

## Women Pioneers in Civil Engineering and Architecture in Italy: Emma Strada and Ada Bursi

It is well known that Italian culture has discriminated against women in the fields of education and profession. Why is this? Before and immediately after the Second World War, women civil engineers and architects used strategies to overcome their gender marginality. Did these strategies influence their experiences within the profession and the recognition they received? What were the factors that enabled women to enter the patriarchal spheres of the professions? What were the roles of the first female civil engineers and architects in Italy and especially in Turin which was the capital of industry? What motivated their choice of profession and how were these women received in the male-dominated world of work? The history of two almost unknown female pioneers, Emma Strada and Ada Bursi, helps answer these questions and it gives rise to new ones.

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Italian law never explicitly denied women access to university, but in the nineteenth century the presence of women at university was low. From 1867 to 1900 there were 224 women graduates in Italy. In the same period 49,8% of female degrees were taken in northern Italy and 26,9% of this number were from Turin.<sup>1</sup>

In the first decades of the twentieth century the number of women graduates did not increase much. This is also related to the fact that in 1910–11 there were 791 girls in all high schools of the Kingdom of Italy, while the number of boys was 13,551.<sup>2</sup>

In Italy, university was free and open to anyone who qualified, but then in 1923 Education Minister Giovanni Gentile passed a law limiting access to university to those who had attended the following high schools: *liceo classico*, *scientifico* or *artistico*. In the same year, secondary schools began to segregate boys and girls.<sup>3</sup> Girls' secondary schools were created and soon became the only choice for women to study, preventing them from entering university which was now reserved for students coming from the above mentioned *licei*.

Since the two major Italian engineering schools, the *Politecnico di Torino*<sup>4</sup> and *Politecnico di Milano* (1863)<sup>5</sup> were founded in the northern industrial area, the first civil engineers came from Turin and Milan. It is known that these cities were not just the most modernised in Italy, but they would soon become

1 Cf. Michela De Giorgio, "Donne e professioni," in Anna Maria Malatesta (ed.), *I professionisti* (Torino: Einaudi, 1996), 455–456, vol. 10 of the collection *Storia d'Italia: Annali*.

2 Cf. Marino Raicich, "Liceo, università, professione: un percorso difficile," in Simonetta Soldani (ed.), *L'educazione delle donne: Scuole e modelli di vita nell'Italia dell'Ottocento* (Milano: Franco-Angeli, 1989), 168.

3 About fascist school policy in Italy see Jürgen Charnitzky, *Facismo e scuola: La politica scolastica del regime (1922–1943)*, (Firenze: La Nuova Italia, 1996).

4 The *Regio Politecnico di Torino* was founded in 1906 following the merger between the former military school *Regia Scuola di Applicazione per ingegneri* (established in 1859) and *Regio Museo Industriale* (established in 1863). Before starting the three years of the *Scuola di Applicazione*, students in engineering had to attend two preparatory years at the *Università di Scienze*. See: Giovanni Maria Pugno, *Storia del Politecnico di Torino* (Torino: Stamperia Artistica Nazionale, 1959), 32–149.

5 On the history of the *Politecnico di Milano* see: Ferdinando Lori, *Storia del R. Politecnico di Milano* (Milano: Tip. A. Cordani, 1941).

the centres of the post-war economic boom and the forefront of Italy's women's movement. Women would become a significant minority, active in the vicissitudes of post-war Italian civil engineering, architecture and design, normally collaborating with male professionals and rarely alone.

Compared to the rest of the country, the region of Piedmont was among the first to welcome women into universities which could give them access to professional orders.

Piedmont's standards of excellence were also helped by the presence of religious minorities, such as Jews and Waldensians, which were characterized by a level of education that gave girls access to higher education.<sup>6</sup> Although the presence of women was accepted in universities, it was not the same at the *Regio Politecnico di Torino* which taught practical, applied sciences.

Reflecting the mentality of the time, technical studies were not at all considered feminine and, because of social pressure, women simply did not apply for them. Furthermore, the *Politecnico* was conditioned by its military school roots, thus by tradition it was more difficult for women to enter.

For a woman in Italy in the twenties, civil engineering or architecture were still an unusual choice of profession and in most cases women benefitted from family tradition. However, from the early thirties, girls' enrolment at courses of civil engineering and architecture were no longer seen as an exception. Indeed, from 1944 to 1947 the enrolment of women at the Faculty of Architecture in Turin (established at the *Politecnico* since 1929) increased at a rate faster than that of men.

In 1945–46, 25% of the school population was female and in the fifties and sixties the number of female graduates continued to grow, while the number of male graduates was static.<sup>7</sup> As in other European countries, the war was one of the factors that may explain this phenomenon.

At the *Politecnico di Milano*, the increase in female students enrolled was disproportionately higher than the general growth of the faculty. The numbers of women graduating was, however, lower and less consistent: in 1944 women made up 33% of graduates, but in 1962 they were just 24%.<sup>8</sup>

In 1951 just 17 female architecture students were enrolled at the *Politecnico di Milano*, a number that rose to 223 in 1969, anticipating women's professional emergence in the Italy of the 1960s.<sup>9</sup>

Very few women undertook an academic career. Among the first professors at the *Politecnico di Milano* were the architects: Cini Boeri (1924, graduated in 1951), Raffaella Crespi (1929, graduated

in 1955) and Franca Helg (1920–1989, graduated in 1945)<sup>10</sup>. At the *Politecnico di Torino* worked: Mariella de Cristoforo Rovera (1931–2001, graduated in 1955), Vera Comoli (1935–2006, graduated in 1961), Giovanna Maria Zuccotti (1926–2004, graduated in 1950).<sup>11</sup> Most of them became assistant professors or full professors around the eighties.

### Access to the Civil Engineering and Architecture Professions

Immediately before and after the Second World War, a significant number of women architects and engineers were born into an open-minded elite, less bound by gender roles. The issue of class and consequentially the educational advantage were also relevant for women's access to the professions.<sup>12</sup>

Women usually began their professional career working with their fathers, brothers or husbands, most of the time without signing their projects or receiving credit for their work. There were women who chose to remain anonymous, working alongside their husbands or for their mentors and studio owners, or sometime in teams.<sup>13</sup> This is one of the reasons why there are just a few publications which focus on this specific subject covering Italy.<sup>14</sup> One other reason is that for a long time it was

10 Among the first generation of women architects and designers who emerged in the post-war period were: Gae Aulenti, Cini (Maria Cristina) Boeri, Anna Castelli Ferrieri and Franca Helg were all born between 1920 and 1927. All graduated from the *Politecnico di Milano* between 1945 and 1953. Cf. Simona Grasselli and Mirella Valota, "Nel segno di Estia: Istruzione Politecnico e Professione in Architettura delle Donne a Milano" (diss. Politecnico di Milano, 1994–1995), 54.

11 For the *Politecnico di Torino* see: Vittorio Marchis (ed.), *Progetto cultura società: La scuola politecnica torinese e i suoi allievi* (Torino: Associazione Ingegneri e Architetti ex Allievi del Politecnico di Torino, 2010), 202–203, 216–217, 220–221.

12 As noticed by Catherine Rossi: Antonia Astori, Emma Gismonde Schweinberger and Cini Boeri all had brothers who had studied in the field of architecture. Giogina Castiglioni and Maria Luisa Belgiojoso were both daughters of celebrated architects Piergiacomo Castiglioni and Ludovico Barbiano di Belgiojoso of the rationalist group BBPR. Cf. Catherine Rossi, "Furniture, Feminism and the Feminine: Women Designers in Post-war Italy, 1945 to 1970," *Journal of Design History* 3 (2009), 248.

13 In the post-war Italian context, while architects-designers such as Franco Albini, Tobia Scarpa and Ico Parisi achieved a considerable degree of recognition, their partners, Franca Helg, Afra Scarpa and Luisa Parisi, have been marginalised. Outside Italy, the extensively documented partnership of Charlotte Perriand and Le Corbusier; Charles and Ray Eames and Sadie Speight and Leslie Martin illustrate the problems the female partners had during collaboration. To explore the dynamics of creative partnerships, see: Whitney Chadwick and Isabelle De Courtivon (eds.), *Significant others: Creativity and intimate partnerships* (London: Thames & Hudson, 1993).

14 On women architects see: Gisella Bassanini, "Le 'madri dell'architettura moderna': Alcuni ritratti nel panorama italiano e straniero," *Parametro* 257 (2005), 20–23; Claudia Mattogno, "Muse, committenti, progettiste: Il lungo percorso delle donne in architettura," *Tria* 10 (2013), 71–84; Maria Grazia Eccheli and Mina Tamborrino, *donna Architettura: Pensieri idee e forme al femminile* (Milano: Franco-Angeli, 2014). On women designers/architects see: Nicoletta Livi Bacci, Anna Luppi and Milly Mazzei (eds.), *Design delle Donne* (Milano: Arnoldo Mondadori arte, 1991); Tiziana Occeppo and Anty Pansera (eds.), *Dal Merletto alla Motocicletta: Artigiane/Artiste e Designers nell'Italia del Novecento* (Milano: Silvana Editoriale, 2002), Exhibition catalogue; Anty Pansera and Maria Teresa Chirico De Biasi, *Nientedimeno: Nothing Less: The strength of female design* (Torino: Allemandi & C., 2011).

6 In 1881, at the University of Turin, Lidia Poët was the first woman in Italy to graduate in law. She was a Waldensian.

7 These data are deduced by the author from: Associazione Ingegneri e Architetti, *Annuario ex Allievi Politecnico di Torino 1961* (Torino: Stamperia Artistica Nazionale, 1961), 31–35.

8 The disparity is larger than would be expected, despite a greater trend in Italy than elsewhere in Europe for abandoning one's studies. In the 1960s, women entered higher education in ever greater numbers and by 1962 made up nearly half the student body. Cf. Politecnico di Milano, *Annuario* (Milano: Politecnico di Milano, 1970), 466.

9 Cf. Raffaella Crespi, "Donna e Architetto," in Barbara Mapelli (ed.), *Donna e Istruzione Politecnica: Atti del convegno, Milano 1987* (Milano: Franco Angeli, 1987), 87.

In Turin, the interior designer M. Besso (?) won first prize for the furnishing of new shops on the main street of the city, via Roma.<sup>30</sup> The enlargement of this street was the largest urban renewal promoted in Italy during Fascism. Many architects were involved in architectural reconstruction, but there were no women among them. As the case of Besso testifies women were confined in interior design tasks.

The example established by these female architects clearly demonstrates the level of excellence that women had to reach in order to fill traditionally male positions.

### Italy's First Woman Civil Engineer: Emma Strada in Context

Emma Strada (Torino, 1884–1970) finished the *Liceo Classico Massimo d'Azeglio* high school in Turin in 1903 (Fig. 4). Her decision to attend this school already showed her intention to go on to university. The same year she was enrolled in the preparatory course in Engineering Sciences at the University of Turin,<sup>31</sup> which would later allow her to enroll in the *Scuola di Applicazione per Ingegneri*. On 5 September 1908, she graduated with honours from the *Regio Politecnico di Torino* and finished third out of the 62 students enrolled in her course. Emma Strada was Italy's first woman graduate in Civil Engineering.<sup>32</sup>

She became assistant of Luigi Pagliani, who was the director of the *Gabinetto di Igiene Industriale* (Cabinet of Industrial Hygiene) at the University of Turin and a lecturer at the *Politecnico* in the course of Hygiene. As a result of social constraint, there was no chance a woman could have an academic career and consequently she had to work for her father and brother, who were both engineers. Her father, Ernesto Strada, was a provincial councillor of Turin and directly involved in the city's building policies.

Turin has been a developed industrial city since the early twentieth century and has seen a complete transformation of its socio-cultural outlook. The city was revitalised and expanded and many civil engineers and architects were involved in the urban transformation process, although to our knowledge no women were involved.

30 Cf. Speckel, "Architettura moderna e donne architetto," 131.

31 Cf. "Registro di matricola relativo all'allieva Emma Strada," Archivio Storico Università di Torino (or ASUTo), *Registro immatricolazione studenti Facoltà di Scienze Fisico-matematiche*, 19.

32 On Emma Strada see: Margherita Bongiovanni, "Strada, Emma," in Béatrice Didier, Antoinette Fouque and Mireille Calle-Gruber (eds.), *Le dictionnaire universel des Créatrices* (Paris: Editions des Femmes, 2013), Vol. 3, 4127; Caterina Franchini, "Emma Strada and Ada Bursi: The First Female Civil Engineer and Architect in the Italian Capital of Industry, Turin," in Jorge Correia (ed.), *Ist International Meeting EAHN: European Architectural History Network, Book of Abstracts, CD of Papers* (Guimarães: EAHN, 2010), 216–225; Pina Novello and Elena Marchis, "Emma Strada: Temi, forme e maestri della formazione politecnica, progetti, disegni e opere della professione di progettista," in Associazione Italiana di Storia dell'Ingegneria, *Storia dell'Ingegneria: Atti del 3° Convegno Nazionale, Napoli 19–20–21 Aprile 2010* (Napoli: Cuzzolin, 2010), Vol. 2, 1047–1056.



Fot. cav. Lovazzano.  
**La signorina Emma Strada di Torino,  
prima laureata ingegnere in Italia.**  
[Vedi il *Corriere*].

Fig. 4. Photographic portrait of Emma Strada, the first woman civil engineer in Italy, 1908. Propriety of the author (Copyright free).

In 1910, Emma's father closed his studio in Turin and the archival documents do not show that he opened a new studio in the city under his name, perhaps because he had already moved his professional activities to Calabria.<sup>33</sup> These were the years when professionals and workers from the North led the modernization in southern Italy.

In Catanzaro, Emma probably helped her father on the construction of the auto-moto-funicular railway, junction Catanzaro-Sala (Fig. 5).

After Emma father's death in 1915, she worked with her brother Eugenio. In Liguria and in Piedmont she designed also some railway sections.<sup>34</sup> As a woman civil engineer she succeeded remarkably well in the railway sector which was traditionally male.

In Turin, she worked on the project for a children's nursery in the *Crocetta* district although the drawings preserved in the historical city archive do not bear her signature.<sup>35</sup> From the pages of the *Annuario in Almanacco della Donna Italiana* we know that in 1937 Emma had her professional studio in Turin (via Bove n. 2).<sup>36</sup>

After the First World War, Piedmont was the most industrialized region of Italy. Because of the war, women took the place of men in factories, offices and public services, thus women demonstrated their working ability. This event contributed to the change of mentality and established a different conception of social relationships.<sup>37</sup>

At the end of the Second World War, women had gained civil rights like those of men (law decree 2 February 1945) and gender equality (Italian Constitution 1948) nevertheless, equality at work would only be fully legally recognised in 1977 (law 9 December 1977 n. 903).

Since women's aspirations were more ambitious and they were conscious of their own value,

33 Cf. *Annali Paravia*, microfilm (1910), ASCTo.

34 Emma Strada's projects and works are listed and partially described in: Bongiovanni, "Emma Strada," 94–95; Novello and Marchis, "Emma Strada," 1051.

35 Scuola materna Crocetta, 1868–1980, ASCTo, Archivi Aggregati.

36 Cf. Silvia Bemporad, "Annuario," *Almanacco Annuario della Donna Italiana* 15 (1937), 475.

37 During the war, women belonging to the upper classes joined the Red Cross and enrolled in the *Consiglio Nazionale delle Donne Italiane* (National Council of Italian Women), that was inspired by patriotic and emancipationist values. Cf. Rosa Rosá, "Le donne cambiano finalmente," *L'Italia Futurista* 27 (1917), 2.

Bursi worked as a professional architect during the reconstruction of post-war Turin, when the number of *architette* (women architects) started to rise: there were 43 women architects in 1961 in Turin out of 306.<sup>72</sup> She was also involved in the urban growth of the 1970s with some projects of urban design and restoration, until she left the *Ordine degli Architetti* in 1975 and ended her career.<sup>73</sup>

## Conclusion

Emma Strada and Ada Bursi epitomize the complexity of questions related to the choice of a liberal profession and the difficulties that women needed to challenge especially in terms of social-cultural pressure. On one hand, the case of Emma Strada shows us how the family background was determinant for the success in the profession. On the other hand, the biography of Ada Bursi confirms that the boundaries between architecture, interior design, industrial design and graphic design are typical of the Italian case and are indifferent to gender. However, cultural norms confined professional work of women architects in areas related to the home and motherhood.

Some questions are still to be investigated and some of these are listed below. Were women civil engineers and architects intended to devote themselves completely to their career? How did their private lives influence their professional choices? Has participation in women's associations to defend the right to exercise a liberal profession actually helped women in their work?

Now we know that thanks to these professionals the status of women in engineering and architecture in Italy began to change in the second half of twentieth century.

## Caterina Franchini

Politecnico di Torino - Interuniversity Department of Regional & Urban Studies and Planning - DIST, Italy



Caterina Franchini, Ph.D. in History and criticism of architectural and environmental assets, Master in Conservation of historic towns and buildings. She is Assistant Professor of History of Architecture at the Politecnico di Torino - DIST. She has been lecturing History of Visual communication and Design at the Politecnico di Torino since 2010 and History of Modern Design and History of Interior Design at the University Studies Abroad Consortium since 2006. Her research interests include gender studies in architecture, industrial and interior design. She is Assistant Project Leader of the European project "Women's creativity since the Modern Movement - MoMoWo".

E-mail: d004200@polito.it

<sup>72</sup> Cf. Associazione Ingegneri e Architetti, *Annuario*, 31–35.

<sup>73</sup> *Cancellazione dall'Albo degli Architetti delle Province di Torino, Asti e della R.A. Valle D'Aosta, Torino 27 maggio 1975 (Prot. n. ° 205)*, folder "Ada Bursi," Archive OAT.