on the transport implications, noted how the U.K. was considered the model to be copied: see *La roue et le stylo*, 337. See also Mom, *Atlantic Automobility*, and Moraglio, "European Models, Domestic Hesitance."
9. Letter from Giovanni Giuriati to the Pcm dated 10 November 1925, in Acs, Pcm, 1928–30, 7/1-2/2532, *Problema stradale in Italia. (Studi, proposte, richieste per concessioni lavori ecc.)*.



10. Pasini, *Relazione a S.E. il Ministro dei Lavori pubblici on. avv. Giovanni Giuriati sul problema della strada moderna*, 65.
11. Ibid.
12. De Ianni, "Vecchi e nuovi documenti," 295.
13. See also the *Report for the Prime Minister* dated 9 October 1925, in Acs, Pcm, 1928–30 7/1-2/ 3516, *Costruzione di strade in Italia. Proposta del Generale Giampietro per impiego di capitali inglesi*. Mussolini's reply at the bottom of the page is negative, with a note that Emilio Giampietro was a "ferocious antifascist."
14. See Bortolotti, *Storia della politica edilizia in Italia*, 109, 110.
15. See "La giornata del presidente," *Il popolo d'Italia*, 15 October 1925.
16. Benito Mussolini, *Opera Omnia, volume 21* (Firenze: La Fenice, 1972), 468.
17. See the account of attorney Michele Carlo Isacco dated 17 December 1925, in Acs, Pcm, 1928–30 7/1-2/3516, *Costruzione di strade in Italia. Proposta del Generale Giampietro per impiego di capitali inglesi*.
18. Letter from the Minister for Public Works to the Pcm dated 20 December 1925, in Acs, Pcm, 1928–30, 7/1-2/2532, *Problema stradale in Italia*.
19. Letter from the Minister for Public Works to the Pcm dated 16 April 1926, in Acs, Pcm, 1926, 10/3/1455, *Strade pubbliche, manutenzione. Schema di D.L. per proroga norme*. See also decree 943 of 20 May 1926.
20. "Sistemazione della rete stradale di prima classe. Proposta di piano d'esecuzione, Ufficio Tecnico Puricelli, anno VI," flier dated 28 October 1927, in Acs, Iri, numerazione rossa, busta 527.
21. See De Ianni, "Vecchi e nuovi documenti," 295.
22. See "Sistemazione della rete stradale di prima classe. Riassunto Generale. Relazione, Ufficio Tecnico Puricelli, anno VI" pamphlet dated 15 September 1927, in Acs, Iri, numerazione rossa, busta 527, page 1. Unfortunately, the complete documents of Puricelli's study are not traceable in the Archivio di Stato di Roma, nor, according to accounts, in the Spea-Italstrade, previously Puricelli's company.
23. Annabella Galleni, "Strade, autostrade e fascismo," 48.
24. Fabbri, *Il problema delle strade in Italia*, 33.
25. "Sistemazione della rete stradale di prima classe. Piano d'esecuzione, Ufficio Tecnico Puricelli, anno V," pamphlet dated 28 October 1927, in Acs, Iri, numerazione rossa, busta 527.
26. Fabbri, *Il problema delle strade in Italia*, 33.
27. See Bortolotti and De Luca, *Fascismo e autostrade*, 35 et seq.; see also "Perché l'Italia automobilistica sia alla pari delle grandi Nazioni," *Corriere della sera*, 29 October 1927 and "La rete stradale di prima classe e il piano tecnico e finanziario per sistemarle," *Corriere della sera*, 30 October 1927.
28. Note from the Secretariat of the Pcm dated 28 October 1927, in Acs, Spd, Cr, busta 60, Piero Puricelli.
29. See Acs, Pcm, 1928–30, 7/1-2/2532, *Problema stradale in Italia*.
30. Letter from Piero Puricelli to Arnaldo Mussolini dated 13 January 1928, in Acs, Sps, Cr, busta 60, Piero Puricelli.
31. Romolo Vaselli, *Mezzo secolo di lavoro* (Rome: Sansaini, 1955), reported in Bortolotti and De Luca, *Fascismo e autostrade*, 39.
32. Letter from Romolo Vaselli to the Pcm dated 28 November 1927, in Acs, Pcm, 1928–30, 7/1-2/2532, *Problema stradale in Italia*.
33. Ibid.

34. Speech to the Chamber of Deputies by Lionello Matteucci on 26 April 1955, reported in Bortolotti and De Luca, *Fascismo e autostrade*, 38.
35. "Un Ente statale della strada per l'incremento dell'automobilismo," *Corriere della Sera*, 2 December 1927. See also Acs, Spd, Co, 509.837, *Azienda Autonoma Statale della Strada*.
36. See Aass, *Specchio comparativo fra l'elenco delle strade statali e quello delle ex strade di prima classe* (Roma, s.e., 1929).
37. See the documents preserved in Acs, Pcm, 1928–30, 7/1-2/2532, *Problema stradale in Italia*.
38. Puricelli, according to an anonymous note in the Archivio centrale dello Stato, intended to carry out "a ferocious campaign" against his competitor, menacing that "before long, Vaselli will have no more work in Rome": Acs, Spd, Cr, busta 97, *Vaselli Giovanni*.
39. Istat, *Sommario di statistiche storiche dell'Italia* (Roma: Istat, 1968), 87. In effect, considering the autonomous expenses of the provinces and municipalities, this "excess" can be traced to the start of the 1920s, if not actually to the Giolitti period. See also Carlo Mochi, "I Trasporti."



## From the Pedemontana Project to the Construction Suspension

### A “Formidable Powerful Unit”: The Pedemontana Motorway

The creation of AASS had important consequences for motorway policies: the interest that Puricelli and other companies had shown in motorways had been significantly watered down. With AASS on the stage, increased resources were available for the renewal of ordinary roads, and it was no longer possible to think of motorways as a future solution for the circulation problems.

Meanwhile, the slate could not be wiped clean after the enthusiasm of the 1923–1928 motorway proposals, which in many cases were still on the agenda. The legacy of the proposals, their inertia, and the strength of some of their sponsors made it difficult to get rid of them. However, their proponents faced serious challenges, and the collection of capital for new motorways proceeded with difficulty, to say the least. At the start of 1928, the Ministry of Public Works seemed concerned; the Milan–Lakes (around 85 kilometers) had been in operation for some years, but the results were not particularly brilliant, either in terms of traffic or financial results. The motorway only produced 4 million Italian lire in revenue against the 7 million predicted by the plan’s estimations, while the average use was limited to seven hundred cars a day instead of the thousand that had originally been thought certain. The annual increase in traffic was modest, along the lines of 6 percent, while the concessionaire society was saddled with a million and a half lire in payable interest per annum. Although demand forecasts in public works, and especially in transport-related initiatives, are typically inaccurate, with a strong bias toward overestimation of income and underestimation of costs,<sup>1</sup> Puricelli’s motorway financial plans were even weaker in their predictions.

The other two short motorways approved by the government (Naples–Pompeii and Bergamo–Milan) had their own issues. Even though the works for the two new tracts were underway (notably late, in the case of the first), this did not mean that the concessionaires’ hunt for capital was

finished. The financial plans proposed to the shareholders and the government were very superficial, as was the loose enthusiasm with which the local authorities had been encouraged to contribute to the works—or had been forced to by pressure from the prefect. This now emerged in all its gravity, alarming the ministry, which wanted to avoid repeating similar improvised initiatives. With this negative framework, particular concern was reserved for the Naples–Pompeii–Salerno motorway. The convention that had been approved in 1925 was nothing but dead words due to inadequate financing, and in 1927 the concession was rewritten, limiting the construction to the Naples–Pompeii trunk (21 kilometers). The new convention for the Neapolitan motorway reused the model of the Milan–Lakes, but—particularly important—the state accepted that reimbursement of its contribution would happen only after the share capital had been paid. In other words, considering the traffic forecast, the state guaranteed payment of dividends and would absorb the losses.<sup>2</sup>

The ministerial officials noted that “given the difficulties that the company has met and continues to meet now in arranging capital shares and bonds, in negotiating loans, and in collecting contributions from the local authorities, accurate investigations must be done during the preliminary investigations and questions of the concessions.”<sup>3</sup> Basically, the government officials felt it necessary to issue, as with the railways in the nineteenth century, uniform regulations for future concessions, legislative coordination, and a “master plan” for motorways that would lay out the priorities of the works as well as a calendar for construction.

The concerns of the Ministry of Public Works were particularly current because of the imminent signing of the convention for the Florence–Sea motorway. The history of the promotional committee of the motorway, the subject of a detailed work by Giuseppe De Luca, confirms that the idea was more a fleeting enthusiasm than a real requirement for the Tuscan region. The absolute absence of Tuscan industrialists and financiers in the project implementation demonstrates how uncertain the construction program was and how sketchy the design of much of the track was. It was only the involvement of Puricelli in 1927, called by the committee to conduct a general revision of the project, that led to a less hasty redesign.<sup>4</sup> The approval and decree for the motorway’s concession on 17 May 1928, the same day the AASS law was enacted, was therefore a surprise, considering that there were other motorway proposals that were more solid and mature, such as, for example, those for the Turin–Milan and the Bergamo–Brescia. De Luca’s research does not offer useful clarifications on this point, attributing it to the presence

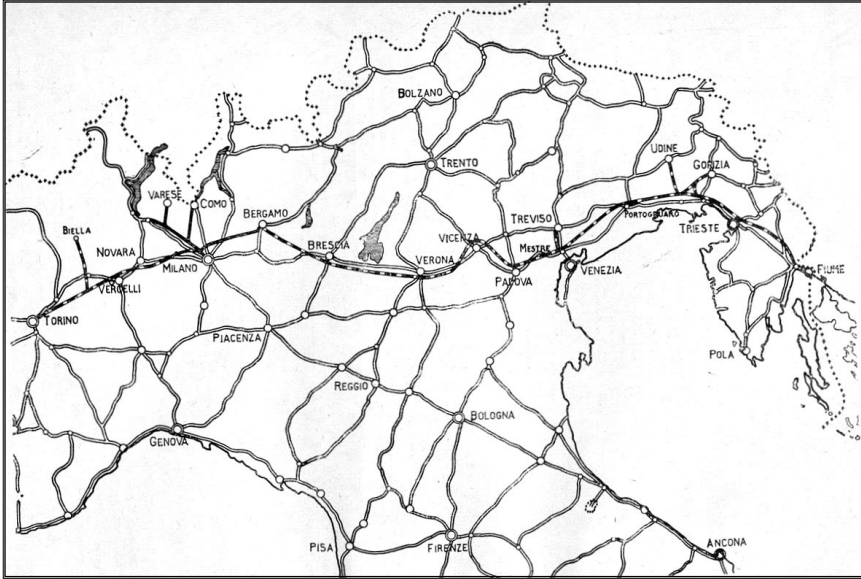
of Puricelli in the Florence–Sea affair, whereas we know that he was involved in other committees (including those of the two other motorways mentioned above) that had great difficulty in obtaining ministerial approval. Examining the dates, one suspects that the concession for the works on the Florence–Sea—of which Puricelli had the lion’s share—was perhaps a sort of compensation for the Milanese businessman for his previous surveys of the national roads network.

The convention for the Florence–Sea additionally confirms the episodic nature of Italian motorway development. However, those unconnected decisions had their rationales. First, no one was in charge of making a master plan. Second, any master plan would have annoyed important local fascist leaders, who would have been unable to present their plans directly to Mussolini. Third, as Mussolini and the Ministry of Public Works’ officers knew very well, a master plan for the country would have inevitably implicated public support if the private company could not provide the resources, meaning a significant burden on the state treasury. In addition, the definition of certain and predefined rules would have reduced the field of government choices, transforming motorway policy into a predestined act, reducing the power of Mussolini and his entourage to make the choices of the sector.

These elements were also behind the decision to construct the Turin–Venice route, an area with a more solid development of motorization and an *apparently* greater possibility of economic success for a motorway. Belloni’s 1921 Milan–Venice project was dug up, but with a new proposal that touched the intermediate cities and with two extensions: one toward Turin, where Senator Frola continued with his activities aimed at the construction of a motorway to Biella and Milan, and one toward Trieste and Fiume (in order to consolidate Italy’s eastern borders).

After Belloni’s idea came the proposal for a prealpine or foothill route, launched in 1925 once the works for the Bergamo–Milan were underway: the destination indicators placed on that occasion reported Milan in one direction, and wishfully indicated Brescia and Venice in the other. In the same year, a committee was established for motorway initiatives in Brescia,<sup>5</sup> and similar initiatives were reported by the specialized press.<sup>6</sup> They also reported the founding of new committees, in particular in Vicenza and Verona. In February 1928 the Pedemontana (foothills) proposal was “again in discussion at the convention held in Sirmione” at the initiative of the Verona committee. A little later, a convention was organized to reunite all the interested actors, to be held in Bergamo on 20 May 1928.<sup>7</sup>

The Bergamo convention was the effect of persistent efforts by Suardo (who had recently left his government position) and Giuriati



**Figure 5.1.** Draft of the Pedemontana motorway, 1928.

Italo Vandone, "L'autostrada Pedemontana Torino–Trieste," *Le Strade 5* (1928), 133–135. Courtesy of Touring Club Italiano.

(then minister of public works). The hope was to relaunch the motorway dream, using the goodwill toward the Pedemontana project as leverage, and demand that the government take action in the sector. While 1922 had been a euphoric year, 1928 saw more determined attendees, who also had a sense of the difficulties of proceeding with the plan. With the knowledge of the problems of raising resources and with an increasingly diffused hostility throughout the country, despite their propaganda, the promotional committees tempted fate, pleading for greater financial support from the state—which would nonetheless leave the limited companies as holders of the concessions.

The first step was to unite the different initiatives for the Turin–Trieste into one. The construction project for the Pedemontana had been developed by promotional committees and—despite the diffuse presence of Puricelli and his technical office—were "fragmented," making it necessary to reorganize the planning. The promotional committees and the limited companies, wherever they had been constituted, were united into a cohesive organism, although the interests in play and the mutual rivalry made it difficult. The organizing committee of the convention seemed to have clear ideas, expressing itself with wartime metaphors: "Let us say now that the idea of a real fusion of the various

companies is premature in the current state of affairs, if not downright impossible. Instead—as is the opinion of many—establishing the union of the companies of the Pedemontana as a simple committee will be a formidable powerful unit, against which nothing can combat.”<sup>8</sup>

The idea that this was a fight was evident in everyone’s words. The first battle, the most difficult, was to gather the resources. However, the convention attendees showed great optimism. They recalled how the establishment of the AASS “has and does greatly favor the proposal of an intervention by AASS with as yet imprecisely defined support, an intervention greatly justified by the fact that this new state agency has, as part of its mandate, the duty to supervise the management of the motorway.” The next step was to convince the (tepid, if not hostile) automobile lobby itself of the validity of the motorway project, citing, if necessary, the example of Henry Ford. “Last year Ford proposed that Argentina construct, at his entire cost, a network of very modern roads. That Republic of South America, once out of the circle of several perfectly organized cities, has countryside that can be briefly characterized by the absolute primitive nature of its roads. . . . What one, in every way, wants to make clear is the advantage, the profit for many of our business class, for one reason or another, from subscribing to capital for these motorway companies destined directly or indirectly to increase the value of land, industry, and work.”<sup>9</sup>

They felt there could not be any doubts, in other words, because “in addition to everything, today there is the clear intention from the government to support the achievement of this work.” It was again Minister Giuriati who speculated, stating that “for more than two years, Engineer Puricelli has presented the government with a master plan for motorways. It has not been forgotten. The first essential piece of this master plan is the Turin–Trieste. I cannot forget that since that moment, the prime minister has said to me that when we are able to start working toward the motorway master plan, we should commence with the Pedemontana Turin–Trieste.”<sup>10</sup>

The promoters of the motorway asked for double assistance from the government. The first was to obtain the same subsidies that had been given to the Naples–Pompeii for future concessionaire conventions, that is, “to pay the dividends of the capital shares before repaying the government subsidy.” But the other request was to use the general funds of AASS. “Finally, others observe that on the ground covered by the Turin–Trieste there is a first-class roads network almost parallel to the Pedemontana; and for this network AASS has a sum for the renewal and a sum for the maintenance. But creating a new motorway parallel to that one, which is bound to absorb a major part of the traffic . . . will

consequently free the AASS from a significant financial weight, which the AASS should transfer to those who procure it, *to those who, therefore, do work of high national interest on its behalf.*"<sup>11</sup>

In other aspects, the debate was a cultural battle. It was not enough to launch the idea of the motorway, it had to be accepted by public opinion and become sufficiently strong as a concept in itself for the success of the project to be guaranteed. Additionally, the writers of the report on the convention made explicit criticisms of Puricelli, contesting, ungenerously and unjustifiably, that he was unable to understand the full potential of the motorway. Extending the services offered in the motorway to their maximum became the catchcry.

Let us say here that it is necessary to popularize the motorway with intelligence and considered speed. This objective of a well-intended popularization of the motorway was not valued as it should have been in the estimates for the first motorways. . . . And if we think of all possible ways to increase the income—advertising, refueling, auxiliary services, those public services for passengers and goods referred to above—we clearly see that the motorway in general, and the Pedemontana in particular, could represent something like a perfected and corrected railway. That is, it would have unlimited tracks, switches, platforms, etc., all much simpler to use, insofar as there is no need for warehouses, and for low and high speeds, which will allow a surprising autonomy. The motorway will in this way, in itself, find broad possibilities to produce and earn. We believe that the assets arising from this form of popularization will equal those earned from the simple traffic of private automobiles, which until now has served as the sole cornerstone to demonstrate the economic basis of the motorway.<sup>12</sup>

The idea of the social role of the motorway and the means of financing it therefore seemed clarified, but the question remained of how to unite the many existing projects into one. In essence, far from being a "formidable powerful unit," the representatives of the various committees seemed to be a disordered army. The proposal to create a federation of the committees and societies pertaining to the Pedemontana was approved without discussion, but an entire afternoon was dedicated to the wearying debate to establish who would take part. Who had the right to be part of the new institution? The representatives of the promotional committees, or only those of the limited companies that had already been formed? Within the Pedemontana united committee, who would make the selection? The prefect or the committee itself? And in those places where no committees, let alone companies, had been formed, like the area between Venice and Trieste, who would take part?



Suardo, who was presiding over the meeting, worked hard to convince the assembly to approve a final deliberation agreeing on the formation of "a general steering committee to promote the Turin–Fiume motorway construction, comprising two representatives from each province, a representative of each company, where established, and a representative selected under the presidency of the prefect of all the entities to be convened."<sup>13</sup>

### **"The Motorway is a Luxury"**

The 1928 convention in Bergamo had demonstrated that individual projects could go beyond localism and emerge on the interregional scene, like the Pedemontana. It is not surprising that after the pioneering beginning, from 1928 to 1929 a new motorway fever relaunched the discussion and led to the effective construction of several routes. It became evident that there was a contradiction between the intention to construct a motorway with private resources and the lack of willing investors in an economic affair with very high risks. For its part, the public sector experienced difficulties gathering resources for the simple renewal of the ordinary roads, let alone for a massive motorway program. At the bottom of it was the evident lack of interest of the automobile lobby. Even Puricelli seemed inattentive to the creation he had spent so much energy on—he had seen it as a tool to gain contracts, but this was now obsolete due to the constitution of AASS.

Then there was even a party overtly opposed to motorways, whose uncertainty in the early 1920s had transformed into outright hostility. Ugo Ancona, senator and academic at the Milan Polytechnic, was an exponent of this group and in autumn 1928 in the journal *Nuova antologia* (New Anthology) he criticized the motorway model and, in an easy prediction, forecast a greater cost to the state than that which had been estimated up until then. "What I cannot endorse is the excessive push for motorways. It is useless to say that they should be constructed privately, because the state always ends up contributing too, either directly or indirectly, especially in the south. . . . Now I say that the motorway is a luxury that can only be afforded by rich countries, when they have already put the ordinary roads in order (for automobile traffic). The motorway presupposes intense, rich traffic, without which it cannot help but be unprofitable, and must knock—sooner or later—on the state treasury doors."<sup>14</sup>

The committee for the Pedemontana, formed with such difficulty and among such diffidence, had a brief life. Its composition was much

more complex than the May 1928 decision had made it seem. In theory, it required the prefect of each province along the Pedemontana to choose two representatives to be on the coordinating committee. This soon became a headache for the government representatives: although they were alert to the risk of creating useless hostility, they were constrained by the abundant lobbyists, and were sometimes obliged to choose between different committees active in their territory. For example, between June and July 1928, the Milan prefect telegraphed the prime minister repeatedly asking for advice, in the fear that his choice might officially commit the government to a certain direction.<sup>15</sup>

The situation, already critical because of the difficulties of raising funds and the growth of hostilities, was getting out of Suardo's hands. And so it happened that in September 1928, a prime ministerial decree nominated Suardo as the "Commissioner for the Pedemontana motorway." The commissioner's work was explained in the same decree, vague enough to go beyond the Turin–Trieste tract and cover a generic mandate of coordination on a national scale. According to the decree, Suardo's nomination was "an opportunity for the important initiatives to construct and manage motorways in the diverse regions of Italy, especially the Turin–Trieste motorway, to be coordinated and integrated with a unity of intent, with the scope of achieving improved results in the general interest [and] considering moreover the need to issue uniform regulations to discipline, from a legal-economic perspective, the relative substance of the motorway concessionaires."<sup>16</sup>

The appointment of the commissioner of the Pedemontana had a double intention. With it, Mussolini endorsed the political role given from then on to Suardo, including his constant presence in the sector, offering a great deal of hope to the supporters of the motorway program. As we shall see in more detail in the next chapters, Mussolini's choice encouraged Fiat to intervene directly in the sector, now that clear government involvement had emerged. The appointment of a commissioner also gave Suardo greater discretion, making the coordinating committee proposed at the May Bergamo convention obsolete, getting rid of the many headaches it was giving the prefects and the prime minister.

The institution of the commissioner of the Pedemontana also meant one more entity entrusted with the work of supervising and planning the motorway field. In fact, the motorway projects had to be approved by the High Council of the Minister of Public Works, subordinate to the eponymous ministry, while concessions were approved by prime ministerial decree. Meanwhile, the duties of AASS explicitly included

the function of "controlling the operation of definitively completed and inspected motorways."<sup>17</sup> This was a typical case of fascist polyarchy, that is, a "disorganized overlapping of institutions, bureaucracies, and lobbies," in which "the governmental actions were aiming mainly to avoid 'collisions'" among those groups, and, naturally, to rule them.<sup>18</sup>

The situation meant that the role of the commissioner was much more confused than might have been expected from reading the decree of the appointment, making its effective capacity to coordinate rather vague. While Suardo did his utmost to control the situation, those who were unsatisfied and disappointed were not slow to understand the multitude of actors involved and the overlap of powers that arose, and made sure to plead their causes at every opportunity, even directly with Mussolini himself.

From the moment of his appointment, Suardo understood the delicate nature of the problem, and hoped that the commissioner would be "the only organ of coordination" of a project that promised to be anything but easy. In a letter to the prime minister, he felt it was necessary to "pray that no initiative on the matter of motorways be accepted and no lobbyists be admitted to Your Excellency's presence, to ministries, or parties, without the commissioner being alerted."<sup>19</sup> It goes without saying that this superimposition of roles and competences, with the inevitable clashes between public structures, made it necessary to have someone to make compromises and final decisions. Mussolini was only too happy to play this role, which was inherent to the political system, as it exalted the role of the dictator.

As had happened for the railway routes in the last half of the 1800s, the planning of the Pedemontana saw the presentation of different and alternative motorway designs. For example, an early plan for the Pedemontana discarded the city of Vicenza. This was answered with an alternative proposal from the local Chamber of Commerce "in which the people of Vicenza could be validly defended and protected." The studies for the tract between Venice and Trieste were even more confused: two generic plans existed, "one completely toward the sea, and one moved toward the mountains and longer than the other by several kilometers." The first had the characteristics of a "direct" route, while the second was more attentive to the interests of the centers that lay between the two Adriatic ports.<sup>20</sup>

It is not surprising that in December 1928 the Venice–Trieste situation found itself "in unsettled management because of the different views of the interested provinces regarding the route, and because of financing difficulties, due to which there was an intention to ask the government for the same treatment as the secondary railways, with the

highest subsidies, both for construction and for operation.”<sup>21</sup> In January 1930 the anemic financial means of most committees and companies involved in the construction of the Pedemontana became embarrassing. The committees not only lacked the resources to realize the works, but had to ask for public financing just to carry out the master plan. Suardo proposed constructing the Trieste–Fiume motorway as a priority, in order to complete the terminal tract. This living proof of future realization would guarantee Trieste that, sooner or later, the trunk toward Venice would also be done. “[I]t is absolutely necessary, if the initiative is to live and continue to have the consensus it currently enjoys, that the government offers the interested provinces and companies established for the study and implementation of the motorway a guarantee of immediate commencement of a new trunk (Trieste–Fiume) or the assurance of support for even a part of the necessary cost to compile a master plan.”<sup>22</sup>

And Puricelli? What was his role in these events? He seemed to have taken a backseat position, and was not the same man who in 1922 had launched the motorway project with enthusiasm and conviction. The materials gathered in the archives portray him as skeptical: some days before the convention for the Pedemontana, he sent Suardo a long report that was as meticulous as it was detached and, in several aspects, even defeatist (not surprising, considering that in those months he had just lost his lifelong target of the ordinary road management). In the first lines, the Milanese entrepreneur confirmed without hesitation that motorways should be constructed only where there was adequate existing traffic for their self-financing, without state subsidies.

I start from the conviction that motorways should be made where there is a combination of necessary elements sufficient to keep them alive with the proper means; where the saturation of traffic is such as to require the creation of a new road in addition to the preexisting ones; and, in every case, they should be provided for by private initiative or entities directly interested, without the possibility of asking for any real contribution from the state. In contrary cases, where these conditions are not met or these requirements would be difficult [to achieve], it is better to limit [the network] to already existing ordinary roads and to renew these in a manner more consonant with the needs of the traffic, maintaining them in an efficient state.<sup>23</sup>

Puricelli felt that several tracts of the Turin–Trieste perhaps merited interest, but in its entirety the motorway was entirely premature due to the insufficient traffic. Its realization would signify an inevitable financial burden on the state, because the local committees would not be able to

reach a sufficient critical mass to complete the works. Given the varied traffic conditions of the provinces, they would need to apply specifically tailored public subsidies, with the consequent recriminations and risk of more than one injustice. In regard to the criteria used in the past, it was necessary to

objectively recognize that in the specific case of the "Turin–Trieste," whatever the desire to construct it, something needs to be modified. We find ourselves facing conditions that are different from those that were assumed to be necessary to evaluate the opportunity to construct a motorway. These necessary conditions have been superseded by needs of a general character [e.g., AASS's foundation] and by national defense requirements.

Moving on to examine the various trunks that the "Turin–Trieste" is divided into, the efficiency of the committees that have proposed the construction, and the local possibilities for financing, we must conclude that, with the current legislative and financial regime, on the basis of which the "Milan–Lakes" and "Bergamo–Milan" have already been constructed, we could additionally construct the "Bergamo–Brescia," the "Turin–Milan," and the "Verona–Brescia." Except for some optimistic forecasts for the "Padua–Mestre," it would be difficult for the remaining trunks to achieve the same results and if we wish to proceed in parallel and avoid that the entire work remains incomplete; it is necessary to modify the regime mentioned and do it so that, where a private involvement is neither sufficient or possible, it is supported by alternative sources. It is also necessary, however, for this new regime to create a single criterion and have a single application as regards all the interested committees, because inequalities won't be tolerated and it does not seem fair that the many competitors with one aim should experience different treatment.<sup>24</sup>

In other words, the realization of the works would need a single program of execution, with uniform regulations and subsidies for all the trunks. It was the only way that the work could be achieved completely. Implicitly, Puricelli was proposing his business for the execution of the work, which on balance would cost around 450 million lire (more or less equivalent to today's USD, as are all the following amounts in this chapter). To reach the amount needed, a contribution from the state of 150 million would be needed, as well as 50 million from local authorities, and 125 million in bonds to put on the market, guaranteed by the state.

Puricelli's calculations, as the Ministry of Public works and Mussolini knew well, had always proved to be inaccurate and come to less than the actual costs; therefore, such sums were to be considered broad estimates. Considering the reluctance of private capital to invest, this meant

enlarging the public financing by quite a lot. The money—in the best of hypotheses around 200 million lire coming from the state—would go to a public work of dubious benefit, particularly given the work on the ordinary roads that AASS was already doing in northern Italy. Moreover, proposals to construct motorways in Italy continued to lose ground, partly due to the fact that the two trunks opened to traffic in spring 1928 (Milan–Lakes and Bergamo–Milan) were showing modest daily results, far from expectations.

The idea of entrusting the construction of the entire tract to Puricelli—supposing that this was the true desire of the Milanese entrepreneur—was not even considered. Instead, those portions of the Pedemontana that could count on powerful local protectors and had some hope of adequate traffic were approved, as had happened in the past. The Bergamo–Brescia (45 kilometers), under the watchful gaze of Augusto Turati (*ras* of Brescia and secretary of the national Fascist Party) and Suardo, obtained a construction concession first, in February 1929. In October of the same year, the Turin–Milan (126 kilometers, and strongly backed by Fiat) followed. Finally, in 1930, the works for the short Padua–Mestre (25 kilometers) were approved. The construction of the latter happened together with the bridge—or “autobridge”—between Venice and the mainland, works that were connected.<sup>25</sup>

### The Indefinite Postponement of Construction Programs (1930)

The outlook for other trunks of the Pedemontana was grim. We have seen in the preceding section how Suardo, in the first months of 1930, wrote to Mussolini indicating the need for state financing not just for the construction, but even for the preparatory surveys and projects. On the same day, the prime minister wrote to the Ministry for Public Works communicating his decision to release the concessions just for the tracts already agreed on, postponing the realization of the entire tract to a later time.

Dear Di Crollalanza,

I am sending you the enclosed, sent to me from the Hon. Suardo, Commissioner of the Pedemontana. It comes to [an additional cost of] 204 million [about 180 million in today's USD]. This is not the moment to launch the initiative. Let us limit ourselves to completing the Turin–Milan, Bergamo–Brescia, and Padua–Mestre trunks. In 1932–33–34–35 we will do the rest, until Fiume. Mussolini.<sup>26</sup>

In fact, Mussolini's choice reflected the indications in Puricelli's 1928 memo to authorize only those trunks that seemed to have a more solid traffic base. The Milanese entrepreneur was not an impartial witness, nor had his past traffic predictions for the motorway been very trustworthy. Once again, his expectations were inaccurate: with the exception of the Turin–Milan, the concessionaires saw limp traffic and inevitably presented insolvent balances.

Mussolini's decision to postpone the entire Pedemontana gave the critics of the motorway projects a chance to air their views that they did not pass up. In the spring of 1930 they made themselves heard in the parliamentary discussion of the state budget. The accusations aimed at the motorway program were the same as those that engineer Cantamessa had expressed in 1925 and Senator Ancona in 1928: the motorways were a luxury, and their cost was ultimately borne by the state. The constitution of AASS and its roads modernization program made motorway projects completely useless: why would a motorcar driver pay a toll to use a motorway if he could count on good state roads? Why should the state subsidize the motorways if it was working to renew the ordinary roads?

In the discussion in both houses of parliament, by now completely fascist, of the budget of the Ministry of Public Works, dissatisfaction and direct accusations against the motorway system emerged. In the Senate, it was Silvio Crespi—president of the ACI and a recent supporter of Puricelli—who signaled the change in the motorway sector. At the approval of the Turin–Milan, the senator declared “now we have enough motorways,” outlining the future need for a Genoa–Ventimiglia, but highlighting the interventions of the ordinary arteries as a priority.<sup>27</sup> In the Chamber of Deputies, the first to cast a stone at the motorways was Francesco Caccese, who moved a circumstantial *j'accuse*. Caccese demonstrated—according to the facts and with the fervent approval, if not open applause, of his colleagues—how the concessionaires had insolvent balances and how only the annual state contribution allowed the motorways to survive. According to the MP, the Milan–Lakes concessionaire offered an annual share dividend of 0.2 percent; the Bergamo–Milan did not even offer one; in fact, without the state contribution the company would have been insolvent. The Naples–Pompeii furnished the richest return at 3 percent, but only because the convention allowed for a particularly favorable reimbursement of the state contribution. The conclusion was that “the motorways were not absolutely necessary”; it would be better if “the state devolved that money to the improvement of the already existing road networks.”<sup>28</sup>

When responding to the observations, the minister of public works, Arnaldo Di Crollanza, had no trouble admitting that the government had applied the brakes to motorway programs and possible requests from other committees. "I can at any rate declare that the government, upon the completion of the Pedemontana Turin–Trieste and the Florence–Sea, considers the construction of motorways sufficient for now, and so has decided to reject eventual requests for further subsidies and contributions from concessionaires for the works underway."<sup>29</sup>

Suardo continued to defend "his" Pedemontana, giving a long speech to the Senate in May 1930, which he managed to have published as a brochure. In effect, the Bergamo senator found himself in a "slightly embarrassing situation,"<sup>30</sup> because "the suspension of the initiative for reasons of balance had produced some turmoil, particularly for those who invested money, because they see their legitimately conceived hopes growing distant."<sup>31</sup> Suardo proposed to relaunch the Pedemontana project, not as a response to the needs of national automobile traffic, but as a strategic instrument of military defense and a weapon for Italian expansionism toward the Balkans. According to Suardo's (biased and probably servile) testimony, Mussolini had known about the Milan–Venice motorway project by Belloni since 1916,<sup>32</sup> and it had been Mussolini himself who had enlarged the "limits of the grandiose initiative [Pedemontana] to the extent of thinking that the much opposed work, which we continue to believe in, must be . . . the initial tract of a vaster work for the future, destined to help Italian influence penetrate deeper into Eastern Europe."<sup>33</sup>

But with the backing of Mussolini's decision, neither Senator Rolandi Ricci, who supervised the balance of the Ministry of Public Works, nor Di Crollanza retreated from their positions. The former rhetorically illustrated the reasons for the widespread caution toward new construction projects: "Why is there a diffuse sense of diffidence toward the multiplication of motorways? Because private capital has run where there was traffic, but has also believed that it is enough to create a motorway to create traffic. They begged for motorways that were not necessary and not useful, founded on hopes that it did not seem wise to nurture. There are three motorways in operation and three in construction: today these need contributions. When the conditions of the balances are improved, when there are the means to satisfy less urgent needs as well, we will create those motorways that require financial help."<sup>34</sup>

The ministry, for its part, was curt. Italian motorways were the effect of a particularly happy phase for public financing, but that period had passed; in the meantime, the constitution of AASS had changed the terms of the question.



Public opinion in these times has not demonstrated a complete understanding of the motorway problem, which represents a brilliant Italian initiative for rapid communication by car. The problem must be viewed in relation to the needs of the moment, which was a setting that coincided with a period of vast financial possibility in terms of public works. Certainly, even if state means had been more modest, some motorways would still have been curated by the government; but that period has passed . . . because the AASS has rapidly filled the gap and in several cases has left the Italian roads in conditions of absolute superiority.<sup>35</sup>

The words of the ministry, which followed Mussolini's more authoritative decision, closed the brief and limited season of Italian motorways in May 1930. By that date, the Milan–Lakes, Bergamo–Milan, and Naples–Pompeii had been completed (as well as the Rome–Ostia, which was not truly a motorway); the Florence–Sea, Bergamo–Brescia, and Turin–Milan were still underway, while the Padua–Mestre was to soon open its construction site.

The postponement of works along the other tracts of the Turin–Trieste, which Mussolini foresaw as temporary, lasting just a few years, became an indefinite delay.<sup>36</sup> With the exception of the brief Genoa–Serravalle (50 kilometers), realized a few years later, motorways in Italy were much *spoken* of but *nothing more was done*. In addition, the economic crisis of 1929 came on top of Mussolini's decision, making any other motorway initiative in the country practically impossible. The decrease of traffic also made the imbalance between costs and benefits clearer; there was no possible justification for new motorway projects under that lens. Instead, the open works were barely able to stay alive, while the concessionaires were overwhelmed by their negative balances.

The case of the Turin–Milan, analyzed in detail in the next chapter, perfectly illustrates the difficulties the concessionaires found themselves in related to the construction and management of the various motorway trunks. These difficulties were typical of all the Italian motorway companies, and were only magnified by the 1929 crisis.

## Notes

1. Bent Flyvbjerg, Mette K. Skamris Holm, and Søren L. Buhl, "How (In)accurate Are Demand Forecasts in Public Works Projects? The Case of Transportation," *Journal of the American Planning Association* 71, no. 2 (2005), 131–146.
2. See Giovanni Da Rios and Savino Rinelli, "Autostrada Napoli–Pompei," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 66–73.

3. Letter from the Minister of Public Works to the Pcm, dated February 1928, in Acs, Pcm, 1931–33, 7/1-2/5043, *Autostrade—Commissariato governativo per le Autostrade*.
4. The first plans for the Florence–Sea had the final trunk of the artery passing through a swamp. See Bortolotti and De Luca, *Fascismo e autostrade*, 141.
5. See the brochure “Autostrada Bergamo–Brescia” dated 28 June 1925, in Acs, Pcm, 1926, 7/1-2/1846, *Autostrada Bergamo–Brescia*.
6. See Carlo Cesareni, “L’autostrada Bergamo–Milano e l’autostrada pedemontana Torino–Milano–Venezia.”
7. See *L’autostrada Pedemontana e i suoi problemi. Primo convegno per la ‘Pedemontana’, Bergamo, 20 maggio 1928–VI* (Bergamo: Officine dell’Istituto italiano d’arti grafiche, s.d. [1928]). See also IV [Italo Vandone], “L’autostrada Pedemontana Torino–Trieste,” *Le Strade* 5 (1928), 133–135.
8. *L’autostrada Pedemontana e i suoi problemi*, 10.
9. *Ibid.*, 13.
10. Vandone, “L’autostrada Pedemontana Torino–Trieste,” 135. It should be mentioned that the version of Giuriati’s intervention reported in the minutes of the meeting does not contain any mention of Mussolini’s ideas regarding the Pedemontana.
11. *L’autostrada Pedemontana e i suoi problemi*, 15, italics added.
12. *Ibid.*, 11–12.
13. *Ibid.*, 29.
14. Ugo Ancona, “I problemi dell’automobilismo al Congresso mondiale di Roma,” *Nuova Antologia* (1 November 1928), 103–119, here 108. Ancona’s article came after the world congress of automobiles, at which Puricelli had repropoed the motorway projects; see “Il congresso mondiale dell’automobile. La viabilità e il problema finanziario,” *Corriere della sera*, 29 September 1928.
15. See Acs, Pcm, 1928–30, 7/1-2/6001, *Autostrada Torino–Trieste*.
16. Prime minister’s decree of 29 September 1928.
17. Law of 17 May 1928 n. 1994, in G.U. 31 May 1928, articolo 1.
18. Salvatore Lupo, *Il Fascismo. La politica di un regime totalitario* (Roma: Donzelli, 2005), 448.
19. Typed notes from Giacomo Suardo to the Pcm dated 27 January 1930, in Acs, Pcm, 1928–30, 7/1-2/6001, *Autostrada Torino–Trieste*.
20. See *L’autostrada Pedemontana e i suoi problemi*, 8.
21. “Promemoria riservatissimo” (confidential communication) from Giacomo Suardo dated December 1928, in Acs, Pcm, 1928–30, 7/1-2/6001, *Autostrada Torino–Trieste*.
22. “Promemoria riservatissimo” (confidential communication) from Giacomo Suardo dated 21 February 1930, in Acs, Pcm, 1928–30, 7/1-2/6001, *Autostrada Torino–Trieste*.
23. Letter from Piero Puricelli to Giacomo Suardo dated 5 May 1928, in Acs, Spd, Cr, busta 60, *Piero Puricelli*.
24. *Ibid.*
25. See Elio Zorzi, “Il nuovo ponte autostradale tra Venezia e la terraferma,” *Le vie d’Italia* 4 (1933), 262–275, and G. Milani, “L’autostrada Padova–Venezia,” *Le vie d’Italia* 10 (1933), 262–275.
26. Letter from the Prime Minister to Arnaldo Di Crollanza dated 21 February VIII [1930], in Acs, Pcm, 1928–30, 7/1-2/2340, *Autovia Bergamo–Brescia*.

27. See *Atti del Parlamento italiano, Camera dei Senatori, Discussioni, volume 2* (Roma: Tipografia del Senato, 1930), session of 8 March 1930, 1810.
28. *Atti del Parlamento italiano, Camera dei deputati, Discussioni, volume 3* (Roma: Tipografia della Camera dei deputati, [s.d.]), session of 3 May 1930, 2446, 2447.
29. *Atti del Parlamento italiano, Camera dei deputati*, session of 6 May 1930, 2490.
30. Giacomo Suardo, *Sulle autostrade. Discorso del senatore Giacomo Suardo pronunciato nella tornata del 28 maggio 1930* (Roma: Tipografia del Senato, 1930), 28. Two other versions of the Senate discussion of 28 May exist, which only partly match the brochure printed in Suardo's name, that is, the *Atti del Parlamento italiano* and "Senato del Regno, Legislatura 28, sessione 1°, 73° Resoconto sommario, mercoledì 28 maggio 1930."
31. "Senato del Regno, Resoconto sommario, mercoledì 28 maggio 1930," 4.
32. See Suardo, *Sulle autostrade*, 24.
33. *Ibid.*
34. "Senato del Regno, Resoconto sommario, mercoledì 28 maggio 1930," 7.
35. *Ibid.*, 10–11.
36. The films of the Istituto Luce include a film from November 1933 (Giornale Luce B0361) entitled *Trieste. L'inaugurazione dell'autostrada Trieste–Fiume alla presenza del sottosegretario Leoni*. Given the lack of other documents on the work and considering other requested inaugurations for motorways that never actually existed (see Acs, Pcm, 1927, 7/1-2/395, Autostrada San Remo-confine francese—Inaugurazione lavori), it is easy to suppose that it dealt with the renewal of ordinary roads.

## CHAPTER 6



# A Case Study: The Turin–Milan Motorway

## The Foundation of the Promotional Committee

As early as 16 January 1923, just a few days after the publication of the decree for the construction of the Milan–Lakes, several influential people in the municipality of Turin had “enthusiastically . . . constituted a promotional committee for a motorway between Turin and Milan.” Count Secondo Frola—from whom “the importance of the provision [for the Milan–Lakes construction] had not escaped”—had requested the gathering: Frola, “considering the density of the traffic between Turin and Milan and the benefits that such a modern means of communication would bring to the development of the intense industrial and commercial relationships, promoted a meeting of personalities and representatives from public entities and associations.”<sup>1</sup>

Secondo Frola was nominated president of the promotional committee; he was already a MP and was later appointed a senator, having been mayor of Turin before World War I and after the popular uprising in August 1917. The top brass of the committee, in addition to Frola, included the engineer Emilio Giay, a contractor and member of the Turin municipal council, and Giorgio Ermanno Anselmi, president of the Turin province administration. After the foundation meeting, the committee met again on 14 March 1923 and Frola informed them of the “encouraging reply from the Hon. Mussolini and Carnazza,” and of “a letter from Eng. Puricelli assuring his competent support.”<sup>2</sup> The Turin committee formed a technical commission, presided over by Giay, to study a route, and, to cover the first expenses, they obtained a non-repayable contribution from the municipality of Turin.

The activity of the committee was re-energized in January 1924 when, with the preliminary draft completed and the traffic statistics verified, its members examined the two proposed routes “on a large model of the region, expressly executed and kindly offered by Engineer Puricelli.”<sup>3</sup> The first, called “North,” would better service Biella; the second, “South,” instead headed decidedly toward Vercelli and Casale

Monferrato. The committee selected an intermediate course between the two—different from the one that was eventually constructed—that would go from Turin toward Santhià, touch Vercelli and Novara, and eventually reach Milan at the head of the Milan–Lakes. Obviously, the second choice penalized Biella and its rich textile and industrial pole, provoking objections from the local representatives on the committee: to address their needs, a Santhià–Biella offshoot was approved.<sup>4</sup> Meanwhile, on 23 July 1924, the committee presented the final route—mediating between the poles of Biella and Casale Monferrato—preparing the definitive project to present to the Ministry of Public Works for the necessary approvals.<sup>5</sup> The planning costs were covered by contributions “from the public authorities on the committee”;<sup>6</sup> in January 1925 the project was presented to the Ministry and the High Council approved the proposal on 27 April of the same year.

Although it had achieved a good compromise on the motorway route and had a favorable reception by the ministry, the promotional committee experienced some difficulties. The enthusiasm of the early days was dissolving in the effort to define the technical and financial specifics of the work and to obtain the necessary funding. In addition, every day the representatives of the municipality of Milan seemed more reluctant to get involved, particularly given the limited interest the Milanese showed in the motorway to Turin.

### **Insurmountable Problems**

On 28 July 1925 there was a new meeting of the promotional committee—this time in Milan—called to decide whether the managing entity of the motorway should be a consortium of local entities or a limited company. On the proposal of the new Milan mayor, Senator Mangiagalli, they decided to present their request in the form of a consortium of the Milan and Turin municipalities, with subsequent subconcessions to other managing entities yet to be defined.<sup>7</sup> However, in February 1926, the Ministry of Public Works rejected the two cities’ application, informing them that they had to define the nature of the concessionaire before the convention would be approved by the state. The committee opted to create a limited company, and to do so, on 30 April 1926 it convened a meeting of the “major interested industrialists.” The who’s who of the Turin and Milan financing and industry worlds participated in the meeting (Giovanni Agnelli, Riccardo Gualino, Piero Puricelli, Vincenzo Lancia, Silvio Crespi, Piero Pirelli, Senatore Borletti, Giuseppe Mazzini) but “none of those present at the meeting saw fit to follow

this procedure [to create the company].”<sup>8</sup> It was evident that no one wanted to form the limited company and take responsibility, not even with the support of the promotional committee, for collecting the 50 million lire necessary (more or less equivalent to today’s USD, as are all the following amounts in this chapter). An agenda, proposed by Riccardo Gualino, was voted on. It stated that, with the aim of completing the construction works by 1928, the capital subscriptions should be opened and closed within two months. If all the subscriptions for funds were achieved by 30 June 1926, the motorway concessionaire company would be formed; if not, the subscriptions would count as nothing.<sup>9</sup>

The 30 June deadline passed without the predetermined capital amount being reached, but the committee proceeded with its business nonetheless, determined to realize the work, and looking for additional funds on the Milan stock market. With this objective, they held a meeting in Milan on 8 July of the same year, which did not produce any particular results, except for the appointment of a local financing committee, which named Stefano Benni as its president. Meanwhile, Frola solicited nonrepayable contributions from various local authorities for a total sum of 25 million, with the promise of a contribution from the municipality of Turin as early as February 1927, but from the municipality of Milan only the following year.

Although the committee continued well past the June 1926 deadline, it was difficult to collect all the subscriptions. Further problems appeared in the summer of 1927, when the already-discussed project to constitute AASS entered the stage. Benni resigned as the president of the Milan financial committee, citing the difficulty of raising capital for a project like the motorway. This was made more difficult now that the state roads would be put in order, and the new motorway between Turin and Milan would become useless. Benni’s resignation was the tip of the iceberg of problems in which the promotional committee found itself. The indifference of the Milanese toward the Turin motorway—aggravated daily by the alarming results of the Milan–Lakes and the Bergamo–Milan—and the complications in realizing the project pushed Frola to a *coup de theatre*, and he proposed in July 1927 to construct only the Turin–Biella tract.<sup>10</sup> In the hope of saving the entire project, a new meeting was held in November 1927 in which the Milan *podestà* (the substitute for the mayor during the Fascist regime) reiterated the lack of Milanese interest and advised the committee to indefinitely suspend the execution of the motorway, at least while waiting for a decision regarding AASS. However, faced with the pressure of all the Piedmont delegates (and most likely the Milan prefect), the Milanese *podestà* finally declared himself willing to make a nonrepayable contri-

bution of the same amount as Turin (which was ten annual payments of 700,000 lire each), convinced that the full capital for the construction would never actually be raised and the city would never have to pay.<sup>11</sup>

Reassured by the subscription from Milan, the committee resumed the hunt for subscriptions, coordinated by a new financing committee, which planned to print a propagandistic publication in January 1928 and hold various meetings in Turin, Vercelli, and Biella (but not in Milan).<sup>12</sup> Although the amount of capital subscriptions needed for the limited company had been halved to 25 million, not even this more modest sum was reached: by December 1928 they had only raised 14 million, of which a good 10 had come from Turin and 2.5 from Biella.<sup>13</sup>

### **Fiat's Intervention**

The problems seemed insurmountable when, starting in 1928, Fiat became increasingly involved. Given the (theoretical) advantages that would be derived from the increase of automobile circulation, the car company had subscribed to shares for the constitution of the limited company, but the directors of Turin industry had demonstrated a certain coolness to Puricelli's initiatives and had also demonstrated reluctance in the case of the Turin–Milan. The plans for a drivable road between Turin–Trieste, the government support for the initiative, the creation of the position of commissioner for the Pedemontana, and the hypothesis of a soon-to-come federation of the existing motorways in northern Italy were (ephemeral) indications of a new phase of planning. These elements pushed Fiat's management to enter the motorway sector directly, via the management of the Turin–Milan. Therefore, as Giovanni Agnelli himself recalled, "[w]hen the fascist government launched the idea of the grand Pedemontana Turin–Milan–Trieste–Fiume," and defined the precise willingness to finance the project by the state, "it seemed to me more appropriate than ever to cooperate with Senator Frola's plan and so I became a promoter and financier of the master plan of the project."<sup>14</sup>

On 21 July 1928, in his unofficial (and insincerely held) role of "promoter" of the Turin–Milan motorway master plan, Agnelli asked the prefects of Vercelli and Turin for access to the private land lots required for the preliminary construction activities. The request was received positively within ten days (an incredible achievement for usually slow Italian bureaucracy!), and on 1 August, the Turin prefect issued a prefectural decree granting access to the territory, with a similar deposition coming from Vercelli the following day.<sup>15</sup> On 28 November 1928, with a

deed from lawyer Annibale Germano, the limited company *Autostrada Turin–Milan* (*Società anonima Autostrada Torino–Milano* or *Saastm*) was formed, based in Turin, with an initial capital of 500,000 lire, which could be increased to 25 million by a simple deliberation by the board of directors.<sup>16</sup> The founding members were Giovanni Agnelli “in his role as Fiat president,” Silvio Ferracini, and Giovanni Vianino. Both Vianino (president of the confederation of Turinese merchants) and Ferracini were close to Agnelli (before the latter fell out of favor and was distanced from his duties in the industrial association).<sup>17</sup> Together, the three made up the first board of directors of the company.

The members of the promotional committee—who, from all evidence, hoped to obtain recognition and profit from the project—were in the dark about Fiat’s moves. Not even Senator Frola, who was president of the committee, was informed about Agnelli’s initiative until October 1928, when in a committee meeting “it became clear during the discussion that he was creating a limited company to construct the motorway.”<sup>18</sup> An open conflict broke out between the old promotional committee members, who had so exhaustingly gathered the subscriptions, and the new society created by Agnelli. This conflict was naturally resolved in favor of the Fiat president, partly thanks to his support from the government and prefect. It was Suardo, in a “highly confidential” report sent to Mussolini in December 1928, who highlighted how in Turin there were “strong divergences, due above all to the old promotional committee continuing its activity—presided over by Senator Frola, who intended to exercise a sort of unacceptable patronage over the construction company. With the valuable help of Prefect Maggioni and Federal Secretary [of the national Fascist Party] Basile, the situation has been resolved, by liquidating the old committee, with due honor, and forming a new company.”<sup>19</sup>

Frola was appointed honorary president of the newly constituted motorway company, while, under Fiat’s thumb, the company benefited from the solicitation of capital subscriptions that the committee had carried out, and from the nonrepayable funds that the local authorities had committed, often begrudgingly, to a value of almost 25 million. Those events made it evident that the promotional committee had completed its work: it held its last meeting on 20 January 1929, with Frola absent, probably already ill,<sup>20</sup> and declared its own dissolution.

Silvio Ferracini and Giovanni Agnelli used all the means at their disposition to locate capital. They insistently “invited” the entrepreneurs who were members of the local industrial association to buy share subscriptions in the motorway company and managed to get the Turin association to approve a contribution from its members of 30 lire for every



employee. “Certainly the contribution was not obligatory, but Agnelli insisted that the companies be pushed for an answer even if it were a negative one: the list of subscribers [and obviously of nonsubscribers] would be sent to the political authorities.”<sup>21</sup> Meanwhile, in a report that was unsigned (but prepared by Fiat offices), Mussolini was asked to “let his disapproval be felt regarding the fact that, against 11 million share subscriptions in Turin, Milan had only reached 1.3 million lire, against the already limited forecast of 5 million lire. The direct interest of the head of government would certainly be useful to get subscriptions from banks, savings banks, and insurance companies.”<sup>22</sup>

On 15 April 1929, before the increase of share capital, the engineer Francesco Cartesegna—new motorway planner, in Agnelli’s complete trust—was appointed director general of the company, “given that he has in effect been functioning as director since the creation of the society.”<sup>23</sup> In that role, he had ample power, which soon became total with his successive nomination as CEO.

After six years of preparatory works, great difficulties in raising capital, and fatuous and improvised financial planning, the motorway could only be realized because of the strength of the Fiat group in obtaining generous public and private contributions for the construction. Both due to the fact that the traffic was greater toward the prealpine areas than toward the rice-growing zones of the plains, and because of the financial involvement of the Biella industrialists,<sup>24</sup> Agnelli decided to modify the route. The motorway would now pass around 18 kilometers from Biella (a condition evidently considered adequate for local needs) and around 15 kilometers from Vercelli, having been shifted north.

The project was presented to the Ministry of Public Works in this form in April 1929, for the approval of the High Council, asking just four weeks for the approval, which was given on 19 May. On 12 June, Agnelli met with Mussolini, to whom he had already presented a financial plan with the complete cost. With the modifications made to the original project taken into account, the cost was now 145 million, covered by 30 million in capital shares, 20 million obtained from nonrepayable contributions, and 95 million “to be obtained through capitalization of sufficient government annual contributions.”<sup>25</sup> Mussolini, however, committed to an annual contribution that would cover only half of this amount (that is, a third of the costs), and so it was decided to cover the missing portion through “preferred bonds with the guarantee of the majority of the interested public authorities [meaning the Turin and Milan municipalities] that the work would be completed.”<sup>26</sup>

Mussolini’s commitment was followed by a contrary decision from the minister of finance, who “advised that the decision of the state

contribution for the Turin–Milan motorway had been postponed indefinitely.<sup>27</sup> Determined to complete the project, Agnelli again contacted Mussolini and sent him a detailed memo that, as well as reminding him of the employment benefits that the motorway construction would bring, forewarned him that further delays risked ending the project due to the “default of several of the most important subscriptions so laboriously achieved.”<sup>28</sup> A telegram was also sent on 6 July 1929, reiterating the risk of a definitive cancellation of the project. “The Hon. minister [of finance] Mosconi telegraphed the decision regarding the motorway, that it is for now suspended. I understand that I must cease activity regarding the motorway for an indefinite period. Permit me to observe, Your Excellency, that such a suspension would nullify the subscriptions so laboriously collected, making any further actualization of the work impossible. I would appreciate your definitive decision in regards to this.”<sup>29</sup>

Mussolini’s response, sent through the Turin prefect, was not long in coming and represented the final point of the agreement between the government and Fiat: “Communicate to Senator Agnelli that the Turin–Milan motorway question is defined, remaining with the understanding that the contribution of the state is limited to a third of the costs.”<sup>30</sup> The delimitation of the government commitment finally made it possible to create, on 30 November 1929, the convention “for the construction and management of the Turin–Milan motorway,” subsequently ratified with a decree on 26 February 1930.<sup>31</sup> The company had the concession for the construction and the management of the motorway for fifty years. The road—about 126 kilometers in length—would be constructed of a single carriageway with an entire width of 10 meters, of which 8 meters was for automobile transit and 2 meters was lateral shoulder, which was nondrivable.

At the termination of the concession, the equity would be paid to the shareholders and the motorway would pass into the possession of the state, which had committed to an annual contribution to the company of 3,725,166 lire for fifty years, to be repaid with the earnings. The company was authorized to capitalize the annuity in banking and insurance institutions; the tax discount, at the time, of 7.5 percent, determined an amount of 48,350,000 lire, that is, equal to a third of the estimated cost of 145 million lire. The remaining part was covered with the 30 million in shares, 20 million from the nonrepayable funds from the local authorities and around 50 million in bonds, with profit guaranteed by the local authorities. The estimates for the first year predicted a transit of four hundred vehicles a day along the entire route and just as many along half, for an income of around 7 million. To this would

be added 1.5 million lire in income from advertising concessions and sales of petroleum products. The maintenance costs were estimated at 630,000 lire a year; the management costs (including the amortization of capital) at 670,000 lire. There was also around 3.5 million lire in interest, the amortization of the bonds, and the return of the government annuities and their interest. The expectations, already positive for the first year, would be even better in the following years, because “every year there is a notable increase in traffic and consequently in two or three years of operation at most, an adequate return can be made also on the share capital.”<sup>32</sup>

### Signing the Concession Agreement and the Start of Work

As recorded in the financial agreement, on 31 August 1929, the company's equity was increased to 30 million and a new board of directors was appointed, composed of fifteen members, including Giovanni Agnelli and his son Edoardo, Piero Puricelli, and Curzio Suckert Malaparte, the famous writer, then director of *La Stampa*, a daily paper owned by Fiat.<sup>33</sup> In its first meeting, the board confirmed Giovanni Agnelli as president of the society, appointed Piero Puricelli and Tommaso Folia (president of the Constructors Association of Turin) as vice-presidents, and appointed Francesco Cartesegna as CEO.<sup>34</sup>

Despite Agnelli's commitment and the small value of the shares—which were each worth 100 lire—capital subscriptions proceeded slowly. Other than 4 million from Fiat and 2 million from the Industrial Finance Institute (the IFI was controlled by the Agnelli family), the biggest subscribers were some important Italian banks and industries, including Puricelli roads and quarries, Lancia, Michelin, the Italian cement company, and Alfa Romeo. Alongside the big groups, the book of shareholders shows capital spread between a myriad of small shareholders, who held a handful of shares: two, five, ten, at the most twenty, mostly in the hands of small firms or private individuals, almost all living in Turin or Biella.<sup>35</sup> Despite these efforts, in October 1930, they were still 6 million short, with the IFI covering the shortfall—although just provisionally, because the tender conditions required “6 percent of the subscriptions for the project in company shares,” a percentage that later increased to 10 percent.<sup>36</sup>

The works for the first part of the project, meaning the carriage-way, amounting to over 45 million, were subdivided into thirteen lots, entrusted to eleven different companies with headquarters in Turin, Alessandria, and Milan. The works for the bridges, underpasses, over-

passes, and the like would be done by other companies, while the surfacing was assigned exclusively to Ferrobeton, from Rome, and Puricelli roads and quarries, from Milan. The cement itself, for “economy of scale” would be purchased directly by the motorway company from the Italian cement company, which was also a shareholder in the motorway company. The construction began on 15 January 1930, before the approval of the convention decree (26 February) and before the Ministry of Public Works approved the master plan.<sup>37</sup> By 18 January, the publicity campaign on the employment effect of the work had already begun:<sup>38</sup> according to the company’s sources, the motorway works employed around a thousand people in 1930, and increased to sixteen hundred in December of the same year, and almost three thousand by April 1931.<sup>39</sup> The hike in employment can be seen as a direct consequence of the protests in the piazzas by the unemployed that happened in November 1930 in Turin, following which Agnelli committed himself, at the request of the prefect, to taking on “manpower” (sic!) for the motorway works.<sup>40</sup>

The convention allowed the company to issue bonds for 50 million, to finance the last third of the works. These bonds were preferred, and guaranteed by local authorities that had been identified in the Turin and Milan municipalities, provinces, and provincial economic boards (which replaced the dissolved chambers of commerce). The affair of the guarantees from local authorities had a tormented history that dragged on, eventually concluded only because of strong pressure from the central government.

The question of the guarantees was clear evidence of the widespread mistrust of uncertain, or even hasty, entrepreneurial activities—as the motorway works had proved to be. The ministry’s officers were also becoming less benevolent toward the motorway’s business. In March 1931, Agnelli told the company’s board that “in consequence of the decrease in costs caused by the noted government provisions,<sup>41</sup> the Ministry of Public Works intends to revise the annuity [of contributions to the works]. They have started negotiations in recent days; we will try to keep the reduction as limited as possible.”<sup>42</sup> The strong drop of current manpower (sic) and prime material prices, linked to the 1929 crisis, had reduced the construction costs, estimates of expenses that had of their nature been “prudential, as a way of producing large financial contributions from the interested public authorities.”<sup>43</sup> The additional issues of decreasing traffic following the economic crisis, and the weakness of the financial markets, pushed Agnelli to reopen the tough negotiations about the state contribution, threatening in March 1931 that he would withdraw the project and “asking for early buyout of the concession and its transfer to the AASS.”<sup>44</sup>

Due to the new economic landscape generated by 1929 crisis, in May 1931 the Fiat president went further, sending the government a renewal plan for the motorway: the state, according to Agnelli, should buy back all the Italian motorways, opening them to traffic and abolishing any form of toll, and cover the maintenance costs with an increase in the price of petrol. In substance, he proposed:

- (a) the transfer to the state of the motorways and the assumption of their management by the AASS;
- (b) the free use of the same;
- (c) the imposition of an additional charge of 0.10 lire per kg on petrol, so that it provided for all the commitments, assumed by the state, of the public authorities and concessionaires, for the construction of the motorways.<sup>45</sup>

Besides the evident struggle between FIAT and the government, and Agnelli's plot to enlarge the area of discussion, the basic conflict was about the malicious "exaggeration" of the costs of the motorways in order to increase the state contribution: just as the ministry was proposing a reduction, Agnelli threatened the withdrawal of the project, an act of blackmail that ensured that the contributions remained the same. Therefore, due also to a careful policy regarding subcontractors, who built the prewar Turin–Milan motorway for the lowest cost per kilometer, "the private business . . . enjoyed the advantages of the motorway, while risking only a fifth, roughly, of the cost of it."<sup>46</sup> Fiat, in its turn, controlled the society—which had equity of 30 million—with less than 20 percent of the shares. In other words, FIAT firmly and completely controlled a 90 million lire business having only about 6 million in share value.

### The First Years of Management

The motorway was opened to traffic on 28 October 1932, the anniversary of the march on Rome, a date ritually chosen for the inauguration of public works in the fascist era. As early as 25 October, Mussolini's motorcade traveled the route for the first time from Turin to Milan. An enormous commemorative fasces "in wood and stucco" (promptly redone in stone)<sup>47</sup> was placed in Turin at the start of the motorway, after the idea of a triumphal arch was abandoned.

The entire length of the motorway could be driven on, with only the ancillary works still needing to be completed. Several of these were particularly important, such as the organization of the refueling stations.



**Figure 6.1.** Turin, starting point of Turin–Milan motorway, early 1930s. Autostrada Torino–Milano Archive. Courtesy of SATAP, S.p.A.

But by the annual shareholders' assembly in March 1933 these were also completed, and in the context of the Italian panorama, the motorway had a fair amount of traffic. With the conclusion of the works, Piero Puricelli stepped down as a member of the board of directors, although not as a shareholder (which, considering the type of shares and the Italian stock market, he could not have done anyway).

The company had few variations in official appointments: Giovanni Agnelli remained in the office of president, and Francesco Cartesegna stayed on as CEO up to the 1950s. Starting from the completion of the construction works, the percentage of directors from the Fiat entourage became increasingly conspicuous. Meanwhile, from 1936, the Institute for Industrial Reconstruction (IRI)<sup>48</sup>—which had inherited the motorway company shares of several banks that had suffered through the 1929 crisis—also took over the shares of the Puricelli companies, becoming a major shareholder in the company, with 15 percent of the total shares.

In 1933, the motorway had an average daily transit of 889 vehicles, with an average length traveled of around three-fifths of the entire length of the Turin–Milan, and a preponderance of light traffic. The



**Figure 6.2.** Turin–Milan motorway, early 1930s.

Autostrada Torino–Milano Archive. Courtesy of SATAP, S.p.A.

tolls that were applied were less than those indicated in the estimated budgets and were the lowest in the entire Italian motorway network, to the extent that they caused “complaints from its sister companies.”<sup>49</sup> The toll policy was aimed at capturing the maximum traffic potential, and in effect, considering the times and the vehicle diffusion, the company obtained decent results. Still, the income never reached the 8,500,000 lire hypothesized by the budget estimates, not even coming close, and in 1938—a year of maximum transit for the prewar period, with an average of 1,695 vehicles/day in both directions—the total income from tolls, concessions, and advertising was 4,425,859 lire. In contrast, the costs of activity and maintenance were higher than had been budgeted for, equal to a good 2,101,488 lire per year, added to the 2,000,000 lire depreciation rate of the motorway itself.<sup>50</sup> This was three times higher than the estimates had allowed for.

It must be remembered, however, that the concession established the reimbursement of the government annuity in case of profit: by claiming, as it rightly should, the interest payable on the government annuity as a deductible expense, and creatively rounding the depreciation rate up to 2 million, activities closed not only without generating profits and dividends, but even in loss, and therefore without paying the state the

reimbursement. From 1934 on this practice was contested by the Ministries of Finance and of Public Works, who suspected hidden profits,<sup>51</sup> but the situation dragged on without final consequences for many years. Some solutions were discussed in 1939 by reshaping the government annuity reimbursement plan, but it was not until 1944 that the Ministry of Finance took action, ordering repayment of the annuities.<sup>52</sup> However, by then the high inflation during the war and postwar period completely obscured the real value of the annuities that had to be reimbursed.

## Notes

1. "Relazione generale di Secondo Frola al Comitato Promotore dell'autostrada Torino–Milano" dated 28 December 1928, page 1, in Asct, Fondo *Servizi pubblici e industriali*, cart. 156, f. 2.; indicated from here on as "Relazione Frola."
2. "L'autostrada Torino–Milano," *La Stampa*, 14 March 1923.
3. *Autostrada Torino–Milano Biella* (Torino: [s.e.], 1928), 15.
4. The route is reported in *Autostrada Torino–Milano Biella*, 12, 13.
5. See "La riunione del comitato Autostrada Torino–Milano," *Gazzetta del Popolo*, 23 July 1924.
6. "Relazione Frola," 3. In particular, the city of Turin arranged contributions with approvals from the prefect on 6 February 1924 and 14 May 1924.
7. See "Per l'autostrada Torino–Milano. Una riunione di enti interessati," *La Stampa*, 29 July 1925.
8. "Relazione Frola," 5.
9. See "L'autostrada Torino–Milano. Sette milioni e mezzo sottoscritti," *Gazzetta del Popolo*, 1 May 1926.
10. "L'autostrada. La proposta di esecuzione di un primo tronco Torino–Biella," *La Stampa*, 6 July 1927.
11. See I. Besozzi, "L'autostrada Torino–Milano," *Torino* 9 (1929), 33–39. Of the total sum, 25 million would be the responsibility of local authorities, 25 million would come from private capital, around 50 million would come from the state, and the remaining sum of 50 million would be collected with bond subscriptions.
12. See "Una conferenza dell'Ing. Giay per la Torino–Biella–Milano," *Torino*, 1–2 (1928), 45.
13. See "Relazione Frola," 11.
14. Minutes of the board of directors of Saastm on 18 September 1929 in Archivio Astm, where the books containing the minutes of the board of the directors, managing committee, and shareholders' registry are held.
15. Copy of prefect's decree in Asct, fondo Lavori pubblici, cart. 608, f. 7 and fondo Servizi pubblici e industriali, cart. 142, f. 2.
16. Deed of 28 November 1928 from Dr. Annibale Germano of Turin, Rep. 16114/10701, in Archivio della Cciaa di Torino, fondo *Registro società*, cart. n. 483/1928, vol. 1.
17. See Giulio Sapelli, *Fascismo grande industria e sindacato* (Milano: Feltrinelli, 1975), 88, 89.
18. "Relazione Frola," 12.



19. Report from Giacomo Suardo to the Pcm dated December 1928, in Acs, Pcm, 1928–30, 7/1-2/2616, *Autostrada Torino–Trieste*.
20. Secondo Frola died on 4 March 1929 at the age of seventy-eight; see Gerhard Kuck, "Secondo Frola," in *Dizionario biografico degli italiani, volume 53* (Roma: Istituto della enciclopedia italiana, 1998).
21. Mario Abrate, "50mo anniversario dell'autostrada Torino–Milano," *L'informatore industriale*, 20 January 1983, 87–95.
22. Anonymous undated memo (but November/December 1928) "Sul finanziamento della autostrada Torino Milano," in Acs, Pcm, 1928–30, 7/1-2/2616, *Autostrada Torino–Trieste*. The memo reports a table of necessary contributions from banks and insurance companies, as follows:
 

Opera Pia di S. Paolo di Torino L.	500,000
Assicurazioni Generali Venezia L.	500,000
Assicurazione Adriatica L.	250,000
Banca Commerciale Italiana L.	1,500,000
Credito Italiano L.	1,500,000
Banca Nazionale di Credito L.	750,000
Banca Popolare di Novara L.	500,000
Cassa di Risparmio di Torino L.	1,000,000
Cassa di Risparmio di Milano L.	1,000,000
Opera Pia di S. Paolo di Torino L.	500,000
Assicurazioni Generali Venezia L.	500,000
Assicurazione Adriatica L.	250,000
23. Saastm board of directors' meeting minutes from 15 April 1929.
24. See the letter from the "Colonia Biellese di Torino" to the Turin *podestà*, in Asct, fondo *Serv. pubbl. e ind.*, cart. 142, f. 2 and the letter from the prefect of Biella to the same *podestà*, in Asct, fondo *Serv. pubbl. e ind.*, cart. 156, f. 2.
25. Letter from Giovanni Agnelli to the Pcm dated 14 November 1928, in Asf, fasc. 271, busta 8.
26. *Ibidem*.
27. Saastm board of directors' meeting minutes from 18 September 1929.
28. Letter from Giovanni Agnelli to the Pcm dated 4 July 1929, in Asf, fasc. 271, busta 8.
29. Telegram from Giovanni Agnelli to the Pcm dated 6 July 1929, in Acs, Pcm 1931–33, 7/1-2/4549, *Autostrada Torino–Milano*.
30. Telegram from the Pcm to the Turin prefect dated 13 July 1929, in Acs, Pcm 1931–33, 7/1-2/4549, *Autostrada Torino–Milano*.
31. See Decree 264 of 26 February 1930 (G.U. of 7 April 1930), converted into Law 95 of 6 January 1931. The conversion of the decree happened without any modification to the original text and was voted on in secret, without discussion, by the Chamber of Deputies on 4 December 1930 and by the Senate on 17 December 1930. In the Senate, of the 150 voters, 135 were in favor and 15 were against. In the Chamber, only one vote was against.
32. "Promemoria riservato" (confidential communication) sent by Engineer Cartesegna to the Turin *podestà* dated 8 August 1929, in Asct, fondo *Serv. pubbl. e ind.*, cart. 156, f. 2.
33. See minutes of the Saastm board of directors' meeting of 18 September 1929.
34. The members of the board of directors were Giovanni Agnelli, Edoardo Agnelli, Eugenio Asinari di Bernezzo, Giuseppe Broglia, Francesco Cartesegna, Carlo

- Cesareni, Silvio Ferracini, Tommaso Folia, Camillo Ghiglione, Giuseppe Gorla, Giovanni Malvezzi, Piero Puricelli, Oreste Rivetti, Curzio Suckert Malaparte, and Giovanni Vianino. Cesareni and Gorla (Milan vice-*podestà*) refused their nominations "due to previous engagements."
35. Even the catholic Oropa sanctuary, in Biella, was involved, with a subscription of fifty shares dated 30 September 1930.
  36. See minutes of the Saastm board of directors' meeting of 10 March 1930.
  37. The master plan was approved on 27 January 1930 for the first seven lots and on 27 January 1931 for the remaining six lots; see minutes of the Saastm general assembly of 31 March 1931.
  38. See "Il regime per la classe operaia. Una visita del Prefetto ai lavori dell'autostrada," *Gazzetta del Popolo*, 18 January 1930.
  39. See "Diagramma della manodopera impiegata nei lavori della Autostrada Torino-Milano," in *Asf*, fascicolo 271, busta 8.
  40. See Alberto Aquarone, *L'organizzazione dello Stato totalitario* (Torino: Einaudi, 1995; 1<sup>o</sup> ed. 1965), 542. See also Massimo Moraglio, "Disoccupazione e manifestazioni di piazza: opere pubbliche e politiche sociali nella Torino degli anni Trenta," *Mezzosecolo* 13 (2003), 163-180.
  41. This refers to the decrease by law in salaries and wages of November/December 1930.
  42. Minutes of the general assembly of members of Saastm of 31 March 1931.
  43. Da Rios and Rinelli, "Autostrada Torino-Milano," 109.
  44. Valerio Castronovo, *Giovanni Agnelli* (Torino: Einaudi, 1977), 384.
  45. Letter from the Minister of Public Works to the Pcm dated 5 May 1931 in *Acs*, Psm, 1931-33, 7/1-2/4549, *Autostrada Torino-Milano*.
  46. *Ibid.*, 110.
  47. The inscription said: "Regnando Vittorio Emanuele III, il Duce della Nuova Italia Benito Mussolini / Questa autostrada per il decennale del Regime volle, indicò ed inaugurò / 25 ottobre 1932-X." [In the reign of Vittorio Emanuele III, the Duce of the New Italy Benito Mussolini / This motorway commissioned, approved and inaugurated for the tenth anniversary of the Regime, / 25 October 1932-X.]
  48. IRI stands for Istituto per la Ricostruzione Industriale (Institute for Industrial Reconstruction), which was an Italian company established in 1933 by the Fascist regime to rescue, restructure, and finance banks and private companies that went bankrupt during the Great Depression.
  49. Minutes of the general assembly of members of Saastm of 31 March 1933.
  50. See the balance on 31 December 1938, attached to the minutes of the general assembly of members of Saastm of 31 March 1939.
  51. See the minutes of the general assembly of members of Saastm of 20 July 1935.
  52. See the minutes of the general assembly of members of Saastm of 31 March 1943 and 31 March 1944.

## CHAPTER 7



# The 1930s: The European Utopia and the Nationalist Fulfillment

## The Genoa–Serravalle “Truckway”: The Fight between Automobile and Train

The interruption of the motorway program in 1930 should not distract us from the fact that Italy was in a phase of favorable public policies for the development of motoring. The creation of AASS came in a context of a land transportation policy that aimed more decisively—but not yet in a unilateral way—at ordinary roads. During the 1930s, AASS developed an incisive portfolio of improvement of national roads, realizing long-hoped for works of renewal and dust elimination. Although nationally the results were still uneven, by 1938 around 70 to 80 percent of the state roads network in northern Italy and Sicily was now macadam protected by a surface of asphalt and bitumen. This percentage sank to 30 to 40 percent in the south.<sup>1</sup>

The activities of the central government were not only aimed at developing the roads network: the railways still played a relevant role, because of their effective importance for the transport of goods and passengers and in the imagery that fascist propaganda had created around trains.<sup>2</sup> However, road traffic was favored. “Thanks to the approval of various provisions aimed at facilitating the heavy-vehicle road transport of goods, the exceptional diffusion of trucks had begun, which between 1927 and 1928 reported an increase of 53 percent of products transported. The tonnage increased in 1928 to 42.8 million tons, and the following year to 55.9 million, and, despite the economic crisis, in 1933 it touched 101 million.”<sup>3</sup> The battle between the two systems of transport particularly intensified after the 1929 economic crisis.<sup>4</sup> The railways experienced a marked drop in their market quotas and their deficits were increased: the extent and uncontrollability of those financial troubles reached the political agenda.<sup>5</sup> To address the railway sector’s loss of competitiveness, the Italian government adopted a series of measures to protect rail transport: first, in June 1935, it instituted a compulsory concession system for the road transport of goods; subsequently, in

December of the same year, it introduced a tax on goods transported by trucks. These choices drastically reduced the number of trucks, which until that moment had skyrocketed, partly due to the lack of controls.<sup>6</sup> In other words, in Italy, “the system of land transport is characterized by two reasonably distinct periods: the first finished with the 1935 regulation of road transport of goods, in which the interests of the automobile industry had the upper hand over those of the railway lobby. The second finished at the declaration of war [1940] and was characterized by a division of roles aimed at a driven control of the market conditions for freight transport on roads.”<sup>7</sup> The construction of the Genoa–Serravalle heavy-vehicle motorway falls into this framework, confirming the bias in favor of road transport made in the first half of the 1930s. In February 1932, it was again Mussolini, who became an overnight transport expert, who decided unequivocally in favor of road transport and against rail. The evolution of traffic in the port of Genoa and the fear of an inadequate flow of goods toward the Padan plains led the Genoa port and industrial community to investigate opportunities for an additional railway line. This “direct” route would have meant a third axis passing the Apennines, assuring the future of the city. Mussolini—writing to the prefect of Genoa—instead directed them toward the construction of a “heavy-vehicle” motorway between Genoa and Milan.

In recent times, the *Giornale di Genova* newspaper published a series of articles on the direct Milan–Genoa rail line. Having reflected on the problem, I asked myself if it would not be better and more consonant with the times to build a direct heavy-vehicle motorway instead of a direct railway. It would cost the state less, offer a more rapid service, and carry the goods from the quay to the doors of the factories, or even more, to the doors of the factory warehouses. An important detail!

I don’t think that unitary cost of transport—effected with diesel trucks and with one, or occasionally two, trailers—would be higher than that of the railway. It would however be more rapid and convenient. The railway would remain for mass or less valuable goods. In your capacity as president of the provincial economic board [that is, the former Chamber of Commerce], deliberate on the problem. And report to me. Mussolini.<sup>8</sup>

The project was promptly adopted, abandoning the railway idea and opting for the construction of a new heavy-vehicle motorway. It is significant that the classification of the new road was not actually “motorway,” a term perhaps worn out by overuse and evident lack of success. The preferred new term was “*auto-camionabile*,” translating as something like “auto-truckway,” and then more simply “*camionabile*” or “truckway.” There was no lack of engineers, even serious ones, who described the project as not just a change of classification, but as a

passage to a new phase in the field of road mobility. They included Italo Vandone, who in the pages of TCI's journal *Le Strade* explained to his public that the motorway had been a kind of enormous playground for the sporting activities of rich vehicle owners, while now the "truckway" meant that industrial and commercial uses would dominate. "Here then, after the 'motorway' is the 'truckway,' a new and expressive word, which means a motorway in which the characteristics of a road for transport of goods in motor vehicles prevail, while in second place are those with what we may call sporting characteristics, that is, linked to the high speeds permitted by the modern motor car."<sup>9</sup>

Given the situation of the motorway sector and the lack of adequate motor vehicle traffic, it was obvious that the state would take on the care and expense of the project. So in April 1932, the government appointed a "consulting committee" to study the "truckable road" between Genoa, Turin, and Milan (in which, remarkably, Puricelli did not take part). By May, they had established the route of the tract between the port and the Po Valley, with the truckway abutting the Serravalle Scrivia, from where the forks toward Turin and Milan would begin. While the planning toward Milan did not create any sort of problems, the choice of route toward Turin was between two different options, each with different supporters behind it. In summarizing the meeting for the head of the government, the Genoa prefect listed the difficulties encountered. "All those assembled approve the first trunk of the Genoa–Serravalle for immediate execution . . . The Milanese representatives voted to construct the Serravalle–Milan trunk as fast as possible to Tortona [and] Voghera. Instead, the Turin representatives were not in agreement about the route, with the [Turin] *podestà* and federal secretary desiring Asti, with a direct route to Turin, while others wanted Alessandria [and] Chivasso. The Hon. minister postponed the discussion to develop further reports and comparisons on this point, involving just the Turin representatives."<sup>10</sup>

The Turin prefect Umberto Ricci, in evident cahoots with Fiat, had proposed in a memo in April 1932 that the Serravalle–Turin pass by Casale Monferrato and Chivasso, nominating the Turin–Milan motorway society to carry out studies for the project.<sup>11</sup> This option notably lengthened the artery, favoring the Fiat-controlled company. The prefect's proposal triggered reactions from the other actors in the picture, who unanimously expressed themselves in favor of the shorter tract passing by Asti and Alessandria.<sup>12</sup> This is not the place to deepen this theme, but it is interesting to note that several private groups attempted without hesitation to insinuate themselves afresh in the motorway sector the moment that even a small crack appeared. The role of the state, this

time not one of support but rather of full and exclusive presence in the construction, could guarantee secure resources that would not be subject to the unpredictability of private investment.

In any case, the truckway was limited to the 50 kilometers between Genoa and Serravalle: the new road was planned by personnel from the *Servizio nuove costruzioni ferroviarie* (new railway construction service), as would happen in 1933 for the German Nazi *Autobahn*, and its execution was entrusted to AASS, which elected to impose a toll.<sup>13</sup> The cost of the works, completed in 1935, was high, even considering the pass through the Apennine mountain chain, coming to around 210 million lire (about USD 240 million today), which means about 4 million (USD 4.2 million) a kilometer.<sup>14</sup> As stated above, the limited nature of available public resources exhausted the push for construction after just the Genoa–Serravalle trunk, postponing the remaining tracts, toward Milan and Turin, to an uncertain future, just as had happened for the Pedemontana. As with the other motorways, the truckway was a relatively isolated event in the regime’s transportation policies—from which we cannot exclude a propagandistic desire to convey the image of public works as anticyclical to the economic crisis and part of the fight against unemployment.

Anyway, even if the Genoa–Serravalle was expressly aimed at a prevalently commercial use, the traffic along the length of the truckway was not “as intense as had been predicted.” To artificially sustain the income, the circulation of heavy vehicles on the ordinary “Giovi” state road, which ran parallel to the truckway, was prohibited,<sup>15</sup> forcing trucks to use the motorway. However, the decision did not help remunerate the public capital invested in the works, which remained minimal, as many engineers had predicted since 1932.<sup>16</sup>

### The International Motorway Congresses of 1931 and 1932

Although the Genoa–Serravalle, like the other motorway projects during the 1920s, had a local, or at most, regional, nature, we nevertheless witness a change of pace in the early 1930s, in which the debate assumed a national or even continental scale.

Projects for a European network were not entirely new: as seen in chapter 3, as early as 1927 the unavoidable Puricelli had already drafted a “Probable map of future European motorway networks,”<sup>17</sup> perhaps one of the first outcomes of his involvement in German and French committees and a consequence of the 1926 PIARC meeting in Milan. In the late 1920s, the horizon of motorway planning and committees was still

national, though the second wave of Italian construction in 1928–1929, as well as the more assertive role of the committees, offered a great confidence to motorway proponents who were then able to scale up their proposals. Additionally, on the European level, the debate around the myriad of motorway projects was a problem that echoed the epic railways of the past, leading many stakeholders to fantasize about motor vehicle–only roads, in which touristic, commercial, and imperialistic purposes were entangled. An example can be seen in the proposal to construct a great international modern road across Europe from Calais to Constantinople, as proposed in 1930 to the annual assembly of the

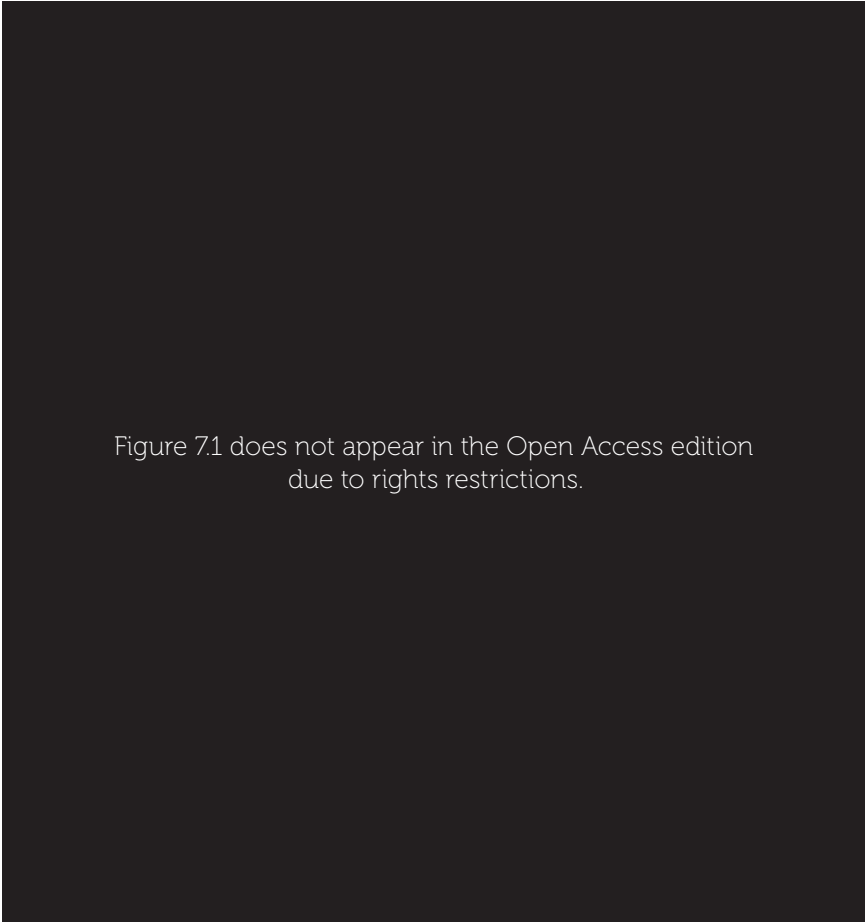


Figure 7.1 does not appear in the Open Access edition due to rights restrictions.

**Figure 7.1.** First “European” motorway network, drafted by Puricelli, 1927.

Piero Puricelli, “Che cos’è un’autostrada e dove occorre,” in *L’autostrada Bergamo–Milano* (Bergamo: Istituto italiano d’arti grafiche, 1927), 3–7. Courtesy of Autostrade per l’Italia S.p.A.

Alliance internationale de tourisme.<sup>18</sup> In 1932, the idea for a motorway from Calcutta to Cape Town followed,<sup>19</sup> as well as a "London to Bombay by road" in 1938.

An important role was played by the ephemeral European détente that followed the 1928 Kellogg–Briand Pact, and, more particularly, the speech by French foreign minister Aristide Briand on 5 September 1929 to the League of Nations: both unleashed ideas of transnational cooperation and of European networks in the field of transport energy, as well as megaprojects.<sup>20</sup> In 1931 the Committee for European Economic Cooperation established "a Committee of Enquiry on Questions relating to Public Works and National Technical Equipment,"<sup>21</sup> CEUE, and in cooperation with the International Labor Organization, ILO, desired the formulation of general plans for public works.<sup>22</sup> This program of action was interpreted by the roads lobby as a huge entrepreneurial opportunity, rich with symbolic repercussions, and is a topic that has fortunately been deeply researched in the past decade.<sup>23</sup>

ILO and CEUE initiatives immediately pushed Willy Hof, director of Hafraba, to contact the ILO's president, Albert Thomas, presenting his association's plan, followed by his French, Italian, and Swiss peers. This led, very soon after, to the creation of the *Bureau International des Auto Routes* (BIAR), later renamed the *Office International des Auto Routes* (OJAR).<sup>24</sup> With support from the ILO, the motorway association organized two international motorway congresses.

The first congress was held from 31 August to 2 September 1931, at the ILO headquarters in Geneva. During the meeting, a project for a European motorway network was proposed, limited to continental Europe, from Barcelona to Warsaw, excluding the Scandinavian and Balkan countries.<sup>25</sup> In particular, the technical commission approved an agenda outlining which of several tracts should be given precedence in the construction program (Frankfurt–Heidelberg; Frankfurt–Wiesbaden; Paris–Brussels, the stump of a future Rotterdam–Gibraltar; Calais–Paris; Evian-les-Bains–Geneva; and Bern–Thun).<sup>26</sup> With such a plan in mind, BIAR started its activities, chaired by the French industrialist Lucien Lainé.

The second BIAR/OJAR congress was held in Milan from 18 to 20 April 1932, due to the interest of Puricelli, honorary president of OJAR, and Suardo.<sup>27</sup> The 1932 congress was a smaller replica of the 1926 PIARC meeting, also held in Milan, and once more the participants had the opportunity to visit the Italian motorway construction and to "admire the marvels of Italian road construction."<sup>28</sup> At this second meeting, "though absent at the congress itself, Thomas once more was among its protagonists. His speech, read by his personal representative Joucla-Pelous, underlined that motorways would give new life to



international communications. They would also provide Europe with a new form of cooperation, and serve as an immediate remedy against the unemployment crisis."<sup>29</sup> There was the presentation of a new plan, vaster and more ambitious, which was most likely drafted by Puricelli—who was, more than presumably, the mastermind of the 1931 and 1932 plans. Actually, to confirm the dominant role of Puricelli, prior to the Milan congress, the Milanese entrepreneur had an informal meeting with Albert Thomas, president of the ILO, and presented in "preview" OIAR's grandiose scheme. Puricelli, well aware of the political relevance of those transnational plans, first asked for a meeting with Mussolini to define what position Italy would assume. "In a conversation held in these days, Albert Thomas discussed an international motorway project with me, showing me the proposal he wished to announce at the next congress in Milan, and fixing an appointment in Geneva for 2 April, to get information, news, and suggestions from me. The project, as it is sketched out, would have a particular importance also for our country. But I, before the said meeting, desire to present it to Your Excellency, to ensure my conduct is in line with those criteria that would please Your Excellency."<sup>30</sup>

The early death of Albert Thomas, in May 1932, just a few weeks after the Milan meeting, was a sign of future difficulties to come for the continental network. As European countries enclosed themselves more deeply in their respective nationalisms—economic and political—OIAR's work was certainly not made easier, and Hitler's rise to power was another blow. The new German government actually forbade the third congress from being held in Germany as planned,<sup>31</sup> causing the breakup of the nominally international (but more accurately European) motorway organization.

The brief episode of the CEUE and BIAR/OIAR can be interpreted as a failed attempt to construct a European space in the motor vehicle transport sector. The 1931 and 1932 motorway congresses were part of an isolated initiative, but they demonstrate the depth of feeling around the motorway theme, indicating the level of knowledge and shared sentiment in Europe among the road lobby representatives of different countries. Reusing suggestions and themes linked to the railways, they abandoned the local scale, typical of projects of the 1920s: instead they dreamed of a European dimension of motorway construction, entering a new phase in which the existing national experiences would be explicitly coordinated. The short and unsuccessful adventure of BIAR/OIAR shows the maturity reached by the motorway debate, and confirms Gij's Mom's statement that motorway building was an "example of a self-fulfilling prophecy."<sup>32</sup>

## A New Phase: The German Reichsautobahnen

The experience of the European motorway congresses was at the same time cause and effect of a new phase of motorway planning, by now uncoupled from local initiatives and increasingly aimed at a national and international dimension. The local and episodic character of construction proposals was abandoned, replaced by a firm centralization of transport sector decisions in the hands of the state—or its agencies—and the exclusion of private actors from the motorway sector. After 1929, motorway plans were also stained with colonial or imperialistic attitudes: new proposals on a continental scale were made,<sup>33</sup> and various people (engineers, geographers, entrepreneurs) proceeded to publish construction plans that covered Eurasia and Africa, with late colonial characteristics.<sup>34</sup> This is the case, among others, of Lainé's 1935 proposals for big European–African and European–Asiatic communication axes.<sup>35</sup>

The German example best represents this new phase, with several notable points of difference with the recent past, and above all with the Italian model of the 1920s. Germany had undergone a frenetic planning season in the 1920s: the Nazi regime used the preceding studies to launch an enormous program of works at a previously unthinkable pace. Between 1934 and the end of 1941, it constructed over 3,625 km of motorway, known as *Reichsautobahnen*.<sup>36</sup>

Such a massive construction program had a huge impact on German culture and heritage, and it has become an obligatory reference in any study regarding Nazi Germany. At a more detailed level, we can now count on a vast specific body of literature dealing with *Autobahnen*, culminating with the publication, in 1996, of Erhard Schütz and Eckhard Gruber's seminal *Mythos Reichautobahnen*<sup>37</sup> and eventually with Thomas Zeller's works.<sup>38</sup> The participation of Puricelli in enlivening and supporting the 1920s German initiatives is now clearly confirmed by the literature, as well as his well-known (failed) attempts to get involved in the Nazi construction programs after 1933.<sup>39</sup>

A comparison of the motorway achievements of the two dictators is a useful way to note the similarities and differences between the two models, and to understand the radical evolution of mobility policies that the German construction methods brought about. The political and propaganda uses employed by the two totalitarian systems appear at first glance to be similar. Going beyond military and occupational motivations—almost absent in Italy and controversial in the case of Germany<sup>40</sup>—the dictatorial regimes' interest in motorways was substantially based on the same ideological patterns, with common factors

of modernity and development that the two political systems made their own. So there were certainly coherent elements between the two models, but still the characteristics of the motorway systems were very different.

Let's start with a glance at the quantitative data. In 1935, the year in which the Genoa–Serravalle truckway was completed, Italy possessed barely 500 kilometers of motorway. Germany achieved a network of over 3,600 kilometers between 1934 and 1941. In addition, all the Italian motorways had just one carriageway for the two directions, with a width of 8 meters, in rare examples extended to 10 meters. In comparison, the German *Autobahnen* had two separated carriageways, each of which had two lanes, for a total of four lanes. This profound quantitative and qualitative difference was evident to contemporaries. In 1934, Italo Vandone described the German projects with ill-concealed envy, highlighting how Hitler's program contained elements of radical innovation.

We consider that the development of this network of great density reaches 6,500 kilometers. To make a comparison, Italy would need to have a network of 4,000 kilometers to have an equal density of motorway for its territorial surface. We see therefore how different the functional conception of the motorway is in the two countries.

Another highly relevant difference is in the different typology of the transverse section. Here it has become normal to have a carriageway of 8 meters flanked by two shoulders of 1 meter. Instead, the German motorways, we are told, have a much larger width, being composed of two distinct carriageways, each 7.5 meters wide, separated by a green zone of 5 meters width. This constitutes not just a reserve for the future, but also a defense against the danger of being dazzled by the bright lights of headlights. We are therefore clearly in the field of "superhighways" and on a scale that until now has not been foreseen even in the United States. By now the reality closely follows the most daring flights of fantasy and today our first motorways seem modest conceptions, though just ten years ago they seemed bravely futuristic.<sup>41</sup>

The German motorways therefore had technical and functional characteristics that were much more "advanced" than the Italian ones, which just ten years from their opening presented elements that were revealed as inadequate, if not archaic. The German achievements could also rely on a coordinated construction plan, while in Italy, the opening of the motorways had occurred on the basis of decisions made by private actors, following local interests untied to any unified plan. In Italy, the decisions regarding which routes to construct, the type of intervention, and the priority were almost the exclusive privilege of concessionaires. The concessionaires—following the model of the first phase

of railway construction—freely chose where to intervene and obtained state financial support, according to the modalities of the last half of the nineteenth century. The German motorway projects instead responded to a general plan, designed, put into action, and directly managed by state apparatuses, according to modalities and choices made by the state.<sup>42</sup> This did not mean that there were not lobbies actively favoring construction; they were already petitioning for the improvement of the network during the Weimar Republic.

If we look at the arrangement of the projects in Italy, with the exception of the short Genoa–Serravalle trunk, the last authorizations for construction were in 1930, that is, three or four years before the German projects got underway. Using the great economic crisis as a dividing line, the Italian motorway projects were mostly realized *before* the 1929 crisis made its effects felt in Europe, while in Germany, they were realized *after*. The fact that the two countries were so out of sync temporally opens a new field of reflection. The German construction programs became possible only after the Nazis came to power in 1933: in other words, the German motorways were strongly intertwined with the totalitarian experience. “The [German] dictatorship fashioned these roads into an icon of German power and economic strength and its resurgence after the calamities of the Depression.”<sup>43</sup> The *Reichsautobahnen*, at least as intended by the Nazi regime, were the proxemic and functional representation of the new and “autochthonous” relationship between nature and modernity—a never-before-seen dimension of technology, following a “German” path to modernity.

### **Adapting to the Times: From AASS Projects to the Rome–Berlin Motorway**

The construction block put in place in Italy in February 1930 was interpreted in a variety of ways: some saw it as a simple delay of the Pedemontana’s completion; others felt the temporary pause would prove to be indefinite. It is also true that the choice to interrupt motorway construction was clamorously contradicted by the decision to create the Genoa–Serravalle truckway and, symbolically, by the international motorway congresses, the second of which was even held in Italy. It was therefore very legitimate that in 1932, the view was to some extent optimistic, so much so that the roads magazine of the TCI still saw the future of the motorway through rose-colored glasses. “The current attitude of the government regarding construction of new motorways in Italy is a ‘time of pause.’ There are greater needs not just

for the state, but also for the local authorities and also for private investment. But the initiatives will start again when we are past this present depression and the world feels the need to bounce back from the long penance with a new passion for strenuous and distant objectives."<sup>44</sup>

After 1933, Italian plans for motorways were back on the table due to the effects of the choices being made in Germany. The German model pushed the Fascist regime to rethink its programs for reasons of prestige. Motorways could no longer be achieved by private companies, which were sharply abandoning the sector, but would be realized by the state. Fascist Italy was not the only nation to propose similar projects: also following the German example, in the second half of the 1930s, France and Holland began construction works on their first motorway trunks, while news of new projects in Denmark, Belgium, Poland, and Czechoslovakia filled the specialized journals.<sup>45</sup>

As for Italy, it was Giuseppe Pini—already the director general of AASS and president general of the High Council of the Ministry of Public Works—who recalled the events in his article, written after World War II, in a self-celebratory style. For Pini, the motorway had lost its reason to exist with the constitution of AASS, but he nonetheless felt that the interest in the German programs meant that taking up activities again was politically opportune. After 1928,

the renewal of roads with surfaces in bitumen, asphalt, and cement proceeded, above all due to the work of the AASS, . . . which, in short time, with specialized personnel and with a technique and organizational method that had no precedent in other countries, radically transformed the fundamental network of our roads in a way that made them responsive and efficient for motor vehicles. Therefore the need for motorways, after the construction of the first trunks, was not felt for several years, since the traffic itself had its contingent needs and characteristics met by an adequate roads system. This construction activity—of the first motorways—was accompanied by an intense movement in favor of motorways with proposals and projects from private and public bodies. This was increasingly demanded around 1934, after Germany's plan for a vast motorway network. To coordinate the various initiatives, the Ministry of Public Works appointed a commission, presided over by the author, to establish the main criteria draft for a master plan for Italian motorways; a commission that reached its conclusions in October 1934.<sup>46</sup>

The 1934 AASS plan, although it remained on paper, represented a turning point in Italian motorway policies. The constitution of the commission in the heart of the AASS, on the decision of the Ministry of Public Works, was in keeping with the duties of the public apparatuses, and reduced the viscosity and competition between them. Finally, and

perhaps most importantly for Italian motorway history, the 1934 plan made up the basis of the post–World War II motorway programs, compared to which it even seemed better devised.<sup>47</sup> The proposal covered a (massive) total amount of 6,850 kilometers of newly constructed motorway (curiously enough, the length of the existing 2017 Italian network), and was also attentive to the financial needs of the operation: “the extent of the costs and the notable development of the motorway network makes it necessary to distribute the construction over a long period of time: not less than a decade; and therefore we must establish a scale of urgency.” It was again Pini who noted that the commission evaluated the costs to be 13 billion lire at the time (about USD 15 billion today), dividing “the motorways into three groups: the first with a length of 3,360 kilometers and a cost of 6.7 billion [lire in 1934, i.e., USD 8 billion today] to be realized relatively rapidly. The second with a length of 2,670 kilometers and a cost of 4.8 billion [lire, i.e., USD 5.5 billion] to be executed on the completion of the first group of motorways. The third, with a length of 820 kilometers and a cost of 1.5 billion [lire, i.e., USD 1.8 billion], to be executed when and if the need for international connections arose.”<sup>48</sup>

From a technical point of view, the plan demonstrated a certain development. Initially, it envisioned a motorway of only 10.5 meters wide, identical to the motorways that had been realized in Italy up to that point. However, the motorway carriageways in Germany and the United States were much wider, and guaranteed a division into distinct carriageways for each direction, offering drivers two lanes in each direction. The AASS commission therefore thought it opportune, “without reaching the German level,” to fix the width at 16 meters, with two carriageways of 7 meters each, maintaining the single carriageway only for construction in the mountains.<sup>49</sup>

This adjustment to foreign standards implied a consequent increase in construction costs, with an increase of almost 6/7 billion lire (i.e., about USD 8.5 billion today). The AASS plan estimated a cost for the motorways of “initial realization” equal to almost 12 billion lire (USD 14 billion), an exorbitant sum if we consider that in the 1930s the average annual state budget for roads was around 650 million (circa USD 800 million today),<sup>50</sup> employed to guarantee the improvement of 20,000 kilometers of road. Even diluting the cost of the expenses over a decade, it came to over a billion per year, well beyond the range of the public finances—all for a project of dubious benefits, given that Italian motor vehicle traffic continued to be rather limited.<sup>51</sup>

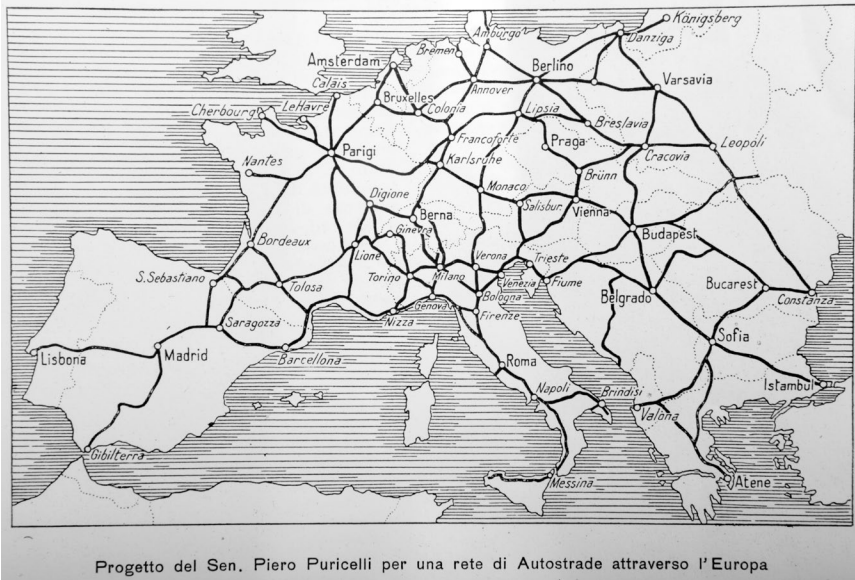
Puricelli did not appear among the planners of the 1934 scheme, but he understood the strength of the German motorway challenge and

the ambitions of prestige that drove the Fascist regime's reawakening of interest. He therefore prepared a motorway plan in his turn, or rather, he prepared two. An initial program considered Italy, with the aim to construct over 5,000 kilometers of motorway for a total cost—enormously underestimated—of 5 billion lire (USD 5.5 billion today). A second plan instead aimed at a European scale, and was, not coincidentally, published by the Milanese entrepreneur in Germany. The engineer Bruno Bolis, who pivoted post-World War II to adopt an antimotorway policy, recalled those events in an article in 1953, as well as the new motorway fever breaking out in Italy after 1933.

The motorway, created by our Puricelli and perfected by the Germans, was then—in the 1930s—at its zenith and that plan [to improve the roads] therefore, naturally, must be completely born from the base of the motorways. In 1934, on a map of the peninsula, they were tracing the great lines of new arteries that should be constructed to make the flows of the principal traffic currents simpler and in this way they added . . . a total of around 5,061 kilometers of motorway to the network at a cost of “roughly” 5 billion lire at the time. But in the course of events that plan was relegated to the dust of the archives and it was soon forgotten. In the same year of 1934, a grand motorway network, with a length of 37,176 kilometers, was planned by Puricelli for Europe and was published in the luxurious journal *Die Strasse* with the text in four languages (Puricelli wrote, in that text, “Motorway” with a capital m).<sup>52</sup>

The drafting of Puricelli's European motorway project in four languages had three motivations. First, the publication was most likely presented at the seventh international roads congress held in Munich in 1934, an unrepeatably chance to publicize the project. Second, the Munich congress could be the occasion to relaunch Puricelli's contacts with the Germans, given that the Nazis' rise to power had thrown the technical panorama into disorder and had reduced the influence of many of the engineers known to the Milanese entrepreneur, despite their prompt adherence to the new regime.<sup>53</sup> Finally, Puricelli had several meetings with Hitler, one in particular in 1934,<sup>54</sup> in which he probably proposed his European project and tried to guarantee himself entrepreneurial and political space.

The inflamed nationalism impeded every possible realization of the continental programs: meanwhile, the bellicose Italian foreign policy and the aggression in Ethiopia soaked up the public finances<sup>55</sup> and made Italian motorway plans unfeasible in both the short and medium terms. Again, Pini recalled how a series of difficulties and different reasons were placed in the way over the course of time. “The master plan of the motorways could not be achieved: the war with Ethiopia



**Figure 72.** Puricelli's 1934 European motorway network, as presented at the PIARC conference.

Piero Puricelli, "La rete autostradale europea," *Le strade 12* (1934), 732–733. Courtesy of Touring Club Italiano.

and the annexation of Albania absorbed huge financial means and caused the transfer of masses of motor vehicles, taking them out of national circulation. Then followed World War II, with the near abolition of private motor circulation.<sup>56</sup> Indeed "between 1935 and 1940 Italy spent 53 billion lire for the war and civilian building projects in Ethiopia," a sum that "reached over 10% of GNP in 1936, the year of greatest expenditure."<sup>57</sup>

Nonetheless, motorway projects were still proposed. During the third congress of Italian Engineers, held in Trieste in 1935, the theme of motorways was widely debated. Among others, the engineer Miani advanced the idea of having five truckways that would cross Europe from north to south, concentrating in particular on the Livorno–Brenner Pass axis.<sup>58</sup> In 1935 Puricelli was in Paris with Edoardo Agnelli (son of Giovanni, Fiat's owner) and Gino Olivetti to discuss a hypothetical motorway tunnel beneath Mont Blanc<sup>59</sup> in order to facilitate communication between France and Italy. An idea of a Rome–Paris motorway had already been advanced in 1929 by Louis Thomas, a correspondent for the journals *L'Illustration* and *L'Intransigeant* and not to be confused with the ILO director. The journalist had had a meeting with Giuriati,



then minister of public works, during which he proposed to have a road route "between Paris and Rome, a summer one toward Moncenisio [in the Alps] and one toward Ventimiglia [on the Mediterranean coastline] open the entire year."<sup>60</sup> Mussolini's explicit refusal to support the French proposal in 1929 and the worsening of the Italian relationship with France in 1936 caused both projects to fail. There was a new short season of initiatives—which also failed—proposing "the construction of a motorway to unite Rome with Paris and Berlin via the Simplon Pass, utilizing one of the two railway tunnels."<sup>61</sup>

With the waning political relationship with France, the idea of a motorway between Rome and Berlin was advanced, a research topic studied some decades ago by Lando Bortolotti. The Hafraba project in the 1920s had already envisioned an extension of the Hamburg–Frankfurt–Basle axis, with a pass through the Alps, extending to Genoa.<sup>62</sup> A 1934 German project imagined an Augsburg–Verona motorway through the Reschen pass, similar to an AASS project in the same year that planned a truckway through the Reschen Pass and a second through the Brenner Pass. In January 1937, the proposal of a Rome–Berlin motorway "axis" took form and became politically possible: it was once again Puricelli (whose company had meanwhile passed into the hands of the IRI, the government-owned industrial company founded after the 1929 crisis), who traveled between Berlin, Vienna, and Rome in an attempt to achieve the motorway's success, nominating his son Franco—also an engineer—to drive the planning of the project.<sup>63</sup> In March a memo for Mussolini was prepared, with a preliminary draft of the motorway, which Puricelli dreamed would be ready in time for the 1942 World's Fair, as he declared in a well-timed interview in *Il Popolo d'Italia*, the Mussolini-owned newspaper.<sup>64</sup> The theme of a motorway from Rome toward the north was also presented at the Littoriali della cultura e dell'arte (a fascist cultural and artistic event) in 1937, with an "engineering competition for a preliminary project for a Rome–Florence motorway."<sup>65</sup>

As already indicated by Bortolotti, the Rome–Berlin failed due to the diffidence of the Ministry of Public Works, the doubts of the military on the advantages of the project, and, after his initial openness, the absolute opposition of Mussolini,<sup>66</sup> made definitive by the Austrian *Anschluss*. The project was abandoned.

## Notes

1. See Mochi, "I trasporti," 245. However, the municipal and provincial road networks did not have additional resources; the local authorities actually saw a marked reduction of available funds. It is not surprising therefore that "the maintenance of the minor roads remained at sea and there was no lack of strong critics" regarding the scarce attention by the Ministry of Public Works. See Mochi, "I trasporti," 201.
2. See Maggi, *Le ferrovie*, 165 et seq.
3. Stefano Maggi, "La circolazione automobilistica in Italia: normative e istituzioni dall'Unità alla Repubblica," *Le carte e la storia* 2 (2002), 129–143, here 139.
4. For a wider scrutiny of the struggle and cooperation between rails and roads transport, see also Colin Divall and Ralf Roth, eds., *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency* (Surrey: Ashgate, 2015).
5. See Robert Millward, *Private and Public Enterprise in Europe*, 146 et seq.
6. See Mochi, "I trasporti," 253. For a European comparison, see Millward, *Private and Public Enterprise in Europe*, 161 et seq.
7. Mochi, "I trasporti," 217.
8. Copy of letter signed by the prime minister to the Genoa prefect dated 8 February 1932, in Acs, Pcm, 1934–36, 7/1-2/3215, *Autocamionabile Genova–Torino–Milano*.
9. Italo Vandone, "L' 'autocamionabile' Genova–Milano–Torino," *Le strade* 7 (1932), 177–194, here 177.
10. Telegram from the Genoa prefect to the Pcm dated 14 May 1932, in Acs, Pcm, 1934–36, 7/1-2/3215, *Autocamionabile Genova–Torino–Milano*.
11. Letter from the president of the Turin provincial economic board to the Ministry of Public Works, dated 19 April 1932, in Acs, Pcm, 1934–36, 7/1-2/3215, *Autocamionabile Genova–Torino–Milano*.
12. See Italo Vandone, "L' 'Autocamionabile' e le strade di Val Padana," *Le strade* 8 (1932), 209–219.
13. See Giovanni Da Rios and Savino Rinelli, "Autocamionabile Genova–Valle del Po," in *Autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 120–136, here 126.
14. *Ibid.*, 132.
15. See Vito Rocco, "La 'tassa' di pedaggio," 167. See also Giovanni Da Rios, "Le prime autostrade italiane," 18.
16. See Bruno Bolis and Giuseppe Chesi, *L'autocamionabile Genova–Milano. Monografia illustrativa. Contributo allo studio dei problemi tecnici ed economici con una prefazione del prof. C. I. Azimonti* (Milano: Libreria editrice politecnica, 1932), and Vandone, "L' 'autocamionabile' Genova–Milano–Torino," 193.
17. Piero Puricelli, "Che cos'è un'autostrada e dove occorre," in *L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927), 3–7, here 7.
18. For an insightful historical scrutiny, see Alexander Badenoch, "Touring between War and Peace: Imagining the 'Transcontinental Motorway', 1930–1950," *The Journal of Transport History* 28, no. 2 (2007), 192–210.
19. See Gijs Mom, "Roads without Rails," 761.
20. About the perception of large-scale public works in Europe in the 1930s see Patricia Clavin, *The Great Depression in Europe, 1929–1939* (Basingstoke: St. Martin's Press, 2000), 143 et seq.

21. Frank Schipper, *Driving Europe*, 99.
22. Denis Guérin, *Albert Thomas au BIT, 1920–1932: De l'internationalisme à l'Europe* (Geneva: Institut Européen de l'Université de Genève, 1996), 94.
23. See, among others, Frank Schipper's and Joah Schot's works.
24. See Schipper, *Driving Europe*, 103 and Mom, "Roads without Rails," 761–763. See also Bortolotti, "I congressi autostradali internazionali," 20.
25. See the minutes of the congress published in the journal *Storia urbana* 100 (2002) and, naturally, Schipper, *Driving Europe*, 103 et seq.
26. "Procès-verbal du Ier Congrès International des Autoroutes tenu à Genève dans les salles du Bit les 31 août, 1er et 2 septembre 1931," 3, copy kept in Agpto, 3-6583.
27. "On the proposal of the government Commissioner for motorways, the honorable Count Giacomo Suardo, his excellency the prime minister has agreed that the second international motorway congress, under the auspices of the International office of motorways headquartered in Geneva, will be held next April in Milan, at the same time as the international trade fair." See MR, "L'autostrada: problema internazionale."
28. Schipper, *Driving Europe*, 106.
29. Ibid.
30. Letter from Piero Puricelli to Benito Mussolini dated 23 March 1932, in Acs, Spd, Cr, busta 60, Piero Puricelli.
31. "The location of the next congress has been chosen as Frankfurt am Main." See "Il congresso delle autostrade," *Corriere della sera*, 21 April 1932.
32. Mom, "Roads without Rails," 750.
33. See, among others, Karl Krüger, *Motorizing Russia and Asia* (Berlin: Verlag der Neue Orient G.m.b.H., 1934); Piero Puricelli, "La rete autostradale europea," *Le strade* 12 (1934), 732–733; Kurt Gustav Kaftan, *Europa Braucht Autobahnen* (Berlin: Reichssportverlag, 1937). For the Italian debate, see PC Elischer, "Una strada intercontinentale dall'Europa all'India e all'Africa del Sud," *Le strade* 7 (1933), 201–203; Cesare Albertini, "Occorre una rete autostradale europea?," *Le strade* 9 (1937), 497–500; "Le strade del mondo," *Le strade* 2 (1939), 87–89; GD, "Il problema delle strade di grande comunicazione," *Le strade* 8 (1939), 425–428.
34. See Lando Bortolotti, "Italia, Europa e oltre: proposte e utopie autostradali al tramonto degli imperialismi e del colonialismo," *Storia urbana* 72 (1995), 133–162; FI, "Un progetto di 'Transafricana' in funzione 'Euroafricana,'" *Le strade* 8 (1941), 391–392.
35. Schipper, *Driving Europe*, 112. For post-World War II projects see Dirk van Laak, "Detours around Africa: The Connection between Developing Colonies and Integrating Europe," in *Materializing Europe Transnational Infrastructures and the Project of Europe*, ed. Alexander Badenoch and Andreas Fickers (Basingstoke: Palgrave Macmillan, 2010), 27–43.
36. See Zeller, *Driving Germany*. For an insightful summary of the historiography on German motorways, see Reiner Ruppmann, "The Development of the European Highway Network," 281–283.
37. Erhard Schütz and Eckhard Gruber, *Mythos Reichsautobahn. Bau und Inszenierung der "Straßen des Führers" 1933–1941* (Berlin: Ch. Links, 1996).
38. See Zeller, *Driving Germany*.
39. See Ruppmann, "The Development of the European Highway Network," and Lando Bortolotti, "Fra politica, propaganda e affari: l'autostrada Roma–Berlino 1927–1942," *Storia urbana* 81 (1997), 47–80.

40. See Thomas Zeller, "'The Landscape's Crown': Landscape, Perceptions, and Modernizing: Effects of the German Autobahn System, 1934–1941," in *Technologies of Landscape: From Reaping to Recycling*, ed. David Nye (Amherst: University of Massachusetts Press, 1999), 218–239; and Richard Vahrenkamp, "Planning and Constructing the Autobahn Network in Germany During the Nazi-Period: Styles and Strategies," in *Road History: Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchatel: Alphil, 2007), 87–98.
41. Italo Vandone, "Le autostrade della Germania," *Le strade 2* (1934), 80–84, here 84.
42. Direct state intervention meant that the German motorways, unlike the Italian ones, were not subject to tolls.
43. Zeller, "'The Landscape's Crown,'" 222.
44. Italo Vandone, "Autostrade internazionali," *Le Strade 4* (1932), 91–92, here 91–92.
45. See Gijs Mom, *Atlantic Automobilmism*, especially chapter 7. In this vein, focusing on Europe, Ruppmann suggested clustering those interbellum initiatives into two "categories: pioneers (Italy, Germany, The Netherlands) and followers (Austria, Belgium, Britannia, France, Luxemburg, Portugal, Spain, Switzerland)." Ruppmann, "The Development of the European Highway Network," 277.
46. Giuseppe Pini, "Piano regolatore delle autostrade italiane," 151–153.
47. See the appraisal of Lando Bortolotti in "Origine e primordi della rete autostradale in Italia, 1922–1933," 61.
48. Pini, "Piano regolatore delle autostrade italiane," 154.
49. See *ibid.*, 154–155. Pini's statements on the width of the roadbed should however be verified with further research, given that, for example, in 1938, that is, four years after the AASS plan, engineers like Polese considered a motorway of 12 meters to be oversized in Italy—see Arturo Polese, *Criteri costruttivi delle autostrade* (Napoli: Guf Mussolini, 1938), 27—and ANAS, after the war, constructed the Genoa–Savona with a single carriageway and a width of 10 meters; see Savino Rinelli, "A10 Genova–Ventimiglia," in *Le autostrade della seconda generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1990), 158–165, here 159.
50. See Istat, *Sommario di statistiche storiche dell'Italia*, 87.
51. In 1934 there were 316,582 motor vehicles in circulation, a figure that reached 391,121 in 1939, the historical peak of the period from 1922 to 1943; see Anfia, *Automobile in cifre*, 29.
52. Bolis, "I piani per il miglioramento della viabilità," 370. In truth, Bolis, like engineers who were contemporaries of Puricelli, also always wrote the word "motorway" beginning with a capital letter: see among others Bruno Bolis, "Le autostrade italiane dal 1924-II al 1939-XVII," *Le strade 11* (1939), 574–584, and 12 (1939), 614–623.
53. See Schütz and Gruber, *Mythos Reichsautobahn*.
54. See Bortolotti, "Fra politica, propaganda e affari," 61.
55. See Clavin, *The Great Depression in Europe*, emphasizing how the "years 1935 and 1936 also proved a watershed in Italy," 183, in which not even "a series of new, extraordinary taxes" were enough "to cover the considerable increase in government spending," 185.
56. Pini, "Piano regolatore delle autostrade italiane," 156.
57. Gian Luca Podestà, "Building the Empire: Public Works in Italian East Africa (1936–1941)," *Entreprises et histoire 70* (2013), 37–53, here 37.

58. See *Atti del III congresso nazionale degli ingegneri italiani* (Trieste: s.e, 1935), cited in Rinelli, "L'evoluzione della tecnica autostradale dall'anteguerra agli anni cinquanta," 3–4.
59. See Bortolotti, "Fra politica, propaganda e affari," 62.
60. Notes for the Psm dated 28 April 1929 (with attached text in French of the roads itinerary convention for Italy–France), in Acs, Pcm, 1928–30, 7/1-2/6491, *Itinerari stradali fra Roma e Parigi. Proposta*.
61. Letter from the Minister of Communications to the Minister for the Press and propaganda dated 20 August 1935, in Acs, Pcm, 1934–36, 7/1-2/4963, *Autostrada attraverso il Sempione*.
62. See Schütz and Gruber, *Mythos Reichsautobahn*, figure 1.
63. See Bortolotti, "Fra politica, propaganda e affari," 64 et seq.
64. See O. Gregorio, "L'autostrada Roma–Berlino," *Il popolo d'Italia*, 16 March 1937.
65. Polese, *Criteri costruttivi delle autostrade*, 6.
66. See the documents in Acs, Pcm, 1937–39, 7/1-2/4820, *Lavori stradali e ferroviari alla frontiera settentrionale*. In particular, the cover of the subfolder has the following indications: "n.b. For the royal decree law regarding the spending of 7 million lire [circa USD 7 million today] for the editing of the construction project of the Rome–Brenner Pass motorway (for which the Duce expressed his opposition) see the folder of Public Works (between the suspension of the session of April 1938–XVI)." However, research in the Acs did not result in further outcomes, due to the lack of the folder related to the planning and that used by Bortolotti for his research and indicated as Pcm, 1937–39, 7/1-2/2088, *Autostrada Roma–Berlino*.

## CHAPTER 8



# The Bankruptcy and Legacy of the Motorways

## The Bankruptcy of the Concessionaires

We have seen how the fundamental characteristics of the Italian motorway between the two wars were the inconsistency of the different initiatives and the weakness of any evaluation of the economic and functional opportunities of the projects. The financial plans that formed the basis for founding the limited companies for construction and management were drafted—perhaps with the exception of the Turin–Milan—in an amateurish way, when they were not intentionally distorted. The vehicle traffic and income linked to ancillary services (sale of fuel, oil, etc.) were optimistically estimated, as was the revenue for the advertising concessions. Conversely, the expenses of operation and maintenance were underestimated; the amortization figures were tenuous.

Francesco Aimone Jelmoni—who in the postwar period lionized Puricelli, as alluded to in the introduction—offers us a cross-section of the entrepreneurial improvisation that surrounded the Italian motorways. Regarding the Milan–Lakes, the rapidity of the negotiations conducted by the TCI and Puricelli to define the convention with the government prevented the participants from “establishing a company to properly and completely calculate the estimated financial balance, with the provision of a well-studied and well-meditated financial plan. We are not aware that anyone thought to do so, because in truth, no one spoke of it. Even Vandone [TCI representative], when he mentioned a ‘financial perspective,’ . . . judging it ‘seriously plausible,’ used the incorrect expression, because he dealt with, in reality, a simple estimation of construction expenses and not a real and proper financial plan.”<sup>1</sup>

The enthusiasm of the early days, the political connections, and the need for propagandist fuel guaranteed that approximate estimations, with little depth and excessive optimism, would continue. The raising of capital was long, troubled, and insufficient, and the management of the finished project was certainly not easy. Additionally, “there was a deficiency of the automobile fleet in the regions of Milan and the north-east. The ‘ingenious idea of roads for automobiles’ became a reality, but

too early. They undoubtedly constituted an excellent service offered to motoring: it was just that the service lacked users."<sup>2</sup> The income from ancillary services was also much less than had been written, rather carelessly, in the construction programs, making balance deficits so inevitable. The motorway companies in all the best-known cases—again with the exception of the Turin–Milan—lacked caution in their business, and in the case of the Florence–Sea witnessed the involvement of well-known gangsters in management.<sup>3</sup> Their contemporaries in the political system knew about this phenomenon: in 1931 the Ministry of Public Works alerted Mussolini to the fact that while inspecting “various companies operating motorways, notable deficiencies in their administration and bookkeeping have been observed.”<sup>4</sup>

In this already-troubled panorama, the effects of the 1929 crisis were a mortal blow for the concessionaires and more generally for the idea of the motorway. Motor traffic became more generally rare and the motorways, which charged a toll, saw a further contraction of use. The term “motorway” itself became overused, to such an extent that the Genoa–Serravalle, as mentioned, preferred to use the term “truckway.” In 1935, when engineers Barbieri and Simoncini proposed a new connection between Rome and Naples, they spoke of a “direct road,” rather than a motorway, even though there was no difference.<sup>5</sup>

Finally, in 1932, we should note Suardo’s resignation as commissioner of the Pedemontana, due to the evident impossibility of achieving the project scope. In a letter in April 1932, Suardo confirmed that the very low financial balance prevented the completion of the works, suggesting that the task of promoting and launching motorway programs would have found a better seat in the Ministry of Public Works.<sup>6</sup> The decree in which the resignation was accepted was more direct and more substantial, confirming that “the mandate has been absolved and, further, the construction of other trunks of the motorway indicated above have been postponed, beyond those approved and already constructed or in the course of construction.”<sup>7</sup>

With the Genoa–Serravalle truckway’s works in 1932, the first stage of motorway construction in Italy closed, but the problems of the concessionaires remained open. The accumulated deficits caused the companies to neglect the maintenance of the motorway; in the hope of creating an increase in income, the tolls remained high, leading to the only logical consequence of a further reduction in traffic. The financial deficits made the remuneration of the companies’ capital and the reimbursement of the state quota almost impossible, and soon the payment of bonds became difficult, causing problems for those local authorities that had acted as guarantors.

In few words, the house of cards of the motorway and its self-financing with tolls had collapsed upon itself, and the motives of propaganda and prestige had boomeranged back onto the government. The Fascist regime, in order to avoid financial scandals, found itself taking on the management of the motorways. Puricelli became aware of the paradoxical situation that had come about and played the “buyback” card for the Milan–Lakes, appealing directly, as was his habit, to Mussolini. Pressured by the parallel problems that his major company found itself in and by the rumors of a possible collapse, the Milanese entrepreneur did not deny the general situation of crisis, but stated that “these kinds of rumors try to base themselves on the outward appearance of the balance of my company that shows rather relevant debts, but these are until now the necessary fruit of a system of payment by the public authorities (state, provinces, municipalities) that, due to their extended form (annuities) and the procedure of payments, require, in relation to the mass of work executed, a high financial overdraft.”<sup>8</sup>

In an attempt to work out his problems, Puricelli complained that around 60 million lire (USD 65 million today) of his capital was immobilized in motorway shares and explicitly requested a government buyback. Mussolini’s answer is not found in the archives, but in February 1933 Puricelli wrote him a letter of thanks for the government decision to take on the Milan–Lakes: “Duce, the measures for the motorway bring a notable financial relief to the company that I preside over and to which I have linked my name. The assurance of the triennial program of work reassures me completely about tomorrow.”<sup>9</sup>

The effective passage to the state of the Milan–Lakes concessionaire was finalized in September 1933 and the motorway became the responsibility of AASS, which needed to conduct a “substantial reorganization, because the concessionaire company, completely depleted, had abandoned any type of maintenance work, both of the surface and of the road structures.”<sup>10</sup> It should also be noted that AASS demonstrated an entrepreneurial capacity superior to that of the private actors. In fact, AASS first invested significant resources in the improvement of the general conditions of the motorway and then reduced the tolls. In this way—aided by the more favorable motor vehicle traffic flows of the late 1930s—the average daily transit of vehicles rose to the record total of two thousand in 1938.<sup>11</sup>

As we will see, the problems of Puricelli’s company, far from being over, had only just begun. However, equally interesting is the way in which the buyback of the Milan–Lakes created a precedent that would be used a few years later by the other concessionaires. The government was in fact forced to buy the other concessionaires, consequently



managing three-quarters of the national network. In 1938, the Bergamo–Milan passed to the control of AASS: in eleven years of activity, it had never paid dividends, and it had not even been able to cover all its financial obligations, requiring the public guarantors to pay the bond interest. The traffic in 1938, around 730 vehicles per day on average, was totally insufficient to cover the management expenses. The traffic on the Bergamo–Brescia was even more limited: in a year like 1938, which was a “good” year for motor traffic, it was able to count just 540 vehicles per day, and also ended up in the hands of AASS.<sup>12</sup> The last in the series was the Florence–Sea. Not even this motorway, despite its significant length of over 90 kilometers, saw more than a thousand vehicles daily, and it had a balance in the red from the first operation. It underwent state buyback in the middle of the World War, in April 1941.

The progressive passage of the motorway network into the hands of the state could have become a moment to rethink the activity in the roads sector and formulate more systemic management methods. In the late 1930s, it was confirmed that the private actors were not able to manage the motorways at the time and that the state was the only actor on the scene able to guarantee operation; there was no lack of people who wanted to carry this process to its logical extreme. They wished for total public control of the motorways, and, once this was achieved, the abolition of tolls, which the AASS had continued after the buyback. In February of 1940, Bruno Bolis offered his interpretation of this proposal in the TCI’s journal, with supporting evidence showing that doing away with tolls would not undermine motoring taxation in any way.

The nationalization of the Italian motorway is going ahead, as it rightly should. A further step forward should, however, be taken, and in these pages we allow ourselves to hope for it, as soon as the general political and economic conditions have changed, the currents of international tourism are reinvigorated, and domestic motoring can reach greater dimensions. This further step is the abolition of tolls. In the face of the enormous fiscal proceeds coming from motor vehicles (around 2 billion lire annually [USD 1.5 billion today]), the tolls (around 20 million lire annually [USD 15 million]) represent a negligible pittance, but a pittance that has the effect of demoralizing those who collect it and hindering those who pay it.<sup>13</sup>

AASS’s balance problem was the decisive element in keeping the tolls and the decision to buy back the concessionaires only where the situation was completely out of control. Three motorways remained in private hands: the Padua–Venice, the Naples–Pompeii, and the Turin–Milan.

The Padua–Venice had modest traffic, never more than six hundred vehicles a day: “the briefness of the motorway—25 kilometers long—sheltered the operating society from overly serious deficits that could not be covered at a regional level.”<sup>14</sup> In other words, the constant intervention of the local authorities to pay off the deficits—which we can easily imagine was due to prefect and government pressure—prevented collapse.

The Naples–Pompeii also remained in private hands due to several favorable factors. The high tolls, double the already considerable ones of the Milan–Lakes, were compounded by the disastrous conditions of the ordinary roads, which guaranteed conditions of low traffic—never more than nine hundred vehicles a day, but with a high remuneration. The concessionaire also benefitted from particularly propitious conditions for the concession, unique in the Italian panorama.<sup>15</sup>

The third and last concession to remain in private hands was the Turin–Milan: in chapter 6 we outlined the entrepreneurial strategies and the creative accounting that allowed the company, firmly in the hands of Fiat, to benefit from solid overall management, even if it did not show a positive balance.

### **. . . and the Collapse of the Puricelli Empire**

In addition to the concessionaire societies of the Italian motorways, Piero Puricelli’s businesses were being dragged into a financial crisis and a vortex of deficits, which would place them into the hands of the IRI, their biggest creditor (Istituto per la Ricostruzione Industriale [Institute for Industrial Reconstruction], the government-owned industrial company founded after the 1929 crisis).

Puricelli, already the owner of an impressive family business, had benefited from wartime supply contracts during World War I, leading to a series of initiatives before and after the war that helped him assume an increasingly large role in the roads sector. In 1914 the family business became a limited company—with the foundation of *Puricelli strade e cave* (Puricelli limited company for roads and quarries). His business affairs with Giacomo Tedeschi allowed him, at the start of the 1920s, in agreement with the Banca Commerciale Italiana, “to proceed toward a horizontal extension of the group, via the constitution of individual companies for specific works.”<sup>16</sup> In 1927, to give his assets some coherence, and aiming to obtain a national concession for the ordinary roads renewal, he established the holding *Industrie riunite della strada Puricelli* (IRSP), which regrouped the companies that had been created, with

the exception of the limited company Puricelli roads and quarries.<sup>17</sup> The failure to be awarded the ordinary roads control made it necessary to review his moves, and to (dramatically) rethink his role in the Italian market. In March 1929, he was set on unifying all the Puricelli businesses, including Puricelli roads and quarries, into one large company, with control entirely in his hands, while Banca Commerciale left the business. In order to finance this new holding,

most of the shares of the new [Puricelli] company should have been distributed, and at higher prices, among the general public, through a dedicated syndication. The operation did not have a good outcome, as, just a bit later, the Italian market felt the effects of the New York stock market collapse. As Olindo Malagodi [a top-ranked IRI officer] wrote, significantly, on 6 May 1933 to the directors of Sofindit [the Società finanziaria industriale italiana, a financial company owned by the Italian state] "Puricelli represents the typical case of postwar inflated growth until the breakout of the crisis in autumn 1929. Inflation due to the development of the company, disproportionate to the rest of the country, and due to its financial constitution . . . As for the inflation of its financial structure, it was conceptualized and devised with the scope of immediate speculation in the over-the-counter market, which was crushed by the sudden crisis; so, in spring 1929, it was the result of a fusion of a group of companies each of which perhaps already suffered from inflationary excess, aggravated by the new company."<sup>18</sup>

This unbalanced situation ("inflation" in the words of Malagodi) was likewise an effect of Puricelli's careless attitude toward management and reckless business behaviors, but there were also more structural issues, namely, the particular mode of payment of the works by the public authorities, which were annual payments extended over decades. This diluted form of payment, in theory "could have been discounted and been circulated (as cash) for the life of the company."<sup>19</sup> Puricelli found himself with a huge quantity of annual credits to resell to the bank system, but in a financial market that was not interested in the operation, or that put a high cost on it. Those extra costs created a long-lasting financial imbalance, and thus lack of cash, which the company responded to with short-term banking loans with naturally high interest rates, thus necessitating more loans. Once trapped in the spiral, Puricelli had the (incongruous) hope of covering the balance deficits with the assumption of additional public works; the latter, also naturally being paid in deferred annuities, did nothing but hasten the collapse.

It is not surprising then that in 1932, the Puricelli company had an impressive debt of almost 400 million (more or less the same in

USD today) exactly at the moment the 1929 crisis changed the Italian financial landscape. The subsequent reorganization of the bank and industrial systems forced Banca Commerciale to hand over its credits in Puricelli's favor to the IRI in 1933. Puricelli (who in the face of the failure of his company had an unconcerned attitude, coupled with unconfined optimism) again believed the solution could be a new loan, in addition to the buyback of the Bergamo–Milan motorway. The bank system did not intervene, partly because the company belonging to "Puricelli now seemed like a summary of the errors of mixed banking: chronic financial weakness, a distortion of the financial dealings, insufficient circulating capital, significant managerial disorganization."<sup>20</sup>

An initial depreciation of equity in 1934 was not sufficient. Meanwhile, Puricelli and Beneduce, president of the IRI, engaged in figurative arm wrestling. The final result favored the latter, who proposed that the ownership and the management of the society should pass from Puricelli to the IRI, leaving the Milanese entrepreneur as president, but without power; he achieved this in 1935. Puricelli nonetheless managed to net himself an astonishingly high golden handshake of 42 million (again equivalent to USD today) and the right to a future buyback. According to the reconstruction of events proposed by De Ianni, the entrance of the IRI does not follow from the logic of "socializing the losses and privatizing the profits," as in Bortolotti's interpretation.<sup>21</sup> Rather, within a few years, and surely by 1940, Puricelli's company had been taken from the restless (and amateurish) hands of its founder and strengthened by the support of the IRI, had achieved a strong reduction of debts, and had shown itself to be a good investment for the institute guided by Beneduce. This was also the consequence of the massive investments in road construction committed in Ethiopia and Somalia by the Italian government, as Puricelli's (former) enterprises were the main contractors for that colossal business.<sup>22</sup>

For his part, in March 1940, Puricelli, caught between new debts of every origin and kind (above all personal), was able (perhaps thanks to Mussolini's intervention) to gain another out-of-scale 25 million (about USD 20 million today) as compensation for renouncing his buyback option, which was by now completely hypothetical.<sup>23</sup> The Milanese entrepreneur at this point also ceded the presidency of the society, which in August of the same year changed its name to Italstrade. In abandoning the society, Puricelli prepared a memo on his past activities and sent it in April 1940 to Donato Menichella, director general of the IRI, and then to Mussolini in May of the same year, claiming the worth of his entrepreneurial activities.<sup>24</sup> However, as we shall see in the next section, this was not his last intervention in the roads sector.

## The “Victorious” Postwar Programs

The Rome–Berlin motorway had by now been shelved on the precise indications of Mussolini, but between 1939 and 1942, up to the eve of the Fascist regime’s collapse, Italy continued to discuss and plan motorways. In spring 1939, the ministry of public works sent the prime minister a program of works for AASS planned for the decade from 1938 to 1948, to be carried out with total financing of a billion lire (about USD 800 million today). The program entailed 2,000 kilometers of provincial roads to pass to the state, and dust elimination on 3,000 kilometers of state roads. It also included a motorway program, which had little connection to the 1934 AASS scheme and was focused entirely on northern Italy. In this new program, the ministry proposed prioritizing the Piacenza–Rimini motorway, 256 kilometers in length, for a cost of around 500 million. The Pedemontana would be completed in a second phase and only along the section from Venice to Trieste; a third phase included the construction of the Milan–Piacenza and eventually, in a fourth phase, the Rimini–Venice.<sup>25</sup>

But the next year, AASS established a new “survey office, which, for several of the future motorways, implemented a site inspection, to create preliminary drafts of projects and also some master plans.”<sup>26</sup> The planning suddenly took new directions, and according to AASS director Giuseppe Pini, the 1940 scheme involved the following motorways:

- Savona–Genoa: aero-photogrammetric survey and master plan;
- Genoa–Spezia: site inspection and preliminary draft;
- Pisa–Livorno: master plan;
- Rome–Bologna: preliminary draft for the Rome–Viterbo tract; master plan for the Viterbo–Siena tract; aero-photogrammetric survey for the Siena–Florence tract; site inspection and preliminary draft between Florence and Bologna;
- Rome–Naples: preliminary draft project;
- Naples–Bari: master plan between Naples and Nocera and between Bari and Rocchetta S. Antonio; preliminary draft plan in the intermediary tract.<sup>27</sup>

The list shows how the projects were concentrated, if confusedly, around central and southern Italy, assigning Rome the role of a central node, perhaps in the frenzy of excitement about the Rome 1942 World’s Fair, held to celebrate the twenty-year anniversary of the seizure of power by Mussolini. The idea of a motorway axis from Naples to Bologna, which would pass through the capital, was part of this last-

minute scheme. It goes without saying that the state's authority in the motorway field was by now past discussion, both because of the centralization of functions, even more evident during the World War, and because there were no longer private bodies interested in financing new construction. The logical consequence was a proposal—resurfacing in 1942—from the Ministry of Public Works to create a “state-controlled agency for the study and creation of a motorway network.” Mussolini himself was an adherent of the idea, but he postponed any decision until the end of the conflict. Meanwhile Puricelli—who evidently was still active in the roads sector, or at least had ambitions—wrote a letter to the prime minister suggesting the immediate constitution of such an entity so that the studies could be conducted immediately and used to combat unemployment at the end of the war.<sup>28</sup>

The political motives were accentuated, before the war, by the overtly imperialist implications. This was the case of the network of trans-African roads presented in 1938 and revisited in 1942 among the Italian colonial milieu.<sup>29</sup> But even the Venice–Trieste motorway, to limit ourselves to Europe, had expansionist elements. Back in 1928, the limited company Autovie had been established in Trieste with the aim of promoting the construction of the Venice–Trieste trunk, with an extension to Fiume, in Istria, within the Pedemontana project. Despite the end of motorway activities during the 1930s, Autovie not only remained alive, though without finding financial resources, but it also demonstrated an irresistible activism. In 1933, while all the Italian motorway programs were being postponed to better times, Autovie prepared a memo in which the Pedemontana was rebaptized “Via Mussolinia” with a route that led to the imperial borders of the “Augustian Regions of Italy.”<sup>30</sup> The request to present the project personally to the head of the government was rejected, while the prime minister wearily sent the plan to the Ministry of Public Works. In March 1935, there was more news about Autovie, which was able to reach the TCI's journal and published a brief article on the “progress” of the Venice–Trieste planning, which had “by now completed its master plan for the project.”<sup>31</sup> A few years later, as reported in another memo from the Ministry of Public Works, the restless Autovie went beyond the simple scheme of the Venice–Trieste leg, and, making a fool of itself, suggested self-appointing the (inactive) Trieste company as a “national entity for motorways.” In a confusing and slapdash list, Autovie suggested a multiyear plan, to be carried out with public resources.<sup>32</sup>

The plan was proposed again, without outcome, in 1940 and 1941. Unshakeable, the directors of the Trieste company returned to the charge in February 1942, explicitly advancing the Venice–Trieste motor-

way as a potential instrument of military, political, and commercial penetration in eastern Europe and the Balkans. The Venice–Trieste would be a trampoline to launch the greater influence of “imperial” Italy, above all toward Croatia and Hungary, countries to which subsequent branches of the network would be directed. The example was the German *Autobahnen*, which were regarded with admiration and reverential awe. “The development that is now happening in Germany to construct great motorways, with flows toward the various frontiers, toward their own ports and to foreign ones, has already led to the planning, and in several cases the start of works, of new arteries, in Denmark, in Holland, in Belgium, and in France, for an outlet to the sea, connecting with the networks of the Reich.”<sup>33</sup> In other words, Italy must not be cut out of the new channels of traffic. With this aim “the memo is finished with a diagram of the German, Danish, Dutch, Belgian, and French motorways; as well as with a sketch of the Italian ones, which must first be constructed, with the objective of participating in the major European traffic, after this war.”<sup>34</sup>

### **“Better Living through Better Roads”: The Motorways of the Economic Miracle**

World War II and the end of fascism dissolved the fanciful motorway projects under discussion at the start of the conflict, and the proposal of a national entity vanished from the scene. The Italian motorways remained as they were built in the 1920s and the early 1930s. Due to the heavy destruction experienced, in the immediate postwar period Italy found itself with a collapsed railway system: in 1949, for the first time, the volume of goods being transported by motor vehicle was more than that by rail, thanks in part to the numerous trucks abandoned in Italy by the Anglo-Americans as war remnants.<sup>35</sup> From then on, the politics of national transport was oriented decisively toward making the roads adequate—and particularly to the construction of motorways—even at the expense of other forms of transport.<sup>36</sup>

After World War II, the construction of the motorway network did not go through many of the difficulties that had characterized the tormented life of the projects between the two wars.<sup>37</sup> The contemporary development of mass motorization, the pervasiveness of the model of motorized mobility, and its extraordinary successes were elements that were more than enough to guarantee the success of the national motorway plan, approved by the Italian parliament in 1955 and 1961. This new cycle saw a partial change of the personnel

involved, associated with elements of continuity of management and planning models. The choice—made before the war—to maintain the tolls and, later on, to leave just a few private concessionaires, had many consequences in the second postwar period. The post–World War II motorways were constructed, as in the fascist period, on the basis of agreements between state and private companies: some of these companies, above all in the north, were made up of local authorities, while others were made up of industrial groups, such as Fiat. A large part of the motorway works—including the *Autostrada del Sole* (Motorway of the Sun)—were realized by IRI. The choice of IRI was not coincidental, as it allowed public control of the operation, but it assigned the management to a private company, *Autostrade*, founded for this purpose; the IRI, as will be remembered, was already the owner of *Italstrade*, born from Puricelli roads and quarries, which constituted the perfect planning and managerial center for the work.<sup>38</sup> The IRI finally also controlled part of the national iron and steel industry. Together with Fiat, Agip (another national public company, for hydrocarbon), Pirelli (rubber), and the cement groups, it made up a powerful lobby aimed at creating motorways, with all participants benefitting in different ways.

This implementation system obtained excellent performance: the Italian motorway network went from less than 500 kilometers in 1939 to 1,300 in 1961 (the year in which a second motorway plan was approved), and then to 4,300 kilometers in 1971 and finally to 5,900 kilometers in 1980.<sup>39</sup> In parallel to this construction program, the equally impressive process of mass motorization occurred, with particular development between 1958 and 1973. It is a given that there was a close understanding between the political powers and the economic ones, but such a decisive and intense motorway program can also be read in the light of other factors. In particular, the construction of the motorway assumed, in the larger framework of economic development, a key role. It was favored over other infrastructural sectors because it was considered an irreplaceable element of economic takeoff. This development was supported by the industrial production in the automobile sector, which was diffusing new models and new styles of life, and above all introducing, in a country with such an atavistic hunger for material goods, the idea of consumption, of travel—of which the automobile was the best example for everyone, in an almost totemic way.<sup>40</sup>

The country's exit from poverty was in the name of individual mobility, with drastically modified isochrones, temporal distances, and the shortened geography of the new roads: the motorway, more than favoring communication, created it.<sup>41</sup> Ultimately, the ambition to possess cars and the desire for movement was not "the result of a plot manipulated



by capitalists” as much as it was a “pursuit of cultural models and lifestyles widely aspired to.”<sup>42</sup> These, in their turn, were an effect of the popularization of the automobile, which extended through the rest of the twentieth century.

## Notes

1. Francesco Aimone Jelmoni, “Piero Puricelli,” 20–23, 22.
2. *Ibid.*, 23.
3. See Bortolotti and De Luca, *Fascismo e autostrade*, 164.
4. Letter from the Minister for Public Works to the Pcm, dated 3 December 1931, in Acs, Pcm, 1931–33, 7/1-2/4549, *Autostrada Torino–Milano*.
5. See Acs, Pcm, 1934–36, 7/1-2/3587, *Costruzione di una strada direttissima Roma–Littoria–Napoli (Progetto di massima degli ing. Dario Barbieri e ing. Federico Simoncini)*. See also “Per una direttissima stradale Roma–Littoria–Napoli,” *Le vie d’Italia* 9 (1935).
6. See the letter from Giacomo Suardo to the Pcm dated April 1932, with an attachment of a “Scheme of legislative provision regarding the construction and operation of the motorway,” in Acs, Pcm, 1931–33, 7/1-2/5043, *Autostrade–Commissariato governativo per le Autostrade*.
7. Decree of 21 June 1933 from the Prime Minister.
8. Account by Piero Puricelli dated 2 March 1932, in Acs, Spd, Cr, busta 60, *Piero Puricelli*.
9. Letter from Piero Puricelli to Benito Mussolini dated 16 February 1933, in Acs, Spd, Cr, busta 60, *Piero Puricelli*.
10. Da Rios and Rinelli, “Autostrada Milano–Laghi,” 53.
11. See *ibid.*, 53–55, and Mattia, “La costruzione dell’autostrada Milano–Laghi,” 196–197. See also Rocco, “La ‘tassa’ di pedaggio,” 167 and table 3 bis of Rocco’s article.
12. See Giovanni Da Rios and Savino Rinelli, “Autostrada Bergamo–Milano,” in *Le autostrade della prima generazione*, 56–65, here 65; Da Rios and Rinelli, “Autostrada Brescia–Bergamo,” in *Le autostrade della prima generazione*, 80–86, here 86.
13. Bruno Bolis, “Il passaggio allo Stato dell’autostrada Firenze–Mare,” *Le Strade* 2 (1940), 77.
14. See Da Rios and Rinelli, “Autostrada Venezia–Padova,” 119.
15. Da Rios and Rinelli, “Autostrada Napoli–Pompei,” 71.
16. De Ianni, “Vecchi e nuovi documenti sullo ‘Stato industriale,’” 295.
17. The Industrie riunite della strada Puricelli had capital of 55 million, with 50.4 percent in the hands of Puricelli and the remaining with Comit; see De Ianni, “Vecchi e nuovi documenti,” 295, and Annabella Galleni, “Strade, autostrade e fascismo,” 67.
18. Galleni, “Strade, autostrade e fascismo,” 70.
19. De Ianni, “Vecchi e nuovi documenti,” 297.
20. *Ibid.*, 301.
21. *Ibid.*, 292.
22. See Podestà, “Building the Empire, 37–53.

23. See the documents in Acs, Iri, numerazione rossa, busta 527.
24. See Galleni, "Strade, autostrade e fascismo," 51 et seq. The report sent to Menichella can be found in Acs, Iri, numerazione rossa, busta 527; the one sent to Mussolini is in Acs, Spd, Cr, busta 60.
25. See the letter from the Minister of Public Works to the Pcm, dated 8 March 1939, in Acs, Pcm, 1937–39, 7/1-2/6695, *Azienda autonoma statale della Strada—Piano di finanziamento per l'esecuzione delle opere del programma tecnico da attuarsi nel 2° decennio*.
26. Giuseppe Pini, "Piano regolatore delle autostrade italiane," 156.
27. Ibid. Part of the planning work was entrusted to the Italstrade company, still Puricelli: see Lucillo Ornati, "Lo 'Studio Tecnico Puricelli', l'Italstrade e la SPEA," in *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 170–177, here 176.
28. See the letter from Piero Puricelli to Benito Mussolini dated 26 May 1942, in Acs, Spd, Cr, busta 60, *Piero Puricelli*.
29. See Bortolotti, "Italia, Europa e oltre," 160, 161.
30. Letter from the president of the Autovie venete to the Pcm dated 19 October 1933 (with attached memo), in Acs, Pcm, 1931–33, 7/1-2/11548, *Autostrada Trieste Venezia*.
31. "Il progetto per l'autostrada Venezia–Trieste," *Le vie d'Italia* 3 (1935).
32. In a memo from the director general of AASS to the Minister of Public Works, dated 18 February 1942 (Acs, Spd, Co, 10792, *Autostrada Pedeaipina–Veneto*), AASS bureaucratically reported how "in November 1939–XVIII the limited company Autovie proposed the establishment of an entity for the planning and operation of 1,200 km of motorway, including the Brescia–Padua and Mestre–Trieste trunks, which would complete the Turin–Trieste motorway itinerary; the Monfalcone–Trieste fork; the Monfalcone–Tarvisio fork; the extension of the Genoa–Valle del Po truckway to Milan and the Naples–Rome–Brenner Pass." In a note from the Duce dated 20 February 1940–XVIII, the lack of benefits of creating a motorway entity were presented.
33. Letter from the Società Autovie Venete to PCM dated 10 February 1942, in Acs, Spd, Co, 10792, *Autostrada Pedeaipina–Veneto*.
34. Ibidem.
35. Trucks in circulation in Italy went from around 72,000 in 1942 to 136,000 in 1946 and to 185,000 in 1947; see Anfia, *Automobile in cifre*, 29. See also Gianfranco Pala and Maurizio Pala, "Lo sviluppo dei trasporti," in *Lo sviluppo economico in Italia. Storia dell'economia italiana negli ultimi cento anni* (Milano: Franco Angeli, 1969), 345–387.
36. See Maggi, *Storia dei trasporti in Italia*, 121 et seq.
37. On Italian motorways post–World War II, see Lando Bortolotti, "Viabilità e sistemi infrastrutturali," 289–368; *Le autostrade della seconda generazione*; see also Enrico Menduni, *L'autostrada del Sole*.
38. On the role of IRI, there is partial but interesting data in Fedele Cova, *La rete autostradale Iri* (Roma: Firema, 1963) and Fedele Cova, *Autostrade e altri episodi di vita vissuta* (Milano: Domus, 1983). The 1955 motorway plan envisioned a first public ten-year investment of 100 billion lire (USD 1.5 billion today), divided over ten years; see Vito Rocco, "La legislazione autostradale italiana dal '55 al '75," in *Autostrade della seconda generazione*, 28–35.

39. See Albert Carreras and Elena Cefis, eds., *The Development of the Italian Highway Network 1924–1993: A Computerized Atlas* (Badia Fiesolana: European University Institute, 1996).
40. On automobile culture in Italy after World War II, see the works of Federico Paolini, *Un paese a quattro ruote e Storia sociale dell'automobile in Italia*.
41. See Menduni, *L'autostrada del Sole*, chapter 6.
42. Paolo Capuzzo, "La conquista della mobilità. Contributo ad una storia sociale dei trasporti urbani in Europa (1870–1940)," *Ricerche storiche* 3 (2000), 621–639, here 639.

# Conclusion



## Enlarging the Spectrum: Italy, Europe, and the United States

Looking at the 1920s Italian motorway programs in a broader picture, we can see how they were envisioned as part of a paradigmatic shift. As seen in the wider debate, better shaped in the past two decades, and very recently addressed under the label of “Atlantic automobilism,”<sup>1</sup> motor vehicles in 1920s Italy were no longer seen as rich people’s toys, but as daily devices. While the motorway’s value was embedded in a vision of efficiency and speed, it crucially positioned the masses as a part of automobilism. 1920s motorway users probably still played around with (and dreamed about) motor vehicles, but in Puricelli’s vision, motorways did not have direct pleasure purposes, and surely were not speed test circuits. His artifact was intended for the Italian middle class, even encompassing the highest earners of the working class. This approach was even more relevant in the turbulent years after World War I, in which social unrest pressured the European ruling classes to create new forms of political control and forge innovative compromises.<sup>2</sup> Motor vehicles fit those needs, both in terms of their claimed efficiency for the economy and their political significance. More or less openly, Puricelli saw driving a car and using the motorway as having a wider relevance, offering drivers comfortable travel, a better life, and a status symbol. In other words, those blessed enough to own a motor vehicle could climb a rung on the social ladder.

In this respect, as we have seen in the introduction, Puricelli’s vision was part of a larger, global process, in which, to use Gijs Mom’s words, “Atlantic automobilism” was shifting from a stage of *emergence* to one of *persistence*. Despite the global nature of the process, the democratization (or massification if we want to use another term) of the motor vehicle had a precocious and massive development in the United States, while Europe had a thirty-to-forty-year lag, arriving at mass motorization in the 1960s. This has led to the definition of a sort of American exceptionalism also in the transport field.<sup>3</sup> However, the Europeans saw the United States as the model to copy, both at an expert and popular

level,<sup>4</sup> giving full right of way to a diffusionist model.<sup>5</sup> For decades, this approach locked historiography into (obsessively) focusing on the European “delay” and on the European difficulties in matching the model, a model that was taken for granted as the only way to achieve true transport modernity.

Following the more recent debate, we should indeed temper the monolithic concept of a one-way technological transfer, that of *adoption*, and move toward the concept of perennial reinvention of technologies (and their uses) according to local, regional, or national tastes, needs, and attitudes. This is even more evident once we frame large sociotechnical systems, which do not have linear developments according to an ideal type, but are bent to (social and cultural) regional characteristics, exactly because those are the key factors in “producing” real technologies in the real world.<sup>6</sup>

It is within this framework that I have addressed the 1920s Italian *autostrade* projects, precisely because their conception and implementation challenge the concept of technology as a universal unchanged feature and push us to address how producers, users, and regional attitudes shape, reshape, and twist artifacts, even against the “original” model (if the latter—as such—really existed). In other words, how much were 1920s Italian motorways entangled with the United States model of mass motorization? Did Puricelli and his fervent followers, including Nazi engineers, regard the United States as an example? Was there a different European homemade trajectory that addressed the same quest in an original way? To what extent were the 1920s Italian motorways an original program? This question is important beyond reasons of pure historical scrutiny, because it opens additional lines of investigation.

First, it requires a critical assessment of the traditional concept of Europe lagging behind the United States in accommodating motor vehicles and favoring mass motorization (and therefore, in an escalation self-evident for contemporaries, lagging behind in terms of innovation and modernity).

Second, we should be aware of the chauvinist use of the motorway concept made by the Italian government and, in a broader perspective, by thousands of European experts. The invention of the motorways was, contradictorily enough, both a way of developing an (Italian and European) indigenous model of modernization and a way of dealing with the American model as an emerging global power (thus aiming to preserve European international primacy).

Third, Europe and European are overly vague concepts, even less manageable in the fateful interbellum years. If the Italian motorways caused a European fever, and very precocious drafts of European

networks were planned, that does not mean in itself that we can speak of truly European initiatives. In other words, I believe those attempts at a European network must be framed as a patchwork of national initiatives, merely assembled for very special occasions. Actually, the late 1930s and early 1940s European plans, usually overlooked by the historiography, clearly show the lack of any European aim beyond that of the Nazi and fascist desire for domination.

### Which Models?

The main surprise for Italian experts visiting the United States after World War I was seeing how motor vehicles were colonizing every space, both public and private. In his 1919 travel report, Fiat engineer Bernardino Maraini, a man well accustomed to cars, noted with surprise and astonishment that “the foreign visitor sees motor vehicles everywhere, in the streets, in the square, in the courtyard, in the countryside.”<sup>7</sup> Likewise, a few years later, Italian experts were surprised by how horse-drawn carts simply disappeared from the urban North American traffic landscape.<sup>8</sup>

To what extent was the United States a model for Puricelli and his motorways? His relationship with the United States can be traced to before World War I, according to Annabella Galleni’s research, when the Milanese entrepreneur visited the United States and England to study road construction machinery and procedures.<sup>9</sup> Puricelli and his top managers visited again after World War I. A careful reading of the books and brochures prepared by Puricelli between 1922 and 1925 to present the Milan–Lakes motorway confirms a great familiarity with the road conditions in the Anglo-Saxon countries. The description of the traffic in those nations lies between astonishment and a desire to imitate it: “Those who have traveled in England and in the United States know that [practically] no carts are met, and those met with have a leisure purpose.” From the United States, the main surprise was the amazing car diffusion: “If we consider the United States, we find there more than 10 million motor vehicles, that is, one hundred car owners for every one thousand inhabitants.”<sup>10</sup> This was the origin of the 1920s Italian motorway, at least according to the memoirs of his engineers, written in the 1970s and 1980s. “During one of his business trip to the States, he had the opportunity to appreciate the new road construction management, and was fascinated by the use of a concrete final coat on the top of the road, laid down at an astonishing pace by self-propelled steam pavers, carrying concrete mixers. He probably also visited the Bronx–River Parking [Parkway], which had overpasses at its main crossings.”<sup>11</sup>

Ornati and Pellis, top managers of Puricelli's companies in the 1920s and 1930s, went further, openly claiming in their memoirs that the Italian motorways originated from the United States parkways: "It is possible that Puricelli, having in mind the images of roads in the United States, conceived a special road with a concrete final coat, no crossing traffic, devoted to motor vehicles only, calling it an '*autostrada*.'"<sup>12</sup> Indeed, Puricelli, in building his motorways, faced uncharted magnitude and technical issues: the innovative nature of the Milan–Lakes motorways, and before it of the Monza racetrack, required novel machinery and new management models. The Milanese entrepreneur, proud of the solutions he found, recalled the lack of models and examples available in Europe. "Another issue that was not so easy to address was the final coat [of the motorway], given the meager experiences in Italy and in Europe. We had to revise the systems used in the United States, adopting the one that better fit the motorway's purpose. We scouted American know-how because there the roads have . . . *motor vehicle-only traffic*."<sup>13</sup>

The United States represented a model for road-building procedures and industrialization, which explains why, in winter 1922, when the motorway project was nearly approved by Mussolini's government, Arturo Sansoni, consultant for TCI and Puricelli, was in the United States, a country in which the pavement and earthmover industry was in rapid development.<sup>14</sup> He was there in order to better "understand road practices that could be interesting for Puricelli's company," sent by the Milanese entrepreneur to collect ideas, contacts, and detailed technical information.<sup>15</sup> His visit's legacy was the purchase of "five concrete mixers by Koehring, mounted on paver machines."<sup>16</sup>

I have no doubts about the strength of the North American example in shaping the 1922 first Italian motorway project. However, we should also keep in mind that "World War I was the most important factor in the development of limited-use roads."<sup>17</sup> Puricelli and his peers had in mind the example of the French "60-kilometer 'Holy Road' (Voie Sacrée) between Bar-le-Duc and Verdun; 4 to 7.5 meters wide, it carried one truck per second (horse-drawn transport had to use parallel roads). Each kilometer was maintained by some twenty soldiers. During the Somme Offensive, the British commanded 14,000 officers and 45,000 soldiers and prisoners of war who paved a road 8 meters wide with tar or asphalt to reduce 'the extreme dust and mud plague.' A group of workers with a cylinder roller was stationed every 2 kilometers to repair defects in the road surface."<sup>18</sup> Even more, we know that Puricelli's role during World War I was as a contractor for the Italian army, building *ex novo* roads in the impervious Alpine area in order to feed the trenches.<sup>19</sup> World War I emerges thus as a turning point in terms of

transport mindset, allowing visionaries like Puricelli to “transfer” those war examples to other conditions and other circumstances. In other words, building military roads just for motorized traffic under the exceptional circumstances of the conflict left a patrimony of knowledge and vision that could also be used for “normal” times.

This helps us to understand why the European continental road debate focused on the English model, the “motor vehicle paradise.”<sup>20</sup> In an era marked by a collective feeling of continental decay,<sup>21</sup> I am not surprised that England was seen as an inspiring model in road management: a successful, well-known, and stimulating example, depicted by the Italian experts and politicians as fully European. The United States seemed, in contrast, to be too distant (economically, politically, and culturally) to be a suitable model.<sup>22</sup> We should therefore reframe the narrative of what we today call the automobile sociotechnical system as having developed in the Italian sauce, so to speak. Targeting English automobilism allowed Puricelli to better assess the political value of his proposals on motorways and the massification of motor vehicles as a (mainly rhetorical) European discourse, with European goals and European roots.

### Seeking European Modernity

Taken individually, none of the characteristics of Puricelli’s motorway was an absolute novelty. It was not new to impose a toll for using roads. Nor was the exclusion of carts and bicycles: the World War I military routes and the race and test tracks built in the United States and Germany are among the most relevant examples, along with the Monza racetrack, built in 1922 before the motorways. America’s Long Island Motor Parkway, opened in 1908, with access reserved for motor vehicles, with a toll, and operated by a private company, was another example.<sup>23</sup> The Milan–Lakes motorway was not even a novelty in avoiding intersections and railway crossings: again, the Long Island Motor Parkway had overpasses.

Puricelli’s insight was the ability to assemble these elements together, and to do so in a specific way, building a special road 84 kilometers long. The first Italian motorway was also conceived as a network, with different legs. Finally, and this is a central point, different from the Long Island Motor Parkway and Berlin’s AVUS, the Milan–Lakes motorway was *not* proposed as a road for upper-class pleasures or as a week-end racetrack, but as an everyday road. Puricelli’s motorway openly aimed



at commercial and industrial goals, made explicit from the very first moment in 1922.

So Puricelli did not “invent” so much: his sound intuition was to use previous models and to assemble them, forging a new sociotechnical system; in my eyes, this is linked—more than so far claimed by the historical research—to the battlefields of World War I. For that reason, his proposal and his outcomes were understood as radically innovative, and are still reported as such today, not only in Italy.<sup>24</sup> Lando Bortolotti was right to claim that Puricelli plagiarized technical solutions and systems, “which reshaped his presumptions, as well as the legend he carefully built on his primacy.”<sup>25</sup> But putting aside the exaggerated claims and the propaganda, Puricelli did indeed make something new: he was the first to build a tolled, extra-urban motorway in modern times.

However, the 1920s Italian motorways were also minuscule in their scale and achievement when compared to the United States’ mass motorization regime. Therefore, questions immediately leap out: why did the Chinese, South American, German, French, Yugoslavian, Finnish, Egyptian, Lithuanian (etc., etc.) experts place such relevance on the modest and simple Italian experiment? Why did South American engineers and policy makers embark on a long trip to visit Milan, instead of being satisfied with training visits to New York and Detroit? Why were French and German technicians, but also English and U.S. experts, so fascinated by Puricelli’s adventure that they started to imagine similar projects in their own countries? And why were Europe’s top politicians so impressed by motorways that an International Motorway Association was founded in the very early 1930s? Why was Puricelli considered an icon, and a reference as an entrepreneur and technician from the Baltic Sea countries to China, so that he even founded a company especially devoted to dealing with the international market, called *Puriester*?<sup>26</sup>

The Milan–Lakes merely as a road structure should have been insufficient for such passionate involvement. It was mainly the perception of the motorway as a radically innovative concept, a sort of manifesto about comfort, innovation, and efficiency. On top of that, the 1920s motorway projects reaffirmed both the centrality of technological efficiency and political control, as defined by the war experiences, and at the same time confirmed the superiority of top-down action. Puricelli was able to seduce a shocked European middle class with the political implications of his project. And those projects, last but not least, relegitimized—after the growing role played during World War I—legions of technocrats, offering them a technological system with high political impact and also making them players in the social engineering.

The strength of that 1922 motorway project lasted for decades, even to the extent of being largely replicated in Nazi Germany just ten years later. It was part of a new social compromise, which was fully developed only after World War II, and included private ownership of a motor vehicle and paid holidays. By the interbellum, this vision had already reached a European scale. This happened along with traditional forms of transnational exchange, like PIARC's congresses, and via institutionalized agencies like the International Labor Organization. Puricelli did not spare himself as a globetrotter, spreading the gospel of the *autostrade* globally, making direct and bilateral knowledge transfers possible. The 1931 and 1932 international (but, at the end of the day, European) motorway congresses and the related plans (mainly developed by private actors) were the playground for technocratic entrepreneurs with political goals, including the preservation and reinvention of a European international primacy. The electric grid and motor vehicles were the icons of progress and development, driving Europe in a new season of peace, prosperity, and self-confidence.

Electric power networks promising universal and abundant power supplies, based on hydropower and later nuclear power, and universal (auto) mobility became the new symbols of hope and progress. By the 1930s, ideas of a technological unification of Europe were gaining momentum. There was a wave of trans-continental power supply plans that would tie European nations together in a pan-continental electricity network fed by the hydropower sources of Norway, Switzerland and Austria, or dams to be built in the Straits of Gibraltar or across the English Channel. Simultaneously, the first plans of pan-European highway networks emerged.<sup>27</sup>

The continental scale of the discussion was also a move—explicitly or implicitly—to seek a cohesive European alternative to the U.S. model and one able to confront the Soviet Union: “Two rationales underpinned such projects. First, the First World War had scattered the unbridled European optimism of the Belle Époque (1890–1914). Social Darwinist thought spread among intellectuals and emphasized European decadence vis-à-vis the Communist Soviet Union and the increasingly assertive United States.”<sup>28</sup>

But, in the face of the strength of those elements, how can we explain the failure of those early 1930s European motorway networks? We can claim that the gap between vision and realization was too deep. The motorway dream was charming, but 1920s and 1930s Europe lacked the necessary resources and critical mass for achieving a continental network, let alone a new social compromise that encompassed mass motorization. Indeed, during the 1920s the implementation of the

Italian motorways was left in the hands of a (little) group of enthusiasts. The decade also witnessed a growing interest in motorway programs, which perhaps lost that new innovative force but developed a wide recognizability. The Italian network was, at the end of the 1920s, certainly modest, and—to be fair—not even a proper network, but there was something happening.

The end of the 1920s was therefore a turning point in which the motorway projects gained maturity and scaled up to the national and, soon after, European level. We should nevertheless note that the 1931 and 1932 European motorway network proposals were rather ephemeral, being the result of an unexpected constellation of coincidences. Like in the European Union today, in the early 1930s Europe there was *not* a supranational agency capable of planning, financing, and managing any infrastructural system, particularly not one as expensive and massive as the motorway network. The European motorway congresses of those years can be easily classified as “soft” tools, with the aim of nudging the participants toward volunteer agreements. We should also add that those participants were not national governments, or public agencies, but a variegated spontaneous aggregation of contractors and lobbyists, well acquainted with one another, who found a roof at the International Labor Organization. Here the (emphasized) role of Albert Thomas was crucial, but also “problematic, because Thomas considered the roads a lesser component of the overall plan. In his private correspondence Thomas declared that he was not a ‘fanatique des autoroutes,’ holding that the construction of a European power grid was much more important. The main reason why he had kept roads in his program was due to the enthusiasm he had encountered among road builders.”<sup>29</sup>

The lack of results for those initiatives had one root cause: those proposals were no more than the visions, maybe fascinating, maybe intriguing, of a gang of road lobbyists operating (with the exception of Puricelli) on a national scale, well known to one another and occasionally gathering together. There was no nudging action available to encourage transnational cooperation, because those meetings were little more than a motorway fan club reunion: far from being a hidden integration of Europe, the European motorway congresses were ephemeral in their background and in their outcomes.

On the other hand, not all the ado was for nothing. Leveraging the decade-long motorway projects and debate, and fully aware of the symbolic value of large-scale initiatives, the 1933 Nazi motorway plan seems to have been a natural outcome of this long incubation. I am of course well aware that this statement needs more archival research, which I would welcome. This would also help us to distinguish better between

the national and the European levels. Today we can drive on a European network of motorways, yet we still face so many differences in terms of signage, tolling, practices, and physical and symbolic layouts. The planning stage as well as the implementation of that network had very little European coordination, being based on national resources, priorities, and timing. Like the railways before them, European motorways are little more than a combination of national systems. We have here a tension between the two levels, which cannot be easily labeled either European or national in scale and scope. We should be aware of such a complex "interplay between national and international sources of expert authority. While experts mostly defined their authority in a national framework, highlighting the universal grounding of their expertise was crucial to the experts' claims for influence. Moreover, international contacts were an important criterion in attaining expert status. This tension often resulted in structural conflict between national loyalties and a universalistic self-understanding, which was typical of European experts, particularly in the twentieth century."<sup>30</sup>

This forces us to reframe the European interbellum motorway projects by combining their visions and their real purposes. In the 1930s there were already formal and (predominantly) informal "European" meetings and expert discussions, which ultimately led to a "European" network. However, if the experts and the lobbyists excited the public opinion with those futuristic plans, it was the political (national) systems that were in charge of making decisions (and paying). Much like the interbellum European political projects that lay between Americanism and communism, the motorway proponents also "saw themselves as part of an international development and regarded the transnational exchange of knowledge as an essential contribution to the search for the best solution in their respective national frameworks."<sup>31</sup> Therefore, in my eyes and despite the road lobby's attempts in the early 1930s, there was not any "denial of the dichotomy between national and international interests,"<sup>32</sup> but, rather, "Europe worked as a 'space of compensation' for processes of collective self-reassurance,"<sup>33</sup> with the national level as the proper and truly accepted legitimating arena.

The case of the (failed) London–Istanbul road as envisioned in the early 1930s fits in this framework: "A series of mostly national undertakings which acquired an aura of international significance through their symbolic construction."<sup>34</sup> I am naturally aware of the fictional values of those "international" projects, as Badenoch correctly reminds us, and, moving to the stage of the European motorway networks in the interbellum, "fictions are not of themselves real or unreal; their reality depends upon the contexts in which they are set. When the larger con-

texts of internationality upon which it was based broke down, the road's national stories grew dominant and the international fiction moved quickly from reality into memory and dream."<sup>35</sup> Once Europe moved back to nationalism, partly, but not exclusively, because of the 1929 crisis, the context changed, and so did the motorway's *raison d'être*.

The 1929 crisis added another (crucial) element to the equation of governance, having a centripetal effect on the decision-making process, thereby reducing the maneuvering space for the road lobby in any of its national declinations. This shift likewise reduced Puricelli's chances to be actively engaged, beyond mere consultancy, in any projects: the 1929 crisis left the initiative and the political legitimacy in the hands of the national governments. We can therefore say that "the most important influence of the BIAR and OIAR initiatives was indirect: it convinced certain engineering factions in the *national* ministries of the rationality of the freeway concept."<sup>36</sup>

From the technocrats' point of view, efficiency and coordination were central factors in legitimizing motorway programs, but efficiency and coordination should be understood as "fictional" elements of the technical and political discourse, and we have also seen the extent to which the debate in Fascist Italy and Nazi Germany transcended "function and technical characteristics." As recalled in the introduction of this book, technology was presented and represented, at least regarding 1920s Italian motorways, as a compromise between hypermodernity and tradition, in which the form *did not* follow the function. Finally, and crucially, in contrast to the suggestions of Johan Schot and Vincent Legendijk, 1920s Italian motorway proponents did not prefer "a working method for international cooperation which separated the technical from the political."<sup>37</sup>

Puricelli aimed to create a political artifact, with political values and outcomes, including a near future in which every cook had a car. This was forecasted in order to implement social changes (and avoid social revolution) but also, *at the same time*, to restore social hierarchies. In doing so, he was acting as a social engineer, but this action was undertaken in full alliance and cooperation with the political power, namely, fascism. He was bringing "rationalization and planning methods to social problems in a manner that 'mere' politicians were incapable of doing," and surely he would have defined himself as "ideologically neutral."<sup>38</sup> But he was not acting in substitution or on behalf of the political level, he was acting *together* with it.

The short (and fruitless) life of the European motorway network came to an end once the national level was no longer hidden behind the European "unification" debate of the late 1920s. Although still porous to

the European rhetoric, in 1934, Puricelli's European network plan already had the ambiguous rallying cry of "la Conquista del continente" (conquering the continent).<sup>39</sup> In 1936, Kurt Kaftan prepared, under Fritz Todt's instructions, a new European plan, in which we can still find traces of the international debate. Kaftan "argued that his basic method had been to design optimal national road networks for each country based on economic and traffic criteria," which is to say that the national level was the dominant one. However, behind the rhetoric, he also "argues at some length that Germany's network should be the starting point for the design of the European network, as it took the lead in motorway building. This implies that when other national plans did not fit, the planned German network had to be adjusted."<sup>40</sup>

For Hitler's Germany, the welfare state and public works engagements functioned in service of (and were paid for by) a policy of conquest and domestic and international robbery,<sup>41</sup> while Kaftan's 1936 European motorway plan served the foreseen dominance of the continent. On a smaller scale, the same can be said about the last-minute 1942 Italian attempts to build motorways, with the victory of the axis powers on the horizon, as an attempt to enforce control on the Balkans.

This once again shows how the history of Italian motorways is political, how Italy's route to modernity was driven by technology and experts, and how transportation infrastructures were used for nationalistic and even imperialist purposes.

## Notes

1. Gijs Mom, *Atlantic Automobilmism*.
2. Maier, *Recasting Bourgeois Europe*.
3. For a review of John Rae's works, see David N. Lucsko, "John Bell Rae and the Automobile 1959, 1965, 1971, 1984," *Technology and Culture* 50, no. 4 (2009), 894–914. See also the classical works of James J. Flink, namely, *America Adopts Automobile, 1895–1910* (Cambridge, MA: MIT Press, 1970) and *The Automobile Age*.
4. Mom, *Atlantic Automobilmism*, in particular 578ff.
5. George Basalla, "The Spread of Western Science," *Science* 156, no. 3775 (1967), 611–622, and George Basalla, *The Evolution of Technology* (Cambridge: Cambridge University Press, 1989); see also Raina Dhruv, "From West to Non-West? Basalla's Three-stage Model Revisited," *Science as Culture* 8, no. 4 (1999), 497–516.
6. About the role of European "peripheries," see Kostas Gavroglu, Manolis Patiniotis, Faidra Papanelopoulou, Ana Simões, Ana Carneiro, Maria Paula Diogo, José Ramón Bertomeu Sánchez, Antonio Garcia Belmar, and Agusti Nieto-Galan, "Science and Technology in the European Periphery: Some Historiographical Reflections," *History of Science* 46, no. 152 (2008), 153–175.

7. As quoted in Pier Luigi Bassignana, ed., *Taylorismo e fordismo alla Fiat nelle relazioni di viaggio di tecnici e ingegneri (1919–1955)* (Torino: Archivio storico Amma, 1998), 168.
8. See *La partecipazione italiana al sesto congresso internazionale della strada, Washington, ottobre 1930* (Roma: Genio Civile, 1931).
9. See Annabella Galleni, "Strade, autostrade e fascismo," 54.
10. *Le autostrade da Milano ai Laghi*, 13.
11. Lucillo Ornati, "Lo 'Studio Tecnico Puricelli,'" 173.
12. *Ibid.*
13. Piero Puricelli, *Le autostrade e la Milano–Laghi*, 24–25. Italics in original.
14. Bruce E. Seely, "Inventing the American Road: Innovation Shaping the American Freeway," in *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency*, ed. Colin Divall and Ralf Roth (Surrey: Ashgate, 2015), 233–274, here 240–246.
15. See Arturo Sansoni, "Notizie ed impressioni sulle strade degli Stati Uniti d'America," *Le strade* 5 (1923), 137–142, here 137.
16. Ornati, "Lo 'Studio Tecnico Puricelli,'" 175.
17. Mom, "Roads without Rails," 755.
18. *Ibid.*
19. Galleni, "Strade, autostrade e fascismo."
20. P. Borracci, "Ancora sul problema stradale," *L'Auto Italiana*, 15 May 1926, as quoted in Bortolotti, "I congressi autostradali internazionali," 8.
21. Frank Schipper, *Driving Europe*.
22. See more detailed notes in Moraglio, "European Models, Domestic Hesitance."
23. Long Island Motor Parkway, with a length of 45 miles (about 72 kilometers) was "the first limited-access highway exclusively for automobiles"; Flink, *The Automobile Age*, 170. See also Peter J. Hugill, "Good Roads and the Automobile in the United States, 1880–1929," *Geographical Review* 72, no. 3 (1982), 327–349, here 343, and Michael L. Berger, *The Automobile in American History and Culture: A Reference Guide* (Westport London: Greenwood Press, 2001), 412.
24. On the relevance of 1920s Italian motorways see "Public Works, The Automobile Road," in *The New Encyclopædia Britannica, volume 26, Macropædia* (Chicago: Encyclopædia Britannica Inc., 1994), 325–326.
25. Bortolotti, De Luca, *Fascismo e autostrade*, 19.
26. About *Puriester* [Puricelli+Estero, that is, Puricelli+International] see Bortolotti, "I congressi autostradali internazionali," 9, and Bortolotti, "Italia, Europa e oltre," 134.
27. Bruce E. Seely, "An Overview Essay," 20.
28. Schipper, *Driving Europe*, 84–85.
29. *Ibid.*, 103.
30. Martin Kohlrausch, "The Hour of the Experts?," 71.
31. Kiran Klaus Patel and Sven Reichardt, "The Dark Side of Transnationalism Social Engineering and Nazism, 1930s–40s," *Journal of Contemporary History* 51, no. 1 (2016), 3–21, here 1.
32. Johan Schot and Vincent Lagendijk, "Technocratic Internationalism in the Interwar Years: Building Europe on Motorways and Electricity Networks," *Journal of Modern European History* 6, no. 2 (2008), 196–217, here 198.
33. Alexander Badenoch and Andreas Fickers, "Introduction: Europe Materializing? Toward a Transnational History of European Infrastructures," in *Materializing Europe: Transnational Infrastructures and the Project of Europe*, ed. Alexander

- Badenoch and Andreas Fickers (Basingstoke: Palgrave Macmillan, 2010), 1–26, here 9.
34. Badenoch, "Touring between War and Peace," 207.
  35. Ibid.
  36. Mom, *Atlantic Automobilmism*, 581. Italics added.
  37. Schot and Lagendijk, "Technocratic Internationalism in the Interwar Years," 198.
  38. Ibid.
  39. Schipper *Driving Europe*, 107.
  40. Schot and Lagendijk, "Technocratic Internationalism in the Interwar Years," 207.
  41. See Götz Aly, *Hitler's Beneficiaries: Plunder, Racial War, and the Nazi Welfare* (Saint Paul, MN: State Metropolitan Books, 2007).



# Bibliography



- Aass. *Specchio comparativo fra l'elenco delle strade statali e quello delle ex strade di prima classe* (Roma, s.e., 1929).
- Abrate, Mario. "50mo anniversario dell'autostrada Torino–Milano." *L'informatore industriale* (20 January 1983), 87–95.
- Acquaviva, Bruno. "La prima legislazione autostradale." In *Autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 26–29.
- Aimo, Paolo. *Stato e poteri locali in Italia 1848–1995* (Roma: Nis, 1997).
- Albertini, Cesare. "Occorre una rete autostradale europea?." *Le strade* 9 (1937), 497–500.
- Alexander, Jon, and Joachim K.H.W. Schmidt. "Introduction." In *Social Engineering*, ed. Adam Podgórecki, Jon Alexander, and Rob Shield (Ottawa: Carleton University Press, 1996), 1–19.
- Aly, Götz. *Hitler's Beneficiaries: Plunder, Racial War, and the Nazi Welfare* (Saint Paul, MN: State Metropolitan Books, 2007).
- Amorth, Antonio, ed. *Le province* (Vicenza: Neri Pozza, 1969).
- Ancona, Ugo. "I problemi dell'automobilismo al Congresso mondiale di Roma." *Nuova Antologia* (1 November 1928), 103–119.
- Anfia, *Automobile in cifre* (Torino: Anfia, 1962).
- Antila, Kimmo, and Marko Nenonen. "Relief Works, the World Bank and Private Business." *Scandinavian Economic History Review* 48, no. 2 (2000), 47–71.
- Aquarone, Alberto. *L'organizzazione dello Stato totalitario* (Torino: Einaudi, 1995; 1° ed. 1965).
- Associazione internazionale permanente dei congressi della strada. *Quinto congresso internazionale della strada, Milano, 1926. Rendiconto dei lavori del congresso* (Rennes-Paris: Oberthur, 1927).
- Atti del Parlamento italiano, Camera dei Senatori, Discussioni, volume 2* (Roma: Tipografia del Senato, 1930).
- Atti del Parlamento italiano, Camera dei deputati, Discussioni, volume 3* (Roma: Tipografia della Camera dei deputati, [s.d.]).
- Atti della quinta assemblea generale della Unione delle Province d'Italia, in Firenze dall'11 al 13 ottobre 1912* (Roma: Coop. Sociale, 1912).
- Atti della sesta assemblea generale dell'Unione delle Province. Milano 20–25 aprile 1913* (Roma: Coop. Sociale, 1913).
- Atti del III congresso nazionale degli ingegneri italiani* (Trieste: s.e., 1935).
- Atti del III Convegno nazionale stradale promosso ed organizzato dal Touring Club Italiano. Napoli 30 marzo–4 aprile 1922* (Milano: Tci, 1922).

- Atti del IV Convegno Nazionale Stradale promosso ed organizzato dal Tci. Perugia 25–28 giugno 1925. Atti del convegno* (Milano: Tci, 1926).
- L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927).
- "L'autostrada. La proposta di esecuzione di un primo tronco Torino–Biella." *La Stampa*. 6 July 1927.
- L'autostrada Pedemontana e i suoi problemi. Primo convegno per la 'Pedemontana', Bergamo, 20 maggio 1928–VI* (Bergamo: Officine dell'Istituto italiano d'arti grafiche, s.d. [1928]).
- "L'autostrada Torino–Milano," *La Stampa*, 14 March 1923
- Autostrada Torino–Milano Biella* (Torino: [s.e.], 1928).
- "L'autostrada Torino–Milano. Sette milioni e mezzo sottoscritti." *Gazzetta del Popolo*. 1 May 1926.
- "Autostrade." *L'auto italiana*. 3 February 1925.
- Le autostrade da Milano ai Laghi* (Milano: Società anonima Autostrade, 1923).
- Badenoch, Alexander. "Touring between War and Peace: Imagining the 'Transcontinental Motorway', 1930–1950." *The Journal of Transport History* 28, no. 2 (2007), 192–210.
- Badenoch, Alexander, and Andreas Fickers. "Introduction: Europe Materializing? Toward a Transnational History of European Infrastructures." In *Materializing Europe: Transnational Infrastructures and the Project of Europe*, ed. Alexander Badenoch and Andreas Fickers (Basingstoke: Palgrave Macmillan, 2010), 1–26.
- Bardelli, Daniele. *L'Italia viaggia. Il Touring Club, la nazione e la modernità. 1894–1927* (Rome: Bulzoni, 2004).
- Basalla, George. "The Spread of Western Science." *Science* 156, no. 3775 (1967), 611–622.
- Basalla, George. *The Evolution of Technology* (Cambridge: Cambridge University Press, 1989).
- Bassignana, Pier Luigi, ed. *Taylorismo e fordismo alla Fiat nelle relazioni di viaggio di tecnici e ingegneri (1919–1955)* (Torino: Archivio storico Amma, 1998).
- Bel, Germà. "The First Privatisation: Selling SOEs and Privatising Public Monopolies in Fascist Italy (1922–1925)." *Cambridge Journal of Economics* 35, no. 5 (2011), 937–956.
- Belloni, Emilio. "La gran via del 45° parallelo." *Il sole*. 22 June 1916.
- Belloni, Emilio. "La via del 45° parallelo dalla Francia alla Russia." *Il sole*. 11 November 1918.
- Benadusi, Lorenzo. "Il mito della scienza." In *Storia d'Italia. Annali 26. Scienze e cultura dell'Italia unita*, ed. Francesco Cassata and Claudio Pogliano (Torino: Einaudi, 2011), 157–176.
- Berbenni, Enrico. "Paying for the First Italian Motorways (1923–1941)." In *Infrastructure Finance in Europe: Insights into the History of Water, Transport, and Telecommunications*, ed. Youssef Cassis, Giuseppe De Luca, and Massimo Florio (Oxford: Oxford Univ. Press, 2016), 193–217.
- Berger, Michael L. *The Automobile in American History and Culture: A Reference Guide* (Westport and London: Greenwood Press, 2001).
- Bernhard, Patrick. "Hitler's Africa in the East: Italian Colonialism as a Model for German Planning in Eastern Europe." *Journal of Contemporary History* 51, no. 1 (2016), 61–90.
- Bertarelli, Luigi Vittorio. "Un anno del consorzio Touring–Fiat e Touring–Pirelli per i cartelli indicatori." *Le vie d'Italia* 3 (1922), 225–233.

- . "Due milioni per diecimila cartelli di comune. Un consorzio fra il Touring e la Società Italo-americana pel petrolio." *Le vie d'Italia* 10 (1922), 961–965.
- . "Le autostrade Milano–Laghi. L'opera del Touring." *Le vie d'Italia* 1 (1923), 73–75.
- . "Relazione del consiglio per l'esercizio 1922." *Le vie d'Italia* 5 (1923), 468–478.
- Bertho Lavenir, Catherine. *La roue et le stylo. Comment nous sommes devenus touristes* (Paris: Odile Jacob, 1999).
- Besozzi, I. "L'autostrada Torino–Milano." *Torino* 9 (1929), 33–39.
- Bigatti, Giorgio. *Alberto Riva a la Milano del suo tempo* (Milano: Brioschi, 2013).
- Billig, Michael. *Banal Nationalism* (London: Sage, 1995).
- Bobbio, Giovanni. *Le strade ordinarie nella legislazione italiana* (Torino–Roma: Roux and C., 1894).
- Bolis, Bruno. "Le autostrade italiane dal 1924–II al 1939–XVII." *Le strade* 11 (1939), 574–584, and 12 (1939), 614–623.
- . "Il passaggio allo Stato dell'autostrada Firenze–Mare." *Le Strade* 2 (1940), 77.
- . "I piani per il miglioramento della viabilità." *Le vie d'Italia* 3 (1953), 369–376.
- . "Ancora in tema di autostrade, di camionabili, e di strade automobilistiche." *Le Strade* 3 (1954), 65–79.
- . "I punti di accesso alle autostrade." *Le Strade* 2 (1955), 51–59.
- Bolis, Bruno, and Giuseppe Chesi. *L'autocamionabile Genova–Milano. Monografia illustrativa. Contributo allo studio dei problemi tecnici ed economici con una prefazione del prof. C. I. Azimonti* (Milano: Libreria editrice politecnica, 1932).
- Bonardi, Italo. *Le autostrade italiane, loro organizzazione e loro importanza turistica* (Bologna: Tip. de Il Resto Del Carlino, 1942).
- Bonomi, Paolo. "Storia dell'autostrada Bergamo–Milano." In *L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927), 8–11.
- Borlandi, Franco. *Il problema delle comunicazioni nel secolo XVIII nei suoi rapporti con il Risorgimento italiano* (Pavia: Soc. an. Treves Treccani Tumminelli, 1932).
- Borracci, P. "Ancora sul problema stradale." *L'Auto Italiana*. 15 May 1926.
- Bortolotti, Lando. *Storia della politica edilizia in Italia* (Rome: Editori Riuniti, 1978).
- . "Viabilità e sistemi infrastrutturali." In *Storia d'Italia. Annali 8. Insediamenti e territorio*, ed. Cesare De Seta (Torino: Einaudi, 1985), 289–368.
- . "Origine e primordi della rete autostradale in Italia, 1922–1933." *Storia urbana* 59 (1992), 35–69.
- . "Italia, Europa e oltre: proposte e utopie autostradali al tramonto degli imperia-  
lismi e del colonialismo." *Storia urbana* 72 (1995), 133–162.
- . "I congressi autostradali internazionali del 1931 e 1932 e le prime proposte di  
un sistema autostradale europeo." *Storia Urbana* 75 (1996), 5–26.
- . "Fra politica, propaganda e affari: l'autostrada Roma–Berlino 1927–1942." *Storia  
urbana* 81 (1997), 47–80.
- Bortolotti, Lando, and Giuseppe De Luca, *Fascismo e autostrade. Un caso di sintesi: La Firenze–Mare* (Milano: Franco Angeli, 1994).
- Botteri, Franco. *L'autostrada Milano–Bologna via Cremona, Parma, Reggio Emilia, Modena con allacciamento a Salsomaggiore* (Bologna: Società poligrafica editrice, 1926).
- Brilli, Attilio. *Un paese di romantici briganti. Gli italiani nell'immaginario del Grand Tour* (Bologna: Il Mulino, 2003).
- Buccella, MR. "Le autovie nel sistema dei trasporti." *Giornale degli Economisti e Rivista di Statistica* 68, no. 12 (1927), 726–748.

- Camera di commercio ed industria di Milano. *La strada permanente diretta Milano–Venezia* (Milano: Rovere, 1921).
- Capitani, Giulio, and Giusto Emanuele Garelli della Morea. "Strade ordinarie." In *Il Digesto Italiano, volume XXII, part II* (Torino: Utet, 1895), 641–869.
- Caprotti, Federico. "Overcoming Distance and Space through Technology: Connecting Fascist Italy with South America." *Space and Culture* 14, no. 3 (2011), 330–348.
- Capuzzo, Paolo. "La conquista della mobilità. Contributo ad una storia sociale dei trasporti urbani in Europa (1870–1940)." *Ricerche storiche* 3 (2000), 621–639, here 639.
- Carreras, Albert, and Elena Cefis, eds. *The Development of the Italian Highway Network 1924–1993: A Computerized Atlas* (Badia Fiesolana: European University Institute, 1996).
- Castronovo, Valerio. *Giovanni Agnelli* (Torino: Einaudi, 1977).
- Cattaneo, Carlo, and Giovanni Milani. *Ferdinandea. Scritti sulla ferrovia da Venezia a Milano 1836–1841* (Firenze: Giunti, 2001).
- Centolani, Giuseppe. "Le tecnologie costruttive e le sovrastrutture." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 138–151.
- Ceresetto, Giovanni Battista. *Le strade vicinali* (Torino: Utet, 1894).
- "Le cerimonie commemorative e inaugurali svoltesi domenica coll'intervento del Re." *Corriere della sera*. 23 September 1924.
- Cesareni, Carlo. "L'autostrada Bergamo–Milano e l'autostrada pedemontana Torino–Milano–Venezia." *I lavori pubblici* 2 (1926), 58–62.
- Chito, Giuseppe. *Le nuove comunicazioni nella provincia di Bergamo. Traforo dello Stelvio, Autostrada Bergamo–Milano, Strada prealpina orobica* (Bergamo: Istituto italiano d'arti grafiche, 1926).
- Clavin, Patricia. *The Great Depression in Europe, 1929–1939* (Basingstoke: St. Martin's Press, 2000).
- "Commissione Centrale per il dopoguerra. I problemi economici urgenti. Voti e proposte della Sottocommissione economica." *Giornale del Genio Civile* (1919), 49–96.
- "Una conferenza dell'ing. Giay per la Torino–Biella–Milano." *Torino* 1–2 (1928), 45.
- "Il congresso delle autostrade," *Corriere della sera*, 21 April 1932.
- "Il congresso mondiale dell'automobile. La viabilità e il problema finanziario." *Corriere della sera*. 29 September 1928.
- "Il congresso della strada. Le strade dell'avvenire." *Corriere della sera*. 9 September 1926.
- Consiglio del Tci. "Per l'automobile e per la bicicletta 'strumenti di lavoro'. Prima parte." *Le vie d'Italia* 7 (1921), 692–700.
- . "Per l'automobile e per la bicicletta 'strumenti di lavoro'. Seconda parte." *Le vie d'Italia* 8 (1921), 803–808.
- Cova, Fedele. *La rete autostradale Iri* (Roma: Firema, 1963).
- . *Autostrade e altri episodi di vita vissuta* (Milano: Domus, 1983).
- Crary, Jonathan. *Suspensions of Perception: Attention, Spectacle and Modern Culture* (London: MIT Press, 1999).
- Crouch, David. "Introduction: Encounters in Leisure/Tourism." In *Leisure/Tourism Geographies: Practices and Geographical Knowledge*, ed. David Crouch (London: Routledge, 1999).
- D. G. "Il problema delle strade di grande comunicazione." *Le strade* 8 (1939), 425–428.
- Dant, Tim. "The Driver-car." *Theory, Culture & Society* 21, no. 4–5 (2004), 61–79.

- Da Rios, Giovanni. "Le prime autostrade italiane." *La rivista della strada* 390 (1974), 1–24.
- . "Francesco Aimone Jelmoni." In *Dizionario biografico degli italiani, volume 72* (Roma: Istituto della enciclopedia italiana, 2004), available at [http://www.treccani.it/enciclopedia/francesco-aimone-jelmoni\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/francesco-aimone-jelmoni_%28Dizionario_Biografico%29/), accessed on 3 April 2016.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Milano–Laghi." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 35–55.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Bergamo–Milano." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 56–65.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Napoli–Pompei." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 66–73.
- Da Rios, Giovanni, and Savino Rinelli. "'Via del Mare' (Roma–Ostia)." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 74–79.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Brescia–Bergamo." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 80–86.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Torino–Milano." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 98–111.
- Da Rios, Giovanni, and Savino Rinelli. "Autostrada Venezia–Padova." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 112–119.
- Da Rios, Giovanni, and Savino Rinelli. "Autocamionabile Genova–Valle del Po." In *Autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 120–136.
- De Felice, Renzo. *Mussolini il Fascista. I. La Conquista del Potere 1921–1925* (Torino: Einaudi, 1966).
- De Ianni, Nicola. "Vecchi e nuovi documenti sullo stato industriale." In *La storia e l'economia, volume 2*, ed. Anna Maria Falchero, Andrea Giuntini, Giampietro Nigro, and Luciano Segreto (Varese: Lativa, 2003), 291–316.
- Deleuze, Gilles. *Two Regimes of Madness: Texts and Interviews 1975–1995* (New York: Semiotext(s), 2006).
- De' Simone, Francesco. *Piano Regolatore della Città di Napoli. 2° edizione* (Milano Roma Napoli: Società editrice Dante Alighieri, 1922).
- . *Autostrada Roma–Napoli* (Roma: Società Editrice Dante Alighieri, 1923).
- Desportes, Marc. "Le prime autostrade francesi. Resistenze e dilazioni." *Storia urbana* 26, no. 100 (2002), 55–84.
- Di Gianfrancesco, Mario. *La rivoluzione dei trasporti in Italia nell'età risorgimentale. L'unificazione del mercato e la crisi del Mezzogiorno* (L'Aquila: Japadre, 1979).
- Dhruv, Raina. "From West to Non-West? Basalla's Three-stage Model Revisited." *Science as Culture* 8, no. 4 (1999), 497–516.
- "La direttissima Bologna–Firenze non sarà appaltata dallo Stato." *Corriere della sera*. 3 August 1923.
- Discorsi parlamentari di Giovanni Giolitti, volume III* (Roma: Camera dei deputati, 1954).

- "Un discorso dell'on. Mussolini alla chiusura del congresso della strada." *Corriere della sera*. 14 September 1926.
- Divall, Colin, and George Revill, "Cultures of Transport: Representation, Practice and Technology." *The Journal of Transport History* 26, no. 1 (2005), 99–111.
- Divall, Colin, and Ralf Roth, eds. *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency* (Surrey: Ashgate, 2015).
- Edensor, Tim. "Automobility and National Identity: Representation, Geography and Driving Practice." *Theory, Culture & Society* 21, no. 4/5 (2004), 101–120.
- Elischer, PC. "Una strada intercontinentale dall'Europa all'India e all'Africa del Sud." *Le strade* 7 (1933), 201–203.
- "Un Ente statale della strada per l'incremento dell'automobilismo," *Corriere della Sera*, 2 December 1927
- Fabbri, Sileno. *Il problema delle strade in Italia* (Milano: Coop. Graf. Operai, 1927).
- Featherstone, Mike. "Automobilities: An Introduction." *Theory, Culture & Society* 21, no. 4–5 (2004), 1–24.
- Ferretti, Lando. "Il circuito di Milano." *Le vie d'Italia* 10 (1922), 961–965.
- . "Salviamo le strade ordinarie!" *L'Auto Italiana*. 28 February 1925. 23–24.
- Flink, James J. *America Adopts Automobile, 1895–1910* (Cambridge, MA: MIT Press, 1970).
- . *The Automobile Age* (Cambridge, MA: MIT press, 1998).
- Fraunholz, Uwe. *Motorphobia: Anti-Automobiler Protest in Kaiserreich und Weimarer Republik* (Göttingen: Vandenhoeck & Ruprecht, 2000).
- Flyvbjerg, Bent, Mette K. Skamris Holm, and Søren L. Buhl. "How (In)accurate Are Demand Forecasts in Public Works Projects? The Case of Transportation." *Journal of the American Planning Association* 71, no. 2 (2005), 131–146.
- Galleni, Annabella. "Strade, autostrade e fascismo: un memoriale di Piero Puricelli (1940)." *Imprese e storia* 19 (1999), 47–82.
- Gavroglu, Kostas, Manolis Patiniotis, Faidra Papanelopoulou, Ana Simões, Ana Carneiro, Maria Paula Diogo, José Ramón Bertomeu Sánchez, Antonio Garcia Belmar, and Agustí Nieto-Galan. "Science and Technology in the European Periphery: Some Historiographical Reflections." *History of Science* 46, no. 152 (2008), 153–175.
- "La giornata dell'on. Finzi. La riunione per l'auto strada Milano–Laghi." *Corriere della sera*. 6 January 1923.
- "La giornata dell'on. Mussolini. La cerimonia per l'auto-strada a Lainate." *Corriere della sera*. 26 March 1923.
- "La giornata del presidente." *Il popolo d'Italia*. 15 October 1925.
- Giuntini, Andrea. "Nascita, sviluppo e tracollo della rete infrastrutturale." In *Storia d'Italia. Annali 15. L'industria* (Torino: Einaudi, 1999), 551–616.
- Gramsci, Antonio. *Notebook 15* [1933] in *Quaderni del Carcere*, vol. 3 (Torino: Einaudi, 1975).
- "Una grande iniziativa milanese. Una strada per automobili Milano–Laghi." *Il Popolo d'Italia*. 6 September 1922.
- Gregorio, O. "L'autostrada Roma–Berlino." *Il popolo d'Italia*. 16 March 1937.
- Griffin, Roger. *The Nature of Fascism* (London: Routledge, 1991).
- . *Modernism and Fascism: The Sense of a Beginning under Mussolini and Hitler* (New York: Palgrave Macmillan, 2007).
- Guderzo, Guido. *Vie e mezzi di comunicazione in Piemonte dal 1831 al 1861. I servizi di posta* (Torino: Museo Nazionale del Risorgimento, 1961).

- Guérin, Denis. *Albert Thomas au BIT, 1920–1932: De l'internationalisme à l'Europe* (Geneva: Institut Européen de l'Université de Genève, 1996).
- Hamer, Mick. *Wheels within Wheels: A Study of the Road Lobby* (London: Friends of the Earth, 1987).
- Herf, Jeffrey. *Reactionary Modernism: Technology, Culture, and Politics in Weimar and the Third Reich* (Cambridge: Cambridge University Press, 1984).
- Hugill, Peter J. "Good Roads and the Automobile in the United States, 1880–1929." *Geographical Review* 72, no. 3 (1982), 327–349.
- I, F. "Un progetto di 'Transafricana' in funzione 'Euroafricana.'" *Le strade* 8 (1941), 391–392.
- "L'inaugurazione delle autostrade." *L'auto italiana* (September 1924), 33–37.
- Isca, Michele. *Linee generali di progetto di massima per un'autostrada Palermo (Piazza Porrazzi)–Pietrizzi–Inzerra–M. Billiemi–Torretta–Carini–Capaci–Isola delle femmine–Sferracavallo–Tommaso Natale–Mondello: Palermo (Piazza Campo) e cenni dei monti della Conca d'oro* (Vicenza: G. Raschi, 1926).
- Istat. *Sommario di statistiche storiche dell'Italia* (Roma: Istat, 1968).
- Jelmoni, Francesco Aimone. "Il 21 settembre 1924, la prima autostrade nel mondo." *La rivista della strada* 398 (1974), 1–19.
- . "Piero Puricelli." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 20–23.
- . "Autostrada Milano–Laghi (inaugurazione)." In *Le autostrade prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 30–34.
- Joerges, Bernward. "Do Politics Have Artefacts?." *Social Studies of Science* 29, no. 3 (1999), 411–431.
- Kaftan, Kurt Gustav. *Europa Braucht Autobahnen* (Berlin: Reichssportverlag, 1937).
- Klaus Patel, Kiran, and Sven Reichardt. "The Dark Side of Transnationalism Social Engineering and Nazism, 1930s–40s." *Journal of Contemporary History* 51, no. 1 (2016), 3–21.
- Kline, Ronald R. *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: Johns Hopkins University Press, 2000).
- Kohlrausch, Martin. "The Hour of the Experts? Reflections on the Rise of Experts in Interbellum Europe." In *Scientists' Expertise as Performance*, ed. Joris Vandendriessche, Evert Peeters, and Kaat Wils (London: Pickering & Chatto 2015), 67–79.
- Krüger, Karl. *Motorizing Russia and Asia* (Berlin: Verlag der Neue Orient G.m.b.H., 1934).
- Kuck, Gerhard. "Secondo Frola." In *Dizionario biografico degli italiani, volume 53* (Roma: Istituto della enciclopedia italiana, 1998).
- van Laak, Dirk. "Detours around Africa: The Connection between Developing Colonies and Integrating Europe." In *Materializing Europe Transnational Infrastructures and the Project of Europe*, ed. Alexander Badenoch and Andreas Fickers (Basingstoke: Palgrave Macmillan, 2010), 27–43.
- "I lavori del V° congresso internazionale della strada. Milano 6–10 settembre 1926, seconda parte." *Annali dei Lavori pubblici* 12 (1926), 981–1132.
- Lehmann, Eric. *Le Ali del potere. La propaganda aeronautica nell'Italia fascista* (Torino: UTET, 2010).
- Lucsko, David N. "John Bell Rae and the Automobile 1959, 1965, 1971, 1984." *Technology and Culture* 50, no. 4 (2009), 894–914.
- Lupo, Salvatore. *Il Fascismo. La politica di un regime totalitario* (Roma: Donzelli, 2005).

- Lyttleton, Adrian. "The 'Crisis of Bourgeois Society' and the Origin of Fascism." in *Fascist Italy and Nazi Germany: Comparisons and Contrasts*, ed. Richard Bessel (Cambridge: Cambridge University Press, 1996), 12–22.
- Maggi, Stefano. "La circolazione automobilistica in Italia: normative e istituzioni dall'Unità alla Repubblica." *Le carte e la storia* 2 (2002), 129–143.
- . *Le ferrovie* (Bologna: Il Mulino, 2003).
- . *Storia dei trasporti in Italia* (Bologna: Il Mulino, 2005).
- Maier, Charles S. *Recasting Bourgeois Europe: Stabilization in France, Germany, and Italy in the Decade after World War I* (Princeton, NJ: Princeton University Press, 1975).
- Mangarano, A., and G. Pellizzi. "Les premières autoroutes réalisées en Italie/Italy's first Motorways." In *Aipcr/Piarc 1909–1969* (Paris: Aipcr/Piarc, 1970), 129–140.
- Mattia, Sergio. "La costruzione dell'autostrada Milano–Laghi." In *Costruire in Lombardia, volume IV, Rete e infrastrutture territoriali*, ed. Ornella Selvafolta and Aldo Castellano (Milano: Electa, 1984), 175–206.
- Mauch, Christoph, and Thomas Zeller. "Introduction." In *The World Beyond the Windshield: Roads and Landscapes in the United States and Europe*, ed. Christoph Mauch and Thomas Zeller (Athens, OH: Ohio University Press, 2008), 1–13.
- Mazzarolli, Leopoldo. "Evoluzione storica degli organi istituzionali della Provincia con particolare riguardo al presidente della Giunta Provinciale." In *Le province*, ed. Antonio Amorth, 91–118.
- McShane, Clay. *Down the Asphalt Path: The Automobile and the American City* (New York: Columbia University Press, 1994).
- Melis, Guido. *Storia dell'amministrazione italiana: 1861–1993* (Bologna: Il Mulino, 1996).
- Menduni, Enrico. *L'autostrada del Sole* (Bologna: Il Mulino, 1999).
- Merriman, Peter. *Driving Spaces: A Cultural-Historical Geography of England's M1 Motorway* (Malden: Wiley-Blackwell 2007).
- Milani, G. "L'autostrada Padova–Venezia." *Le vie d'Italia* 10 (1933), 262–275.
- Millward, Robert. *Private and Public Enterprise in Europe: Energy, Telecommunications and Transport, 1830–1990* (Cambridge: Cambridge University Press, 2005).
- Mioni, Alberto. *Metamorfosi d'Europa. Popolamento, campagne, infrastrutture e città 1750–1950* (Bologna: Compositori, 1999).
- Mitchell, Brian R. *European Historical Statistics* (London: Macmillan, 1975).
- Mochi, Carlo. "I trasporti." In *Annali dell'economia italiana 1923–1929* (Milano: Ipsoa, 1981), 177–218.
- . "I trasporti." In *Annali dell'economia italiana 1930–1938* (Milano: Ipsoa, 1982), 213–286.
- Mom, Gijs. "What Kind of Transport History Did We Get? Half a Century of JTH and the Future of the Field." *The Journal of Transport History* 24, no. 2 (2003), 121–138.
- . "Inter-artifactual Technology Transfer: Road Building Technology in the Netherlands and the Competition between Bricks, Macadam, Asphalt and Concrete." *History and Technology: An International Journal* 20, no. 1 (2004), 3–23.
- . "Roads without Rails: European Highway-Network Building and the Desire for Long-Range Motorized Mobility." *Technology and Culture* 46, no. 4 (2005), 745–772.
- . "Building an Automobile System; PIARC and Road Safety (1908–1938)." Proceedings of the PIARC Conference. Paris. 17–23 September 2007. CD-Rom.



- . "Decentering Highways: European National Road Network Planning from a Transnational Perspective." In *Die moderne Strasse*, ed. Hans-Liudger Dienel and Hans-Ulrich Schidt (Frankfurt am Main: Campus, 2010).
- . *Atlantic Automobilmism: Emergence and Persistence of the Car, 1895–1940* (New York and Oxford: Berghahn, 2015).
- Mom, Gijs, and Laurent Tissot, eds. *Road History. Planning, Building and Use* (Neuchatel: Alphil, 2007).
- Moraglio, Massimo. *Strade e politica* (Alessandria: Edizioni dell'Orso, 2003).
- . "Disoccupazione e manifestazioni di piazza: opere pubbliche e politiche sociali nella Torino degli anni Trenta." *Mezzosecolo* 13 (2003), 163–180.
- . "A Rough Modernisation: Landscapes and Highways in Italy in the 1900s." In *The World Beyond the Windshield: Roads and Landscapes in the United States and Europe*, ed. Christoph Mauch and Thomas Zeller (Ohio University Press, 2007).
- . "Highway Networks in Italy and Germany Between the Wars: A Preliminary Comparative Study." In *Road History. Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchatel: Alphil, 2007), 168–182.
- . "Real Ambition or Just Coincidence? The Italian Fascist Motorway Projects in Interwar Europe." *The Journal of Transport History* 30, no. 2 (2009), 163–182.
- . "Per una storia dell'autostrada Roma–Napoli." *Annale di storia regionale* 3, no. 4 (2009), 243–266.
- . "European Models, Domestic Hesitance: The Renewal of the Italian Road Network in the Interbellum." *Transfers: Interdisciplinary Journal of Mobility Studies* 2, no. 1 (2012), 87–105.
- . "Transferring Technology, Shaping Society: Traffic Engineering in PIARC Agenda, in the Early 1930s." *Technikgeschichte* 80, no. 1 (2013), 13–32.
- Möser, Kurt. "The Dark Side of 'Automobilmism', 1900–30: Violence, War and the Motor Car." *The Journal of Transport History* 24, no. 2 (2003), 238–258.
- Mostra internazionale della strada, Milano–Settembre 1926* (Milano: Bestetti e Tumini, 1926).
- Mussolini, Benito. *Opera Omnia, volume 21* (Firenze: La Fenice, 1972).
- Navas, Teresa. "Il riflesso della modernità: le autostrade spagnole, 1920–1960." *Storia urbana* 100 (2002), 26–54.
- Norton, Peter. *Fighting Traffic: The Dawn of the Motor Age in the American City* (Cambridge, MA: MIT Press, 2008).
- Nuad, E. "Soixante ans de l'Aipcr/Sixty years of Piarc." In *Aipcr/Piarc 1909–1969* (Paris: Aipcr/Piarc, 1970), 15–28.
- O'Connell, Sean. *The Car and British Society: Class, Gender and Motoring. 1896–1936* (Manchester: Manchester University Press, 1998).
- Olivetti, Gino. "Il problema della strada." *Gazzetta del Popolo*. 19 October 1924.
- "L'on. Mussolini a Lainate inizia i lavori per le autostrade." *La Stampa*. 27 March 1926.
- Ornati, Lucillo. "Lo 'Studio Tecnico Puricelli', l'Italstrade e la SPEA." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 170–177.
- Packer, Jeremy. *Mobility without Mayhem: Safety, Cars, and Citizenship* (Duhham, NC: Duke University Press, 2008).
- Pala, Gianfranco, and Maurizio Pala. "Lo sviluppo dei trasporti." In *Lo sviluppo economico in Italia. Storia dell'economia italiana negli ultimi cento anni* (Milano: Franco Angeli, 1969), 345–387.

- Paolini, Federico. *Un paese a quattro ruote. Automobili e società in Italia* (Venezia: Marsilio, 2005).
- . *Storia sociale dell'automobile in Italia* (Roma: Carocci, 2007).
- La partecipazione italiana al sesto congresso internazionale della strada, Washington, ottobre 1930* (Roma: Genio Civile, 1931).
- Pasini, Albino. *Relazione a S.E. il ministro dei Lavori pubblici on. avv. Giovanni Giuriati sul problema della strada moderna* (Milano: Stamperia Capriolo e Massimini, 1925).
- Passalacqua, Arnaud. *La bataille de la route* (Paris: Descartes & Cie, 2010).
- "Per l'autostrada Torino–Milano. Una riunione di enti interessati." *La Stampa*. 29 July 1925.
- "Perché l'Italia automobilistica sia alla pari delle grandi Nazioni." *Corriere della sera*. 29 October 1927.
- "Per una direttissima stradale Roma–Littoria–Napoli," *Le vie d'Italia* 9 (1935).
- Pini, Giuseppe. "Piano regolatore delle autostrade italiane." *Politica dei trasporti* 5 (1951), 151–157.
- Pivato, Stefano. *Il Touring Club Italiano* (Bologna: Il Mulino, 2006).
- Podestà, Gian Luca. "Building the Empire: Public Works in Italian East Africa (1936–1941)." *Entreprises et histoire* 70 (2013), 37–53.
- Polese, Arturo. *Criteri costruttivi delle autostrade* (Napoli: Guf Mussolini, 1938).
- Primo congresso nazionale delle rappresentanze provinciali* (Torino: s.e., 1898).
- "Il progetto per l'autostrada Venezia–Trieste," *Le vie d'Italia* 3 (1935).
- "Public Works, The Automobile Road." In *The New Encyclopædia Britannica, volume 26, Macropædia* (Chicago: Encyclopædia Britannica Inc., 1994), 325–326.
- Puricelli, Piero. *Rete stradale per autoveicoli Milano–Lago di Como Milano–Varese Milano–Lago Maggiore. Relazione* (Milano: Umberto Grioni, s.d. [1922]).
- . *Le autostrade e la Milano–Laghi* (Milano: Bestetti e Tuminelli, 1925).
- . "Che cos'è un'autostrada e dove occorre." In *L'autostrada Bergamo–Milano* (Bergamo: Istituto italiano d'arti grafiche, 1927), 3–7.
- . "La rete autostradale europea." *Le strade* 12 (1934), 732–733.
- Quarte congrès international de la route, Seville, 1923. Compte rendu des travaux du congrès* (Rennes-Paris: Oberthur, 1924).
- R, M. "L'autostrada: problema internazionale." *Il popolo d'Italia*. 23 February 1932.
- Ragazzi, Giorgio. *I signori delle autostrade* (Bologna: Il Mulino, 2008).
- Ragionieri, Ernesto, ed. *Storia d'Italia*, vol. 4, *Dall'Unità a oggi: La storia politica e sociale* (Torino: Einaudi, 1976).
- "Il regime per la classe operaia. Una visita del Prefetto ai lavori dell'autostrada." *Gazzetta del Popolo*. 18 January 1930.
- Renneberg, Monika, and Mark Walker, eds. *Science, Technology, and National Socialism* (Cambridge: Cambridge University Press, 1993).
- "La rete stradale di prima classe e il piano tecnico e finanziario per sistemarle." *Corriere della sera*. 30 October 1927.
- Rinelli, Savino. "L'evoluzione della tecnica autostradale dall'anteguerra agli anni cinquanta." *La rivista della strada* 394 (1974), 1–15.
- . "A10 Genova–Ventimiglia." in *Le autostrade della seconda generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1990), 158–165.
- "La riunione del comitato Autostrada Torino–Milano." *Gazzetta del Popolo*. 23 July 1924.
- Rocco, Vito. "La 'tassa' di pedaggio." In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 164–169.

- . "La legislazione autostradale italiana dal '55 al '75." In *Le autostrade della seconda generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1990), 28–35.
- Rohkrämer, Thomas. "Antimodernism, Reactionary Modernism and National Socialism: Technocratic Tendencies in Germany, 1890–1945." *Contemporary European History* 8, no. 1 (1999), 29–50.
- Romano, Roberto. "Silvio Benigno Crespi." In *Dizionario biografico degli italiani, volume 30* (Roma: Istituto della enciclopedia italiana, 1984), available at [http://www.treccani.it/enciclopedia/silvio-benigno-crespi\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/silvio-benigno-crespi_%28Dizionario_Biografico%29/), accessed on 3 April 2016.
- Rotelli, Ettore. *Il martello e l'incudine. Comuni e Province fra cittadini e apparati* (Bologna: Il Mulino, 1991).
- Ruffilli, Roberto. *La questione regionale in Italia dall'Unificazione alla Dittatura 1862–1942* (Milano: Giuffrè, 1969).
- Ruppmann, Reiner. "Das europäische Autobahnnetz: Weiterhin Hoffnungsträger oder primär Funktionsraum für die Transit-Ökonomie? (Teil 1)." *Zeitschrift für Weltgeschichte* 14, no. 2 (2013), 81–107 and "Teil 2." 15, no. 1 (2014), 163–180.
- . "The Development of the European Highway Network: A Literature Survey of Studies on Highway History in European Countries." In *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency*, ed. Colin Divall and Ralf Roth (Surrey: Ashgate, 2015), 275–314.
- Sachs, Wolfgang. *For Love of the Automobile: Looking Back into the History of our Desires* (Berkeley: University of California Press, 1992).
- Sandulli, Aldo, ed. *I lavori pubblici* (Vicenza: Neri Pozza, 1969).
- Sansoni, Arturo. "Notizie ed impressioni sulle strade degli Stati Uniti d'America." *Le strade* 5 (1923), 137–142.
- Sapelli, Giulio. *Fascismo grande industria e sindacato* (Milano: Feltrinelli, 1975).
- Schipper, Frank. *Driving Europe* (Amsterdam: Aksant, 2008).
- Schivelbusch, Wolfgang. *Three New Deals: Reflections on Roosevelt's America, Mussolini's Italy, and Hitler's Germany, 1933–1939* (New York: Metropolitan Books, 2006).
- Schnapp, Jeffrey T. "Crash (Speed as Engine of Individualization)." *Modernism/Moderernity* 6 (1999), 1–49.
- Schot, Johan, and Vincent Lagendijk, "Technocratic Internationalism in the Interwar Years: Building Europe on Motorways and Electricity Networks." *Journal of Modern European History* 6, no. 2 (2008), 196–217.
- Schütz, Erhard, and Eckhard Gruber, *Mythos Reichsautobahn. Bau und Inszenierung der "Straßen des Führers" 1933–1941* (Berlin: Ch. Links, 1996).
- Seely, Bruce E. *Building the American Highway System: Engineers as Policy Makers* (Philadelphia: Temple University Press, 1987).
- . "An Overview Essay: Roads in Comparative Perspective." In *Road History. Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchâtel: Alphil, 2007), 13–32.
- . "Inventing the American Road: Innovation Shaping the American Freeway." in *From Rails to Roads and Back Again? A Century of Transport Competition and Interdependency*, ed. Colin Divall and Ralf Roth (Surrey: Ashgate, 2015), 233–274.
- Seiler, Cotton. *Republic of Drivers: A Cultural History of Automobility in America* (Chicago: University of Chicago Press, 2008).
- I sessant'anni di Touring Club 1894–1954* (Milano: Tci, 1954).

- Sheller, Mimi, and John Urry. "The City and the Car." *International Journal of Urban and Regional Research* 24, no. 4 (2000), 737–757.
- "Sintesi dei dati tecnico-costruttivi ed avanzamento lavori delle 'autostrade della prima generazione.'" In *Le autostrade della prima generazione* (Milano: Spa per l'Autostrada Serravalle–Milano–Ponte Chiasso, 1984), 137.
- Sircana, Giuseppe. "Aldo Finzi." in *Dizionario biografico degli italiani, volume 48* (Roma: Istituto della enciclopedia italiana, 1997), available at [http://www.treccani.it/enciclopedia/aldo-finzi\\_%28Dizionario\\_Biografico%29/](http://www.treccani.it/enciclopedia/aldo-finzi_%28Dizionario_Biografico%29/), accessed on 31 March 2016.
- Spera, Giuseppe. *L'autovia Roma–Terracina–Gaeta–Napoli e l'avvenire di Roma e Napoli* (Roma: Tip. Coop. Sociale, 1906).
- La strada in Italia dall'unità ad oggi, 1861–1987* (Roma: Anas, 1987).
- "Le strade del mondo." *Le strade* 2 (1939), 87–89.
- "Le strade per automobili. Da Milano ai laghi e Varese con strade apposite." *Corriere della Sera*. 22 March 1922.
- Suardo, Giacomo. *Sulle autostrade. Discorso del senatore Giacomo Suardo pronunciato nella tornata del 28 maggio 1930* (Roma: Tipografia del Senato, 1930).
- "La trasformazione della nostra rivista." *Le strade* 12 (1918), 133–135.
- Unione delle Province d'Italia. *La provincia nell'ordinamento amministrativo moderno. Relazione e statistiche dimostrative* (Roma: F.lli Pallotta, 1923).
- Vahrenkamp, Richard. "Planning and Constructing the Autobahn Network in Germany During the Nazi-Period: Styles and Strategies." In *Road History: Planning, Building and Use*, ed. Gijs Mom and Laurent Tissot (Neuchatel: Alphil, 2007), 87–98.
- . *The German Autobahn 1920–1945: Hafra Vision and Mega Projects* (Lohamr: Eul, 2010).
- Vandone, Italo. "Per una radicale soluzione legislativa dei problemi stradali." *Le strade* 7 (1921), 219–225.
- . "Il 'circuito di Milano' nel parco di Monza." *Le vie d'Italia* 8 (1922), 817–824.
- . "Le 'Autostrade' da Milano ai laghi lombardi." *Le Strade* 2 (1923), 33–37.
- . "Il primo colpo di piccone per le autostrade da Milano ai laghi." *Le Strade* 5 (1923), 133–134.
- . "Commenti al congresso di Siviglia." *Le Strade* 7 (1923), 197–198.
- . "A proposito di autostrade." *Le strade* 11 (1923), 328–331.
- . "Sei mesi di lavoro per le autostrade." *Le vie d'Italia* 12 (1923), 1283–1293.
- . "L'autostrada Pedemontana Torino–Trieste." *Le Strade* 5 (1928), 133–135.
- . "Autostrade internazionali." *Le Strade* 4 (1932), 91–92.
- . "L' 'autocamionabile' Genova–Milano–Torino." *Le strade* 7 (1932), 177–194.
- . "L' 'Autocamionabile' e le strade di Val Padana." *Le strade* 8 (1932), 209–219.
- . "Le autostrade della Germania." *Le strade* 2 (1934), 80–84.
- Vaselli, Romolo. *Mezzo secolo di lavoro* (Roma: Sansaini, 1955).
- Winner, Longdon. "Do Artifacts Have Politics?." *Dedalus* 109, no. 1 (1980), 121–136.
- Zamagni, Vera. *Lo Stato Italiano e l'Economia. Storia dell'intervento Pubblico dall'unificazione ai Giorni Nostri* (Firenze: Le Monnier, 1981).
- . *The Economic History of Italy* (Oxford: Clarendon Press, 1993).
- Zanchi, V. "L'autostrada Napoli–Pompei." *Le vie d'Italia* 2 (1929), 153–155.
- Zechini, Quinto. *Le strade italiane nel primo centenario dell'unità nazionale* (Roma: Editoriale Firema, [1961]).
- Zeller, Thomas. "'The Landscape's Crown': Landscape, Perceptions, and Modernizing: Effects of the German Autobahn System, 1934–1941." In *Technologies of Landscape: From Reaping to Recycling*, ed. David Nye (Amherst: University of Massachusetts Press, 1999), 218–239.

- . *Driving Germany: The Landscape of the German Autobahn, 1930–1970* (New York: Berghahn, 2010).
- Ziegler, Volker. "Les Autoroutes du IIIe Reich et leurs origines." In *Les années 30. L'architecture et les arts de l'espace entre industrie et nostalgie*, ed. Jean-Louis Cohen (Paris: éditions du Patrimoine, 1997), 207–213.
- . "Il progetto autostradale tedesco fra città e territorio: 1925–1955." *Storia urbana* 100 (2002), 85–120.
- Zorzi, Elio. "Il nuovo ponte autostradale tra Venezia e la terraferma." *Le vie d'Italia* 4 (1933), 262–275.



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