

Girls and Women in Mines: an Invisible Path of Forced Labour in Italy

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SUMMARY

This study aims to shed light on the largely understudied history of girls and women working in Italian mines during the 19th and 20th centuries. Giovanni Loriga authored an outstanding paper on Pneumoconiosis in 1930 at the Johannesburg Conference. By examining his sources from earlier surveys, travel records, and congress proceedings, the research uncovers data on women and girls in slate (Liguria), asbestos (Piedmont), zinc-lead (Sardinia and Lombardy), and sulfur mines (Sicily), along with their working conditions. The research findings reveal that girls and women were integral to the mining industry throughout Italy, despite being underrepresented and relegated to specific tasks. Ultimately, the paper explores the development of protective Italian legislation, its inadequate enforcement, and suspension during World War I. The paper concludes by highlighting the ongoing global issue of girls' labour in mines, drawing a parallel between the historical situation in Italy and the contemporary reality denounced by organizations like the ILO and UNICEF.

1. INTRODUCTION

“How can we know what happened in the past? We cannot travel back in time, ask the people who were alive long ago. Historians use evidence that survives from the past. Like detectives, they search for clues. They piece together what they think the past was like. Evidence can be of different kinds: archaeological evidence, oral history, visual evidence, written documents” [1]. When searching for women's labor pathways in male-dominated fields, such as mining, historical evidence is complex. The purpose of this paper is to shed light on the evidence of the invisible path of girls and women forced into mine labour from the beginning of the nineteenth century to the twentieth century in Italy. Due to the pneumoconiosis being a central health theme in mining work, research

began with the outstanding paper by Giovanni Loriga (1861-1950) at the Johannesburg Conference on Silicosis (13th-27th August 1930). Loriga, chief medical inspector of factories for Italy and member of the Committee on Industrial Hygiene of the International Labour Office (ILO), presented a fifty-page paper titled “*Pneumoconiosis in Italy*” with three pages dedicated to slate and one page to asbestos [2]. He reported on the work of women in slate quarries in Lavagna (Genoa, Liguria): “*About 1834 there existed in Monte San Giacomo (Cogorno) seventy slate quarries, now abandoned, and the whole population of the region (about 4,000 persons) was engaged in working the slate, the men as excavators and cutters and the women as transport workers*”. Loriga references were two works by Giovanni Antonio Mongiardini (1809, 1812), the honor thesis by Giovanni

Battista Ravenna (1812) *“De morbis quibus subiacent ardesianum effossore”* (Diseases of slate miners) and the monograph of Niccolò Della Torre *“Guide to the Quarries of Lavagna”* (1840).

2. GIRLS AND WOMEN IN SLATE QUARRIES

In 1809, the physician G.A. Mongiardini (1760-1841) published a “memoir” on the slate quarries of Lavagna [3][4]. He detailed the carrying of slate performed by girls and women: *“Every day, except holidays, you can see long lines of young and old women on the road that leads from Lavagna to Cogorno and S. Giulia, who, with the sole help of a rough diaper on the head, carry enormous weights.sometimes they are forced to march two, three, and four together in a row, and not in front, due to the narrowness of the path, to hold an extraordinarily heavy boulder.”* Mongiardini, at the end of the memoir, cited the chapter on the health of miners from the *De morbis artificum diatriba* by Bernardino Ramazzini (1713). No women are mentioned as miners in Ramazzini’s chapter, although, in the description of The Diseases of Porters, he describes women as porters, raising the question of why porters (men) carry heavy loads on their shoulders: *“...but women who carry great loads on their heads are obliged to walk erect, for any movement of the head to one side would move the heavy load that lies on it out of the perpendicular, and it would have to fall. It is wonderful to see how easily they carry huge baskets on their heads as they walk, erect and agile; this is because the weight is placed on a bone that is very strong and arched, the skull, and is directly above the vertebrae.”* [5].

Della Torre enriched Mongiardini’s description of women’s work in Lavagna (1840): *“Dangerous and extremely tiring work, done for a ridiculous fee of 30 cents a day... which would seem a small amount to a porter from Genoa for the journey of a quarter of an hour... Women, often still children or young girls, carried the slates from the mountain to the Lavagna beach, barefoot and with the load balanced on their heads.”* [6]. Previously, in 1834, in the book *“Traveling through Liguria on the sea”*, the words of the Italian writer Bertolotti: *“... we walked towards the mountains. Crowds of women descended from it, carrying slate slabs on their heads. On top of the slabs, they had the distaff*

and the spindle, because they spun when going to the quarries. They spin as soon as they put down their load: a single moment of idleness would seem like a crime to them. They carry out this transport from the quarries to the warehouses of the slabs in Lavagna in the morning and in the evening, attending to agricultural and domestic chores the rest of the day. The weight that they support on the spinal column is no less than 7 or 8 rubbi (the Genoese unit of measurement with the metric-decimal equivalent, 60 kilograms per trip). The bearers are fewer than the female bearers, but they also bear much heavier weights on their heads; and it seems that they seek balance with hurried steps, almost as if they were running” [7].

Loriga, in the slate quarries pages, also reported that: *“Devoto himself records, moreover, that, during the Congress of Italian Scientists held in Genoa in 1846, there was discussed the pathology and hygiene of work in the slate quarries and that a priest, Giuseppe Ravenna, summarized all the medical and sociological studies on the subject in a publication dated 1879 and entitled “Memoirs of Lavagna”.*

Giuseppe Ravenna, in *“Memories from Lavagna”* (1887), described the life of women in slate quarries as follows: *“Crowds of women and girls of all ages walked along the narrow pathways several times a day, in the summer, making up to four round trips a day to the coast. Images of the time portray crowds of barefoot women carrying slabs of slate on their heads arranged in a single file or paired two by two up to six couples ordered so that the weight is proportionate to the individual forces, who descended towards the sea using a cloth folded into a ring (sutestu) that allowed the transport of dormer windows with two or sometimes four workers. The last stretch of slate transport from the Lavagna warehouses to the beaches was always carried out by around forty female porters who lived in the coastal town and also took care of the boarding. Arriving alongside on rickety gangways, the sailors directly took the plates to place them in the hold”* [8].

Carlo Picchio, Luigi Devoto’s above-mentioned student, published in 1930 *“The Pathology of Slate Workers of Chiavari in the First Half of the Nineteenth Century”* in three parts of the journal *“La Medicina del Lavoro”*. In the first part [9], he reported that women slate carriers could only perform the pathway from the quarries to Lavagna two or three times

per day, earning only 80 centimes per day (a miner earned 4,000 centimes). In the second part [10], he described the technological change brought about by cableway transport, eliminating the need for women's work. In the third part [11], he argued that the high infant mortality in Lavagna in the nineteenth century was probably caused by women carrying slate stones, even during pregnancy. Women married at an early age (15 years old) and had a high fertility rate. Cases of childbirth during the pathway were reported in the register of the Cogorno parish. The lack of care for minors at home might also be the cause of high mortality among children. Tuberculosis was also a significant threat. Picchio also denounced the risk of work injuries due to quarry stone falls. It is conceivable that slate stones could also fall from women's heads, determining injuries not recorded in any of the cited works. The pathways of these women and girls from the quarries to the beach were pictured by unknown photographers in the late nineteenth century (Figure 1).

3. GIRLS AND WOMEN IN ASBESTOS QUARRIES

Loriga, in the section dedicated to asbestos, also cited the work of Luigi Scarpa: *"From an interesting statistical study made by Scarpa (1908), it would appear that out of 30 workers (9 men and 21 women) who had been engaged in manipulating asbestos in the mines or factory laboratories for weaving this mineral,*

and who were being treated in the department of the Turin Polyclinic under the direction of the author from 1894 to 1906, only one showed simple catarrhal lesions of the respiratory apparatus. The other 29 suffered from tuberculosis. All died in less than a year after the first medical examination, since the disease, in a short time, brought about destructive and ulcerative lesions of the lung. The author claims, therefore, that the asbestos industry is one of the most dangerous of those industries involving predisposition to pulmonary tuberculosis" [2]. The women with lung lesions treated at the Turin Polyclinic had likely worked in the asbestos quarries at Val di Lanzo and in the asbestos-processing factories in Nole Canavese, such as the Capamianto factory in Turin. In the mid-nineteenth century, asbestos production was also improved by Perotti and Brauns, who exhibited in a booth at the Turin International Exposition in 1898, and by Bender & Martiny (1899). In 1906, the Criminal and Civil Court of Turin issued a sentence on the asbestos victims both women and men, referring to testimonies, references and epidemiological issues, in favor of the local newspaper that stated *"The asbestos industry is more dangerous to the health of the workers than the other factories in Nole Canavese, because it yearly causes an incredible number of victims due to tuberculosis, bronchitis and gastroenteritis, as marked with sad frequency in the obituaries of men and women working with asbestos in that Municipality"* [12]. In the Piedmont region, long and short-fibre asbestos was



Figure 1. Women and girls carrying the slates at Lavagna, unknown photographer.



Figure 2. Women working in asbestos quarries in Valmalenco, photographer Secondo Incisa [13].

found in Val di Susa and Val di Lanzo, while in the Lombardy region, in Valtellina and Val Malenco in the province of Sondrio. Mining operations began in the early nineteenth century and progressively decreased until they ceased in the early 1930s, giving way to the talc mining industry. In Val Malenco, women and girls were employed in the Campo Frasca quarries to extract and process rocks containing asbestos in Tornadri. Images of women working in Campo Frasca quarries were published in *Italian Asbestos: Events and Prospects* by Secondo Incisa in 1933 (Figure 2) [13]. Small stones were removed from the asbestos and packed into bags weighing approximately 40 kilograms. Early in the morning, women and girls aged ten to fourteen carried the bags to the valley using a pannier. They transported asbestos to Tornadri, where machinery was ready to process it into engine gaskets, roof coverings, chimney flues, and coverings for school walls or train carriages. Here is a testimony from Speranza Bergomi, a girl who worked in the mines during the twentieth century: “I started transporting asbestos when I was a child in primary school and stopped at nineteen years old. Before school, I went to Campo Frasca every day to get asbestos, which I then carried to Tornadri, where there was a large warehouse near the fountain. I started

working at 5:00 a.m. and finished at 8:00 a.m., while still attending school. Then, as a girl, I would work until noon. I reached my workplace on foot because cars were costly, and few people could afford them. I made two trips a day, but some women made more. The transport was tiring, and you had to be very careful not to slip and fall; with that load, you could seriously injure yourself. In case of illness, we were allowed to stay home for only 10 days. I transported asbestos year-round, even in winter during deep snow; in this season, I used crampons (‘crapelle’) fixed to my boots. I received fifteen lire for each transport. I had no insurance, as it was not mandatory to insure workers daily.” [14].

In 1898, Lucy Deane and Adelaide Anderson, both British inspectors, highlighting the importance of having female inspectors, found the adverse effects of asbestos among girls, as dangerous material rather than “magic mineral”: “*The incessant sore throat, the irritation of the bronchial passages, the frequent colds on the chest, and hoarse voice, along with morning cough from which girls employed in dusty processes suffer, are symptoms that to casual observers could be easily attributed to other causes*” [15]. The first case of lung fibrosis resulting from the inhalation of asbestos dust was diagnosed only in 1924. The case was Nelly Kershaw (1891–1924), a girl-woman who,

from the age of thirteen, had worked in an asbestos factory in Rochdale (England) as a rover, spinning raw asbestos fiber into yarn, and died at the age of 33 [16]. In 1941, Bolognini, an occupational physician, confirmed, with his own words: “*The work is mostly done by men, with women’s help limited to the transport of the mineral*”, here the historical underestimation of the work of women in Valmalenco quarries [17].

4. GIRLS AND WOMEN IN SARDINIA MINES

The role of women and girls in Sardinia mines is well documented by Quintino Sella, Italian Deputy Chamber, in the *Report Mine Industry conditions in the Sardinia Island* (1871) [18]. Since 1859, before the unification of Italy, the Kingdom of Sardinia prohibited child labour under the age of 10 (art. 88, Law n. 3755, 1859). Sella compiled numerous tables of the Sardinian mines, providing an extraordinary picture of the many women and girls employed since 1860 (Table 1).

On average, 642 women (11% of all employees, years 1860-1869) were employed in Sardinia mines, of whom an average of 322 girls (50%) per year were under fourteen years old. Women were also employed in ore-processing foundries, with an average of 561 (16% of all employees) from 1859 to 1869, of whom 393 were girls (70%). Adult women (over 21 years old) received lower wages than men (1.55 lire), with wages related to age: 0.85 cents for those under fifteen years old and 1.15 cents for those

between fifteen and twenty-one years old. In the Montevecchio mine (Medio Campidano), which closed in 1991 after 143 years of operation, more than 100 women were employed in selecting and sieving lead and zinc minerals. In 1871, on Thursday, the 4th of May, eight girls (Elena Aru, 10; Caterina Pusceddu, 10; Anna Melis, 11; Anna Azeni, 12; Anna Pusceddu, 14; Anna Peddis, 14; Rosa Gentila, 15; Luigia Vacca, 15) and three women (Antioca Armas, 32; Luigia Murtas, 27; Rosa Vacca, 50) died due to the fall of a poorly built dormitory wall caused by the overweight of the water container for mineral washing [19]. Montevecchio’s working women were forced to sleep in the mine’s dormitory because the village was more than a six-kilometer walk from Arbus and even farther from Guspini. The owner bore no responsibility, and only two women with children received some compensation. In the same neighborhood, the Ingortosu mine (established in 1869) extracted lead and employed a total of 440 workers, including 129 women. In Villasalto, women and girls were employed in sorting materials at the Su Suergiu antimony mine. In 1903, the Regulation (Law n. 41, art. 5) was enacted to enforce the law on women and child labor (1902), requiring employers to register boys and girls under 15 years old working in the mines. The town of Buggerru (Carbonia-Iglesias) (Figure 3) can be considered the cradle of zinc extractive industries, where a mining village near the Malfidano mine was built, reaching a population of 8,000 inhabitants, including many young

Table 1. Sella Q. Mine industry conditions in the Sardinia Island (1871) (modified) [18].

Year	Men				Women				Total
	Adult	<14 y.o.	%	Total	Adult	<14 y.o.	%	Total	
1860	2,536	217	7.9	2753	251	234	48.2	485	3238
1861	3,131	362	10.4	3493	448	109	19.6	557	4050
1862	2,993	157	5.0	3150	299	177	37.1	476	3616
1863	3,408	447	11.6	3855	303	224	42.5	527	4382
1864-65	5,003	683	12.0	5686	309	477	60.6	786	6272
1865-66	5,493	636	10.4	6129	339	591	63.5	930	7059
1866-67	5,302	623	10.5	5925	224	451	66.8	675	6600
1867-68	7,118	493	6.5	7611	325	328	50.2	653	8264
1868-69	7,885	590	7.0	8475	386	310	44.5	696	9171



Figure 3: Girls in Buggerru-Planu Sartu mine (1896) [Costante Sanna collection] [19].

people, women, and child laborers [20]. In Buggerru (Planu Sartu), where calamine (zinc) was extracted, 660 people were employed, though only 420 during the summer. Malaria was prevalent, affecting around half of those workers who had come from the mainland. On 18th March 1913, in the Genna Arenas mine (Buggerru), four women sorters (Anna Rosa Murgia, 15; Anna Pinna, 24; Maria Saiu, 36; and Laura Lussana, 20) were killed when raw ore fell from a hopper that could not support the heavy load [21]. In 1905, at the Nebida mines (Iglesias), Dr. Giovanni Leone, director of the Nebida hospital, reported that twenty girls working in mineral washing at the Nebida mines suffered from chlorosis, amenorrhea, and miscarriages (Association of Miners in Nebida).

5. WOMEN AND GIRLS IN SICILIAN MINES

Pasquale Villari, an Italian historian and politician, revealed in the *Lettere Meridionali* the real conditions of southern Italy. Many of his works were translated into English by his wife, Linda White Mazini Villari (1836-1915). Villari wrote on Sicilian sulfur mines: “Now it is known that Sicily... is the centre of the sulphur mines, which, after agriculture, are the largest and richest industry on that island, an industry that employs many tens of thousands of workers of all sexes and ages” and “...hundreds and hundreds of boys and girls descend steep slopes or uncomfortable

stairs, dug into crumbling and often wet ground. Having reached the bottom of the mine, they are loaded with ore, which they must carry on their backs, risking slipping on the steep and unreliable terrain and falling to their deaths. Those of greater age come up, uttering heart-rending cries; the children arrive crying. Everyone knows, it has been repeated a thousand times, that this work causes indescribable slaughter among those people. Many die, many remain crippled, deformed, or sick for their entire lives... Weak organisms remain destroyed, the strong survive to command, tyrannize, oppress children and girls piled up in those dark hallways, where anything can happen. Man becomes brutalized, demoralized, and easily becomes an enemy of the society that treats him so ruthlessly” [22].

The first Italian law on Child Labour (Law Berti n. 3657) was promulgated in Italy only in 1886, following years of unsuccessful proposals. The first article cited: “*The work of children of one or the other sex is forbidden in industries, quarries and mines at the age of 9 years old or the age of 10 years old if the work is underground*”. It is the first and unique occasion in which sex is taken into account by Italian legislation before the twentieth century. This child protection law, along with others, reveals how girls and boys were both employed in quarries and underground mines with no limitations.

Jessie White Mario (1832-1906) was inspired by Villari and devoted herself to philanthropic work among the poor of southern Italy in the early 1870s. She worked particularly on a research project aimed at raising governmental awareness and travelled to Sicily in 1890-91. Her report, “*The Sulphur Mines in Sicily*,” on the working conditions in the Sicilian mines, was published later in 1894. White Mario made extensive personal tours and investigations of the mines, both above and below ground. She first travelled to Palermo and started her visit to the sulphur mines in Lercara (Agrigento). “*Children of both sexes aged four and over, pregnant women, lying on their backs, walked on all fours inside the mine, working for twelve and fourteen hours, sometimes during the night*” [23]. There was a concern about child labor and the general health of the miners, many of whom were physically unfit for military service. She reported a total of 480 sulphur mines, 5,233 pickmen, 9,227 “adult carusi” of whom 4,681 (51%)

were under fifteen years old in forty-eight Sicilian villages in the provinces of Catania, Caltanissetta, Agrigento (Girgenti), and Palermo. “Caruso” was a “mine-minor prevalent a boy” who worked next to a “picuneri” or “pick-man”, and carried raw mineral from deep in the mine to the surface. In the Girgenti mine, with a total of 1,586 workers, fifty-five girls under fifteen years old were working underground (3.5%). In the open quarries, 20 adult women (4,211 total, 0.5%) and 53 girls under fifteen years old (1,991 total, 2.7%) were found. In 1892, a total of 33,587 workers, comprising 25,825 adult men and 7,762 under fifteen years old, were recorded. Additionally, three adult women and 57 girls were also under fifteen years old. These numbers, produced by the White Mario script, showed an increase in workers since 1890, with 5,800 miners, including 1,030 boys under fifteen, while the number of girls decreased from 108 to 57.

In Lercara (Palermo), White Mario met Alfonso Giordano (1843-1915), a medical doctor engaged in the improvement of working conditions in sulphur mines with particular attention towards girls who used to go down the mine, although he referred to “*now they do not*”. Mine work was among the first industries employing girls (11% of girls under 15 years old), after textiles (28%), metal manufacturing (14%), and hay and wood (13%). He underlined, however, “... *the notable difference existing in the number of women employed in 1889 and that of 1903. In 1899, out of a total of 97,505 workers, 4,541 were women (4.6%), in 1903, out of 121,791 workers, 2,888 (2.30%), which proves that, in spite of the increase in workforce, even though women were less paid than men, there is still great common sense in the population to remove the weaker sex from that type of work, harmful to their health, especially in sulphur mines*” [24]. Giordano, using concepts such as “weaker sex” or “common sense”, confirms the common stereotyped language when the work of women was discussed. In 1903, Salvatore Talamo, editor of the Journal Research in Social Sciences inspired by Christian values, wrote: “*The number of women working in the sulfur mines, always very small compared to the total number of workers, has significantly decreased in recent years. They are usually employed in the sorting of sulfur ore, or in the loading and unloading of*



Figure 4. Carusi “Coming up in sad procession”(1910). Photographer Louise Hamilton Caico [27].

limestone; so that the performance of their work is neither stable nor very painful, and can be compared to that which women elsewhere carry out in agricultural work, in civil constructions, and similar. Only in Cianciana, in the Bivona district, in the province of Girgenti, several girls transport ore underground, to their fathers or brothers, but usually leave the mine when puberty begins” [25]. Women mine work was again described as not “very painful”. In Cianciana mine only <15 y.o. girls were working transporting minerals from deep to the surface. In 1881 ninety girls were working as “caruse” although less paid than boys. In 1898, an inspector met a little and fragile 10-year-old. A girl is transporting the sulfur mineral on her shoulder from the underground. His inspection report, found in the State Archive, recalled her name, Ignazia Greco; she was born in Cianciana on January 16, 1888. [26] (Figure 4-5).

6. THE LABOUR LEGISLATION ON WOMEN, GIRLS AND BOYS IN MINE WORK

In 1899, Maria Montessori (1870-1952), one of the first Italian women to graduate in medicine, attended the Second International Women’s Congress (ICW) hosted in London. She called for the prohibition of women and children under the age of 14 from working in sulphur and other mines, inspired



Figure 5 – Women in Cianciana mine. Photographer unknown [26].

by the Factory Acts. However, the Sicilian mines, under English proprietors, were no better than the others. She described the conditions under which young children worked, including the long hours, cramped positions, continual climbing up and down steps, the heavy weights they had to carry, and the need for proper lighting and ventilation. Martina G. Kramers (1863-1934), a delegate from the National Council of the Netherlands and a leader in the International Council of Women, spoke on the special legislation for children in mines under the factory laws. *“The age of going down in mines is generally fixed a little higher than that of entrance into the factory. In Germany and France, children are permitted to work when they have their school certificate, or when they are 13 years old. In Switzerland, New York, and some German States, they must have attained the age of 14; in Austria, Belgium, Holland, Luxemburg, Norway, Sweden, Portugal, Rumania, and Pennsylvania, that of 12; in England, Denmark, Hungary, and Spain, that of 10, and in Italy, 9... For working in the mine, the age required is 10 in Italy, 14 for boys and 18 for girls in Norway, 14 for both in Portugal”* [28]. It was only in 1902 that Italy finally had its first law on women and child labour (Legge Carcano N. 242), mainly due to the efforts of the physician Anna

Kuliscioff (1855-1925), the self-educated Ersilia Majno Bronzini (1859-1933), and many others as part of the Italian women’s movement. Women were prohibited from working in underground mines, while for boys, the limit was under the age of 13. Girls and boys under 12 years old were banned from working in open quarries and hazardous trades. The law limited the working day to 12 hours for women, 11 hours for children aged 12 and 8 hours for children aged <10 years [29].

The First Italian National Congress on work-related diseases was held in Palermo (Sicily) from 19th-21st October 1907, with many contributions concerning the unhealthy conditions of sulfur miners (pneumoconiosis, inguinal hernia, malnutrition, ancylostomiasis, etc.). No words on women working in sulfur mines, although women’s and girls’ conditions in zinc/lead mines in Gorno (Bergamo) were portrayed by Cesare Biondi (1867-1936), a socialist physician, in the paper *“Occupational diseases among the workers of the mine in Bergamo”*. Those women were named “Taissine” from the local dialect, meaning to fragment and separate the mineral. Biondi’s description was clear: *“The outside workers can be divided into various groups: the first group ...separates the mineral from the sterile material and, in the*

Crown Spelter mines, also from the galena. This work is done mostly by women... Ordinary sorting work is not done in front of benches, but on the ground, so that the women are seated or, more often, half-kneeling; the sifting is done while standing up. A second group of outdoor workers consists of washery workers, including men, women, and children. There are only two washeries in the mines of Bergamo, the one in Campello of the Crown Spelter and the one in Oltre il Colle of the Vieille Montagne. ...I have been able to observe how various underground workers, ...also among women selecting materials, present a thin reddish halo on the gum edge....and is indicative of the absorption of lead" [30]. Palermo Congress participants were invited to visit the Trabonella sulfur mine (Caltanissetta), where, just four years later, on 20th October 1911, a gas explosion caused 40 deaths and 16 injuries; the number of children is unknown.

7. CHILD LABOUR AND SEX DIFFERENCES IN BODY GROWTH

In 1908, Loriga wrote a book on "*Child labour and sex differences in body growing*" to set health standards for girls' and boys' growth, such as weight, height, chest circumference, lung vital capacity and muscular strength. Child labor was also a scientific question on sex differences in body growth! Loriga cited Alfonso Giordano's figures when comparing students of the municipal school of Lercara with the "carusi" of the sulfur mines in the same locality. The cause of the growth differences, found by Giordano between the two groups, was the unhealthy working conditions. Loriga also reported having asked the medical doctor of Arbus (Cagliari), Gildo Frongia, to improve his data records, including the pregnancy outcomes of women working in the galena washery (no data reported) and the heights of 389 children in the Sardinia mines of Montevecchio and Gennamari-Ingortosu. Frongia found that the undergrowth of miners differed from that of peasants in terms of sex differences. "These figures clearly demonstrate the harmful influence exerted on the *physical development of children by mining work, which is surely more tiring and unhealthy than that of the peasants, although relatively better paid.*" Taking these results into account, Loriga pleaded with the

Italian State to increase the age limit to work, the work inspection on child labor, the medical surveillance on working children "to avoid the serious consequences of work". [31].

Two years later, in the spring of 1910, Sir Thomas Olivier, a Scottish industrial hygiene physician, travelled to Sicily. In his report, *The sulphur mines of Sicily: their work, diseases and accident insurance*, he mentioned women only briefly: "*No females are employed to look after the rooms or bedding; men and boys feed together in a canteen, their food being bread, oil, and macaroni, with vegetables, dried beans, and lentils.*" [32]. In the same year, African American community leader Booker Washington Talliaferro, along with sociologist Robert E. Park, traveled to visit Europe. They traveled to Italy and Sicily, visiting Palermo, the sulfur-rich region, and Catania. In his book *The Man Farthest Down*, he described: "*It is said that the employment of boys in the sulphur mines is decreasing. According to the law, the employment of children under fifteen years of age has been forbidden since 1905. As is well known, however, in Italy as in America, it is much easier to make laws than to enforce them. This is especially true in Sicily. The only figures which I have been able to obtain upon the subject show that from 1880 to 1898 there was an enormous increase in the number of children employed in and about the mines. In 1880, there were 2,419 children under fifteen years working there, among whom were eight girls. Of this number, 88 were seven years of age, and 163 were eight years of age, while 12 percent of the whole number were under nine years of age. In 1898, however, the number of children under fifteen was 7,032, of whom 5,232 were working inside the mines. At this time, the Government had already attempted to restrict the employment of children in the mines, but the age limit had not been fixed as high as fifteen years*" [33].

Subsequently, Italian women and children were mobilized in 1915 for industrial production during World War I, as the only available low-cost labour [34]. In 1918, Luigi Carozzi (1875-1963) reported in the annual inspection records that he was only able to assess the working conditions of fifteen miners; no women were included in the inspection. Currently, we do not know how many women returned to underground mining or worked in open quarries following the suspension of laws on women

and child labor during the war. We do know, however, that the explosion at the munition factory in Castellazzo di Bollate (Milan) in June 1918, only recently brought to light, resulted in the deaths of fifty-two women and girls, with many other injured. This episode highlights, once again, the role of women and girls in hazardous occupations. Later on, in 1924, Livia Lollini (1889-?), who graduated in medicine in Rome in 1913, wrote the paper “*The Protection of Women and Children at work*”, recently republished by this journal [35] together with an interesting updated commentary on the relevance of her gender-sensitive approach in occupational health [36]. Lollini, in fact, acknowledged Loriga’s works, probably due to their similar sensitive approach and the women’s movement’s request for maternity protection. She renewed her call for more female labour inspectors and the enforcement of legislation in Italy, particularly in the South, where disparities had not been eradicated. Unfortunately, the fascist dictatorship halted and reversed all the praiseworthy efforts.

8. CONCLUSION

The purpose of this paper was to collect historical references, statistics, and pictures related to the invisible work of girls and women in Italian mines, despite the prevailing stereotype of women employed in “light jobs” or as the “weaker sex”.

The results obtained show that little girls, girls, and women in Italy were often employed in mining work, particularly in open quarries, as well as underground work, especially during the nineteenth century. Data on mines in Liguria, Piedmont, Lombardy, Sardinia, and Sicily were found and recorded. Work exposure was mainly to slate, asbestos, zinc-lead, and sulphur ore, causing pneumoconiosis, tuberculosis, lead poisoning, chlorosis, etc. Carrying heavy weights, slips and falls, sexual abuse, and other acute injuries, such as the Montevecchio (1871) and the Buggerru (1913) mine disasters, were also reported. Adverse reproductive outcomes such as miscarriage, infant mortality, and other risks were only occasionally mentioned.

The lack of knowledge regarding mining work should be addressed with further investigation and research. The nearly century-long history of women

and girls in mines in Italy, illustrated in this study, starting with Loriga’s paper in 1930, underscores the need to gather data from diverse sources for ongoing research. The usefulness of women’s studies and their “forward-thinking” is also essential to understanding the present. Around the world, girls and women are still working in mines, with 10% of children aged 5-17 (girls 8.4%; boys 10.7%). This percentage doubles in Africa (19.6%), as indicated in the “Child Labour” report [37].

ILO report on “Girls in mining” cited “*The studies demonstrated that girls are working longer hours, carrying out more activities and in some cases entering into even riskier underground work than in the past... Girls are stretched between growing labour activities and burdensome chores at home, which constitute excessive hours of often dangerous work, a lack of time for rest and recuperation, and an impossible schedule to fit around school attendance, or at least optimum school performance*” [38]. More work needs to be done to eliminate this “slavery.” However, it cannot be ignored that women and girls have been working, and continue to work, in mines. Their history, at present, still awaits full consideration [39].

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