

Cradles of industry and occupational medicine in the modern world: Milan 1906 - *Annus Mirabilis**

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SUMMARY

Background: *The example examined is Milan, Italy's main industrial city, where the great International Exhibition was held in 1906. This was the culmination of a period of accelerated industrial growth that modern-day historiography considers to be when Italy's first real industrial revolution began. The twenty-five years between the National Industrial Exhibition of 1881, which was also held in Milan, and the 1906 Exhibition truly reflected a period which was crucial for this transformation to take off. Alongside industry, which was then going through a phase of reorganization and development, Milanese civil society was increasingly turning its interest and attention to what was called the "Social Question". In an atmosphere of debate and exchange of ideas and experience with Turin, another major industrial city of the north and the birthplace of the Italian engineering and automobile industries, social organizations, political parties and trade unions began to be established thus heralding the Italian approach towards twentieth-century welfare.* **Results:** *This is the context in which the first International Congress on Occupational Diseases was held in Milan from 9 to 14 June 1906 within the framework of the International Exhibition. The success achieved with this initiative, organized by Luigi Devoto and Malachia De Cristoforis, which was to continue with the founding of the International Permanent Commission on Occupational Health, showed that the time was ripe for a new subject to appear on the scene – the occupational health physician – who from then on was to play an important role in the promotion of workers' health.* **Conclusions:** *The article outlines the main features of the Italian industrial transformation at the turn of the new century with special attention focused on Milan, the capital of industry in Italy. It also describes the impact on public opinion caused by the events surrounding the epic construction of the transalpine railway tunnels which began in 1856 with the Mont Cenis tunnel, then the tragic enterprise of the St. Gotthard tunnel in 1883, ending in 1906 with the inauguration of the Simplon tunnel. The Milan congress is examined as well as the developments which, from then on, began increasingly to give physicians specialised in occupational diseases a higher profile in events of an international nature in the defence of workers' health but also in the interests of economic development.*

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RIASSUNTO

«Culle dell'industria e della medicina del lavoro nel mondo moderno: Milano 1906 - Annus Mirabilis». **Introduzione:** Viene esaminato il caso di Milano, la principale città industriale italiana, dove, nel 1906, si tiene L'Esposizione Internazionale che ha rappresentato l'acme di un periodo di accelerata crescita industriale, primo vero atto della rivoluzione industriale in Italia. I 25 anni che intercorrono tra l'Esposizione Industriale Nazionale del 1881, tenutasi sempre a Milano, e l'Esposizione del 1906 rappresentano il periodo cruciale di questo decollo. È proprio in occasione della nuova fase di organizzazione industriale che la Milano della società civile si mostra interessata e sempre di più pone attenzione a ciò che si intende con il termine di "Questione Sociale". In uno scenario ricco di dibattiti e di scambi di idee ed esperienze con Torino, un'altra delle maggiori città industriali del Nord Italia e culla dell'industria meccanica e dell'automobile, di movimenti sociali, di partiti politici e di organizzazioni sindacali nasce e si sviluppa quello che deve essere considerata la via italiana al welfare del ventesimo secolo. **Risultati:** Questo è il contesto nel quale si tiene a Milano dal 9 a 14 giugno del 1906 il Congresso Internazionale delle Malattie da Lavoro voluto da Luigi Devoto e Malachia De Cristoforis. Il successo dell'evento avrà come seguito tutta una serie di iniziative della International Permanent Commission on Occupational Health e ciò dimostra che i tempi erano maturi perchè un nuovo soggetto calchi la scena, il medico del lavoro, soggetto che da questo momento avrà un ruolo decisivo per la salute dei lavoratori. **Conclusioni:** L'articolo vuole mettere in evidenza le caratteristiche più notevoli dello sviluppo industriale italiano verificatosi a cavallo del secolo ponendo particolare attenzione al così detto "Triangolo industriale" delimitato dalle città di Milano, Torino e Genova. Vi si descrive inoltre l'impatto sull'opinione pubblica prodotto dagli eventi che si sviluppano attorno all'epica realizzazione dei trafori alpini iniziati nel 1856 con il tunnel del Moncenisio, continuata con la tragica impresa del San Gottardo nel 1883 e conclusasi nel 1906 con l'inaugurazione del Sempione. Viene infine preso in esame il congresso milanese per le malattie del lavoro a partire dal quale i medici interessati alla salute dei lavoratori avranno sempre più un ruolo importante in eventi nazionali ed internazionali.

INTRODUCTION

The aim of this article is to shed light on a number of points which we will specify.

To be an authentic "cradle of industry" a city or region must not only have had early industrial development but also a parallel social and cultural development, namely a "reform-oriented" approach to its social network.

We will try to answer this question focusing on the so-called "reformers". In addition to the political, trades unions and social movements which openly aimed at fostering political and social reform and modernisation, there was a broad spectrum of social activists, intellectuals and technicians who supported and gave substance to the proposals of reform. "The Reformers" were not a clearly defined movement but a broad and varied group of people who banded together rather to support the initiatives of civil society than of political parties or public bodies and rather to tackle concrete issues than abstractly debate innovation. These issues included

the safety and health conditions of industrial labour. Christian Topalov's definition of "nebuleuse réformatrice" (reforming nebula) well describes such a network (24). In the USA the term "Progressivism" also fits this political attitude (21).

The period between the last quarter of the 19th century and the First World War was characterised by an initial wave of internationalization in the labour and economic markets. This gave national governments a strong incentive to take initiatives in the field of social reforms and international agreements in order to offer equal opportunities to their own industries and businesses.

This typically applies to Milan and the Region of Lombardy between the last decades of 19th century and the turn of new century. The foundation of the Clinica del Lavoro at the beginning of the 20th century (14) and the first International Congress on Occupational Diseases, held in Milan in 1906 (4), are clear examples of the priority given to workers' health problems in the development of one of the world's major industrial centres.

FROM UNIFICATION TO THE FIRST INDUSTRIAL REVOLUTION: THE CONDITIONS OF A NEW NATION

The 28th congress of the ICOH (The International Committee on Occupational Health) was held in Milan, 11-16 June 2006. This was the centennial of the first congress, also held in Milan in the same period (9-14 June 1906). The intervening hundred years and the long series of meetings held in the meantime bear witness to the success of that initiative. In this article, we would like to show how Milan was the first and the most important cradle of industry in Italy, and how that was the reason for the initiative that began there at that time.

The country which that year was preparing to celebrate the triumph of technical progress and the work of man was still young and backward. The Italian nation which took shape between 1860 and 1870 was dogged by long-standing backwardness and chronic failings. Illiteracy was the rule not the exception, at least among the great majority of the working population, who were peasants. According to Cipolla (5) in 1871, at the end of the “Reunification” period, the rate of illiteracy was 68.8% while in the same year in France it was 31.0% and in Prussia 12.5%. Even in 1910 more than one third of Italians were illiterate. Infectious diseases, malnutrition and conditions such as malaria and pellagra, known universally by their Italian names, were rife (8, 23). Between 1876, when statistics began to be collected, and the First World War, more than 14 million people left Italy as economic migrants, half of the total population of 1881 (3). Industry was scarce and poorly innovative and was mostly centred on the primary processes of silk production and mining of sulphur and other minerals.

Something was stirring, however. After unification, the Italian managerial classes made a clear shift towards greater liberalisation which led to de-structuring significant sectors of industry, for example in iron and steel. Italian liberals, on the other hand, moved very swiftly into major infrastructural construction, railways and bridges to modernize the economy and link it to Europe (6). This

favoured the north of Italy where the most significant beginnings of protoindustry had already begun to take shape. Lombardy, which was benefited by the far-sighted politics of the Austro-Hungarian Empire, boasted the first nuclei of an authentic industrial structure. Milan was the regional capital but it also stood out as the economic capital of the nation as a whole (10).

ALPINE TUNNELLING ERA (1857-1906)

International Exhibition of 1906 was aimed at confirming the nation’s inclusion amongst the great powers. The exhibition was dedicated to celebrating the conclusion of an extraordinary enterprise for the time – the Simplon tunnel under the Alps, more than 19 kilometres long, a marvel of railway engineering and the pride of Italian labour. This enterprise was the crowning achievement of a series of transalpine enterprises which began in 1857 with the Mont Cenis tunnel, continuing with the tragic St Gotthard tunnel which began in 1872. The time-span between these two dates, 1872-1906 is precisely when industry began to take off in this part of Italy which is known as the Industrial Triangle, the three points of which were the cities of Milan, Genoa, a major port on the Ligurian coast, and Turin, where the Italian iron and steel and automobile industries sprang up. The start was later than in other major European countries and it was made possible especially by the use of hydro-electric power which was produced abundantly from Alpine basins. The availability of this so-called “white Alpine coal” enabled Italy, too, despite its poverty in other sources of energy, to harness the “steam horse power” necessary for its industry to develop. At the same time there was a spectacular industrial development that the exhibitions highlighted, the authentic popular showcases of modern times and progress (12, 25).

The quarter of a century between the National Exhibition of 1881 and the International Exhibition of 1906 was for Milan and Lombardy a time of great industrial development and social transformation typical of industrial revolution. The population grew rapidly from 242,457 in 1861 with the

unification of Italy, to 491,460 in 1901, and 602,236 in 1911. Industrial factories increased from 542 employing 14,115 workers in 1872-73, to 1,564 with a total of 50,561 workers in 1892, up to the 8,238 companies with 129,060 workers recorded in 1911, to which must be added the thousands of workers employed in the new factories in the outlying towns, now also caught up in Milan's process of industrialisation.

The completion of the Simplon tunnel highlighted two important facts: on the one hand the technical progress that had made such a task possible in less time and at a lower cost thanks to developments in excavation techniques, and on the other the celebration of the triumph of hygiene, as was stated at the time, which prevented a repetition of the disaster of the St. Gotthard tunnel where hundreds of miners fell ill and died from hookworm which was spread by horrendous hygiene and living conditions. The tragedy of the St. Gotthard tunnel caused pain and suffering among Italian public opinion, which was unprepared for such an event. Thousands of Italian workers were employed by Swiss companies, managed by Swiss engineers and led mostly by Swiss or German foremen. But the labour for the hardest and most strenuous work was almost exclusively Italian and the discovery of the many cases of "miner's anaemia" mobilised some of the greatest hygiene experts of the period, from Luigi Pagliani (1847-1932), to Camillo Bozzolo (1845-1920) and Ernesto Parona (1849-1902), and the issue was even raised in Parliament (17).

The causes of such a disaster were identified in the end: haste on the part of Favre, the Swiss company that had won the bid, to complete the job on time so as not to incur heavy penalty clauses, and the excavation technique adopted as a consequence; the complete absence of preventive hygiene measures both inside the tunnel being excavated as well as in the miners' lodgings which were merely abandoned to the workers renting them, and the lack of a decent health service (15, 16). Twenty years on, therefore, the great new enterprise of the Simplon tunnel could be undertaken with the benefit of the experience gained from that tragedy, and here the preventative measures adopt-

ed were effective in fully banishing the spectre of hookworm (18, 26, 27). The successes of technology and hygiene were therefore at the centre of these celebrations, almost as though to enshrine a possible alliance between technical progress and social advancement, in a city, Milan, which by no coincidence was hosting some of the most advanced "social laboratories" in the country in line with what was happening in those years in other important countries in Europe.

A glance at what was happening on the international stage in addressing the so-called "Social Question", one of the ways of talking about the living and working conditions of the industrial proletariat, can perhaps help us understand better the later developments in Milan.

THE SOCIAL QUESTION

The years between the last quarter of the 19th century and the first few years of the 20th century saw governments all over Europe taking steps to include the working classes, who were the mainstay of this latter-day Industrial Revolution, especially the factory proletariat, into national state systems. The Catholic Church, which was so influential in Italy, also joined in. In 1891 Pope Leo XIII (1810-1903) issued the "Rerum Novarum" encyclical, a sort of manifesto of the new times and a renewed commitment of the Catholic Church in the political and social arena.

Under the pressure of Socialist movement, the "Social Question" had indeed for some time been at the top of the agenda of many European governments as they made their way through this period of accelerated industrial development. Several of the items on the agenda of the Milan congress addressed important aspects of the topic. But ever stronger demands for improved conditions for the working classes who were actually the agents of industrial development were coming from the workers' movements and their political parties and trade union organizations. Public opinion was beginning to sway government policy, participating in political debates and, where effective democracy allowed, pressing for social reform (19).

Little by little the “welfare state”, which would be a feature of the European scenario for the entire incoming century, was beginning to take shape.

THE HARBINGERS: THREE-DIRECTIONAL INTERESTS

Industrialists were not insensitive to these social developments. Apart from the paternalistic and authoritarian attitudes which were still widespread, the industrial bourgeoisie was becoming increasingly aware that it was a worthwhile investment to prevent the risks and damage incurred in industrial labour. Thus were born the first associations among industrialists for accident prevention which, following the example of the first one set up in Mulhouse in 1867, acquired converts in Italy, too, with the creation of the “Associazione degli Industriali d’Italia per Prevenire gli Infortuni del Lavoro [Italian Industrialists’ Association for the Prevention of Accidents at the Workplace]” in Milan in 1894.

During the last quarter of the 19th century, enlightened industrialists and engineers involved in manufacturing or expert in machinery, set themselves the task of reducing technical contact between man and machine as much as possible, seeking the answer to the problem of factory safety in mechanical protection against accidents (20). Many had graduated from Milan Polytechnic University, which was inaugurated in 1863 and which played an important role in training the technical and scientific elite to take their place in industry. Debates were also held at international level in several congresses in many countries including Switzerland, France, Belgium, Germany, as well as in Italy.

The second aspect of occupational safety and diseases lay in the social security to be provided to those who despite everything would inevitably be exposed to hazardous events. Spurred by the desire to forestall the rising phenomenon of compensation claims in civil courts, industrialists welcomed legislation that provided a form of security for those who “fell” at the work place, the men and women who suffered accidents.

A series of laws on civil insurance against the

consequences of industrial accidents were passed in just a few years in many European countries following two main models: free competition among private companies (the British model) and coverage by the state alone (the German model). In this field, too, many congresses took place before the Milan congress, often taking advantage of International Exhibitions as showcases for promoting safety legislation.

The last and perhaps the most important direction was the initiatives taken by groups of scientists and lawmakers, and sometimes factory inspectors who were sympathetic to the various demands of the workers’ movements, that were undoubtedly inspired by socialism but also the Christian-social model. They founded an important body called the “International Association for the Legal Protection of Workers” an authentic training ground in international law which would later be the reference point for work-place prevention and safety laws (13). This was the body which, in the years after the First World War gave birth to the “International Labour Office” an organization of the League of Nations.

WHY INTERNATIONAL COMMITMENT?

Underlying all these efforts was the knowledge that labour protection legislation had to be extended across the board at least in the main industrialised countries so as to not lose out economically to the countries which were more “virtuous” towards their factory labour. The principle of reciprocity (if a law is passed in a country that is costly to industry, then the competitor country or countries should also pass similar laws) was explicitly enshrined in a series of precursor bilateral agreements such as that of April 1904 between France and Italy, that was quite famous at the time, granting Italian immigrants to France the same rights and access to social legislation as their French comrades (2). Thanks to the principle of reciprocity, the French government obtained analogous treatment for the few French workers in Italy, which was the key element in actually setting up the nucleus of the “Labour Inspectorate” which up to then had

existed on paper alone with no real operational structure.

Another significant example was the Bern Convention for abolishing white phosphorus in the manufacture of matches. In this instance, it was the “International Association for the Legal Protection of Workers” that pushed the Swiss government towards setting up an international conference in order to reach an agreement on this far-reaching measure, together with an international ban on female nightwork involving the major manufacturing countries of the world (2).

MILAN 1906. *ANNUS MIRABILIS*

In order to describe what was happening in these years in Milan, let us borrow the image of Christian Topalov from “Nebuleuse réformatrice et ses réseaux” (24).

Together with the overwhelming developments involved in the industrial transformation, a huge number of initiatives were launched by a number of diverse subjects all motivated by a true reforming spirit. In Milan in that same crucial year of 1906 the founding congress of the CGL, the Confederazione Generale del Lavoro, the workers’ trade union was held. Then the Humanitarian Society which had been set up in 1893 by Moisè Loria (1814-1892), a philanthropist, pursued the same aim of furthering improvements in workers’ conditions. The housing problem, nutrition, the salubrity of the workplace and working conditions of many trades were some of the issues that the Humanitarian Society addressed with success.

On another level, the early years of the century witnessed the emergence of a new body that would dedicate itself to workers’ diseases – the Clinica del Lavoro founded by Luigi Devoto (1864-1936) in 1902 with support from the municipal administration, many trades unions as well as the Humanitarian Society and from some of the more enlightened industrialists of the time (7, 22).

In the words of Devoto, medical science, through its use of the new disciplines of occupational physiology and pathology, was called upon to play a decisive role in fostering the adoption of

an authentic “code, emanation of the laws of biology and physiology which will constitute a pact of alliance between governments, industrialists and workers”.

Devoto thus outlined the important role of a new profession, the physician dedicated to the study and treatment of workers and their work. Up to then individual physicians, often incorporated into the respective labour inspectorates or in cooperation with workers’ trade unions, had contributed to the ongoing debate on workers’ health without however drawing the attention of the public to their profession. With the International Congress of 1906 and the subsequent founding of the Permanent Commission and hence further international encounters in 1910 in Brussels and Vienna (suspended in 1914 because of the outbreak of the First World War but prepared in detail), the way was paved for affirming the central role of this group of professionals in safeguarding the health of workers.

The topics selected for the Milan congress also referred to the intention of affirming the importance of the physician in discussing the issue of the “Social Question”. In his comments on the work of the congress which appeared in “Il Ramazzini-Giornale Italiano di Medicina Sociale” in 1907, Guido Y. Giglioli (1875-1939), an occupational physician active in Florence, classified the scientific contributions into 6 categories: 1) studies for regulating periods of work and rest based on precise physiological data; 2) studies on the conditions of nutrition of workers; 3) studies on the physical conditions of the workplace and occupational diseases; 4) infections and work; 5) studies on occupational poisoning; 6) Morbidity in the various manufacturing processes and in various industrial centres (11).

Giglioli maintained that that congress brought about an “overall reorganization” in Italy too as well as a “balanced overview” of the whole complex work of research that had been conducted in previous years. It became clear that the idea of a specific disease of the craftsman that Bernardino Ramazzini (1633-1714) had established and which up to then had been the fulcrum of occupational hygiene, was now surpassed by studies which identified an au-

thentic occupational pathology in general which legislation, too, ought to address. The enemy to fight was more dangerous because it was less definable. In his words: “the occupational predisposition to morbidity” ... “nutrition, rest and the working method must be studied by the physician with the same care as the effects that lead or arsenic produce in industry” and concluded “Thus, from the disease of the craftsman to occupational diseases and thence to scientifically based work legislation. This is the way that has been partly trod and partly must be trodden with new studies and renewed debate” (11).

It’s interesting to note that again in Milan initiatives regarding prevention of accidents at work developed, both before and after the 1893 law on accident. Such initiatives (Congresses, meetings, public discussions, etc.) only occasionally dealt with topics of occupational medicine (9).

EPILOGUE

The immediate and long-standing international success that the Milan congress enjoyed stressed the timeliness and appropriateness of the intuition of Devoto and the other physicians of the Clinica del Lavoro. It did not, however, guarantee that Italy’s development would be balanced between scientific research, practical experience and social legislation.

In the few years between 1906 and the outbreak of the First World War it looked as though Milan, the very cradle of modern Italian industry would be the birthplace of the “miracle” of a real convergence between the reforming demands of the working classes who had finally gained the right to participate in the social arena, the modern rationality of polytechnic engineers who were the driving force behind accident prevention legislation, enlightened paternalism of the entrepreneurs and social commitment on the part of the medical profession.

The time, however, was not ripe especially because these efforts were too far from the reality of a country that was in fact completely different. The catastrophe of the war, the re-emergence of old ills and backwardness, and the coming of the infamy

of Fascism was the final blow to this setting which delayed by many decades the full achievement of a democratic panorama of work reform in Italy.

After the catastrophe of the Second World War and the following period of so-called “Reconstruction”, only at the end of the sixties were democracy, workers’ rights, and modern labour relationships eventually achieved also in Italian factories, starting from the wave of strikes and debates during the Autumn of 1969, known as “The Hot Autumn” (1).

NO POTENTIAL CONFLICT OF INTEREST RELEVANT TO THIS ARTICLE WAS REPORTED

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