ITALIAN WORKERS AND THE UNIVERSAL EXHIBITIONS OF THE 19TH CENTURY IMAGINARIES AND REPRESENTATIONS OF TECHNOLOGY AND SCIENCE

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This paper presents an excerpt from my research on the visits of Italian workers to the World’s Expositions of the 19th century. Never, during the 19th century, Italy organized a Universal Exhibition, only some International Exhibitions. Italian industry was growing, but was still not able to compete with the major European nations. By contrast, Italian participation in various Universal Exhibitions held after the political unification of the country (1861) was always important, especially when they were organized in countries such as Austria, England and particularly France, both as far as the numbers of exhibitors and the number of awards achieved is concerned. The Exhibitions thus attracted a considerable interest in Italy, as is shown by the frequent organised journeys of workers to exhibitions held in other countries.

The sending of workers to visit a Universal Exhibition had an educational and training purpose, since the selected workforce was made up of highly skilled workers with important technical functions in their workplaces. Moreover, it also aimed at fostering the workers’ adhesion to the general goals of the World’s Exhibitions, i.e. embracing the values of industrialism and sharing the ideology of scientific and technical progress. This purpose

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was not unproblematic in Italy during the second half of the 19th century. As a matter of fact, industrial progress in Italy was contested with explicit episodes of machine-breaking and with a more subtle and passive cultural resistance, which nonetheless had strong roots in the urban working class in a context where the old craftsman was slow to disappear and the artisanal production system sought rather to adjust itself and find areas of competition and complementarity with industrial production. The reports that the workers had to write after returning from visits to the Exhibitions are an important source of understanding of both these points.

In their actual archival forms, these writings show their complex nature and are thus not easy to interpret. The report is not a simple ex-post account: before starting their journey to the Exhibitions, the workers already knew they would be asked to write a final report; they therefore took notes and programmed the visit in advance, in order to be able to answer the questionnaires. The report is an important step in the deployment of the journey, crystallizes and shapes memories, and makes them available for communication as well as to retrospective analysis. At the same time it implies an act of power on the part of the workers, who are meant to express their opinions, to communicate their emotions and memories from the private sphere in a public way. Moreover, the report would then proceed to the judgment of a non-neutral public formed by Chambers of Commerce and Local Councils and only rarely workers’ associations or individuals. Many workers expressed a discomfort and sometimes even protested against the requirement to write a report. Protests were sometimes openly voiced, but often take the form of reticence, a refusal to deal with certain points, providing purely descriptive, rather than critical, texts, and even refusing to deliver the documents. On the other hand, writing a report is not just an act imposed on the workers, who are also called on to actively participate and were flattered by the prospect of reward and public recognition. They are encouraged to compete on this, for them unusual ground, which challenged and attracted many of them.

Because of this complex status, the reports are sources which require careful examination. They are a rare example of workers’ writings and therefore allow the researcher to reflect on the then current concepts within the workforce, in relation to the issues in the Universal Exhibition and particularly to the two above-mentioned topics, i.e. resistance/acceptance of mechanization and acceptance/refusal of the theme of progress, which play
a central role in the reports\textsuperscript{2}.

1.- Resistance to mechanisation in Italy.

Resistance to machines is a long lasting phenomenon. It emerged in full force in England during the Industrial Revolution and later spread to other European countries in various ways which have long been overlooked, but which now tend to attract growing attention from historians, as in the case of the recent studies by François Jarrige on resistance against machines in France\textsuperscript{3}.

The great development of local, national and industrial 19th century Exhibitions, culminating in the World’s Exhibitions, can be understood as a major phenomenon of industrial pedagogy, carrying a message of acceptance


of technology and of the ideology of progress.

The phenomenon of the Great Exhibition is observed in Italy by a working class marked by fast transformation in its character and extension, during the period of the formation of a modern industrial base⁴, laying the foundation for the development of some technologically advanced sectors by the end of the century.

In this context, the problems of the perception of machines and of the eventual forms of resistance/acceptance relate to changes in the social and productive environment. On the one hand the Italian industry develops from being largely artisan- and textile-industry based to a productive system characterized by the emergence of the mechanical, steel and electricity industries and by a bigger and more developed business size. On the other hand, as in other “late comer” countries, this relatively rapid transition from a proto-industrial to a more advanced industrial stage produces a social transition – the new factory workers come from the artisan class and often directly from the agricultural workforce – and a cultural transition – from an artisan-minded culture to a culture linked to industrial work.

Although in Italy evident and visible episodes of Luddism remain rare, the phenomenon of resistance / acceptance of the workers against the machines remains controversial and interesting. Cases of resistance to machines while indeed infrequent, occur continuously in the period considered here, showing that a full and radical rejection of machines emerges as one of the workers’ possible responses to technological innovation.

World’s Exhibitions present to the visiting Italian workers, at least at first sight, a universe of foreign machines generally characterized by a far more advanced technological level than they are used to in their workplaces. They therefore tend to perceive them as different and remote from their own everyday experience and thus less threatening.

Moreover, the Exhibitions were not the only way the acceptance of technology and machines entered into the workers’ vision. The acceptance of the idea of technological progress was fairly widespread, had strong ideological implications, and would become one of the shared values of the labor movement itself.

In the second half of the 19th century the struggle against machines becomes more complex and less direct. The technology appears now as a

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⁴ Between 1851 and 1900.
constitutive and “normal” reality of the factory, creating an overall growth in the labor force. Its perceived attack on the workforce assumes different forms than previously, affecting even categories of highly-skilled workers, who start seeing in the machines not just threats to employment and as tools which depress wage levels, but also something introducing “a trend towards the devaluation of trade skills”. As has been shown by Duccio Bigazzi, this is the case with the Milanese mechanical workers, who refused to perform on semi-automatic machines the work which was previously done on normal lathes. Resistance to mechanisation can be noticed in many other episodes marking everyday conflict in the factory, thus adding complexity to a picture of workers’ reactions to machines which in Italy sees the phenomenon of direct and explicit rejection of mechanisation continuing in its traditional forms at least until 1910.

Given this context, the World’s Exhibitions represent an extremely interesting ground for comparing labour cultures in these times of transformation: while the visiting workers could not express extremes of resistance and rejection, they did show a rather wide and interesting variety of positions. Of course it must be remembered that the workers sent to the Exhibitions were skilled, sometimes true masters of their own “craft” and therefore with a thorough technical knowledge and professional curiosity that went far beyond daily work practice. In the World’s Exhibitions, however, alongside the developing technologies, high quality craft and work not yet affected by the processes of mass production, found their place.

2.- The machines: fairies or monstrous devices?

On the one hand, workers’ records rarely contain statements absolutely and radically rejecting machines; on the other hand, the acceptance of technol-

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6 In Venice in 1870, there were some violent protests against the introduction and dissemination of cutting machines that caused a crisis for hundreds of sugar cane cutters. In March 1873, in Schio, where the industrialist Alessandro Rossi had established a model factory, there was a “wildcat” strike against the dismissal of a hundred workers, caused by the introduction of new mechanical looms, MERLI, Stefano (1972) Proletariato di fabbrica e capitalismo industriale, Firenze, La Nuova Italia, 461.
ogy, machine civilization and progress is often expressed though a huge variety of critical points of view. Sometimes the machines are described with metaphors that range from the mysterious to the fantastic, as fairies or as monstrous devices, miraculous beings that swallow and transform the substance: everything is possible in the “Kingdom of Machines”!

The apparently innocent rhetoric of workers makes wide use of metaphor and reference to mythical and miraculous dimensions to express the sense of cultural and experiential distance when facing the more advanced technological realities; in this dimension the opposite definitions of “fairies” or “monsters” are in reality omotypiques, i.e. they express wonder, amazement towards something that breaks the habitual patterns they experienced in the production process, thus not necessarily expressing antithetical values. Worker Giuseppe Tani, for example, shows his “impression” of the general Exhibition by pointing out the difficulty of describing it in rational terms and consequently makes reference to the dimension of wonder caused by mechanical “fairies” he had previously known only through illustrated catalogues and to the continuing sense of the mysterious experienced during the Exhibition:

“I am asked at least to refer to my feelings. Well, I can mention this: the [emotion] of seeing so many machines I had known through the illustrated catalogue as fairies, because that’s precisely what some of them are: mysterious machines, because of the inventiveness of their mechanisms”7.

The reaction of Osmano Fanfani is not so different. He does not hesitate to ascribe to the realm of wonder and positive progress these “monstrous devices” leading to uncertain and potentially dangerous horizons:

“While I was meditating on the great progress of the mechanics and was wondering: how far will we get? a never-before-heard sound makes me raise my head, and a monstrous device appears in front of my eyes, apparently made of gears and levers alone and of living paper. I look carefully and I understand that this is a printing press, owned by the newspaper “Il


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Secolo” in Milan. About six feet long, this machine deftly grabs the data sheet of paper, writes, illustrates, paints, and then divides it, and finally folds and throws it into the ground. Many machines still arouse wonder, like the one to make shoes: each day one worker can achieve about 6 pairs.\footnote{Ibid., “Relazione dell’operaio meccanico Osmano Fanfani”.

This antithesis is frequent in the writings of workers. The report of the Milanese worker Agostino Caldara, sent to Paris in 1889, expresses it in a particularly effective way. Agostino defines the machines as inanimate objects, like monsters inevitably dragging the world behind them. But he also fully recognizes the positive value of this transformation, for the whole world and for the workers themselves:

“Mechanics is the main element of the Exhibition: this powerful factor that shows us and opens the way and, like a puffing machine, drags behind itself the world through the progressive ways of commerce, communication between peoples; and continuously encourages human inventiveness to study any real problem. [...] Even someone ignorant of mechanics can feel the height of our times and the first place of mechanics as soon as he comes in here and compares the ancient, dark, medieval times and today, and those ideas with the brightness of these steaming inanimate monsters simultaneously bringing to life and animating the entire universe.”\footnote{Archivio Civico del Comune di Milano (AcMi), Esposizioni e Fiere, Esposizione Internazionale in Parigi, 1889, Relazioni degli operai visitatori, cart. 3, “Relazione dell’operaio Agostino Caldara, Costruttore in ferro e Meccanico”.

Caldara touches a number of key issues in the work culture that was propagated through the Exhibitions. We find here an implicit metaphor of the locomotive, which often appears in the literature and in Workers’ and Socialist iconography as a symbol of progress: the puffing locomotive that opens up trade routes and connects different people; we find also the opposition –common enough in the workers’ literature– between the contemporary world and the dark medieval times, something which justifies the role of technological progress. Technology appears as monstrous and mysterious, but is also “bright”, what in the rhetoric of the working classes traditionally expresses the relationship with the tradition of the Enlightenment, the French Revolution and the sun of the future: it is an
expression of the force of Reason, bringing the intelligence of man to ever higher goals\textsuperscript{10}. Mechanics, represented in all its power in the gallery of machines, appears here not only as the expression of this reified path of Reason, a true museum of human creativity, but challenges also the worker to prove the “dignity of his art”, this pride of the profession experienced as an emotional involvement in the progress symbolized by the Exhibitions. In many of these writings the machines take on a mythical dimension that passes from the sphere of profit to that of beauty; in the words of the workers they embody the continuous progress of mechanics, that which, “while making the manual work of the worker lighter, makes the aesthetic part of the job more beautiful and admirable in every aspect”\textsuperscript{11}.

In the minds of the workers the machines are overloaded with symbolic value, appearing as the key element, the symbol and the metaphoric incarnation of the myth of progress; a reified representation of the job which can go together with the allegorical representations of Art and Science, allied to create a new civilization.

“Progress, Science, Arts, within those vast halls, dance in a giddy whirl, ascending toward an endless horizon, sending the breath of a new civilization that everyone hears, sees and breathes”\textsuperscript{12}.

3.- The new Prometheus in the age of progress: from the Pantheon of the heroes to the “technological Pantheon”.

The second topic we consider here relates to the term “Progress” and has an essential role in the involvement of workers’ representatives in the goals


\textsuperscript{11} ASCFi, Cerimonie, Festeggiamenti, Esposizioni, Esposizione di Milano 1906, Relazioni degli operai inviati, cart. 3, n. 5050, “Relazione dell’operaio Legatore di libri Egisto Albrevi”.

\textsuperscript{12} Ibid., “Relazione di Ferdinando Ciolini, compositore tipografo”.
of the World’s Exhibitions. Progress stands as a central feature in the public discourse on the Exhibitions while, at the same time, appearing also in the workers’ stories as the most used and current keyword. To understand the pregnancy of this key word and the true meaning it assumes in the workers’ writings, it is necessary to remember that originally the idea that technological progress could improve the conditions of workers was very controversial\textsuperscript{13}.

A long process of assimilation and cultural integration made it possible for the idea of progress to be generally accepted. Exhibitions played a significant role here, as they established a clear relationship between progress, technological development and the idea of a more general “amelioration of mankind”\textsuperscript{14}. They constituted one of the means by which the cultural construction of a new exaltation of technology and of intentions went on in the 19th century. Already at the beginning of the Nineteenth century with the glorification of a series of New Prometheuses\textsuperscript{15} this process had at least partially replaced the old Pantheon formed by the heroes of battles and politics with a new “technological Pantheon”\textsuperscript{16}. Treating inventors as heroes is in fact an outgrowth of the Nineteenth century. Before then, inventors had a socially marginal position and were often even considered as fraudsters and scammers\textsuperscript{17}. Only from the 1820s a veritable cult of these figures developed, especially in England, which will play an important role in the 19th century throughout Europe by strengthening the prestige of inventions and inventors. In England, for instance, shortly after his death James Watt and his steam engine become the object—with some resistance—of a true cult, expressed


through monuments, statues and varied celebrations\(^1^8\). Initially the process is less visible in Italy and France, where soldiers and, particularly, writers remains the heroes, even if the inventors are not entirely absent from the National Pantheon, \(e.g., \) in Italy, Alessandro Volta, whose figure is steadily rising in the late 18\(^{th}\) century.

In contrast to these controversies and resistances, the Universal exhibitions of the second half of the 19\(^{th}\) century take on the meaning of a gigantic effort to promote modern technology, and appear as one of the most important channels for the transmission of messages and cultures related to the ideology of progress. The triumph of industry and the affirmation of the faith in progress, celebrated in these ephemeral but gigantic fairs, put aside past disputes and social resistances, pushing back the ancient ghost of a negative technology\(^1^9\). Even the new type of social conflict developing over the century now takes for granted the acceptance of a process of indefinite and sustained increase in the role of technology.

The reports of workers represent therefore a source for measuring the intensity and depth of the affirmation of this process, the confirmation and validation of industrialization as a rather clear phenomenon. More than that, they also represent a valuable source for analyzing the ways in which the workers reach this acceptance and assimilation. Facing the spectacular and phantasmagoric apparatus of the Exhibition – conceived in order to captivate and emotionally involve the audience – the workers are almost disarmed: their implicit value, a true hymn to progress, is almost always internalized, without visible conflict. References, symbols and representations change appreciably, though, when the abstract idea of Progress with its general and “political” value makes room for its specific forms.

4.- The fascination with technology: the miracle of electricity, a metaphor for progress and science.

The main problem lies in the relationship with technology, which is the primary means of affirmation of progress, but takes different forms and from

\(^{1^8}\) This resistance came from the radical British theorists of inventive activity as the result of a collective effort of “savoir faire” on the part of the workers, MACLEOD (2007), 115.

time to time gives rise to mixed reactions. While the idea of progress is a constant theme, the individual technologies can be seen more or less critically and may change their meaning over time\textsuperscript{20}. The workers assume here a critical distance from the general concepts of progress and show again various degrees of cultural resistance through the vindication of their trade, by denouncing the destructive purposes of new technological weapons, or by asserting the need to safeguard the body and to keep the workers’ way of life. Moreover, they express, in a naive and innocent way, their amazement at the phantasmagoric demiurgic strength of technology, especially when it appears as a direct expression of science.

Electrical energy may be considered as an emblematic case in this regard, as it only becomes visible through technological applications. For the Milanese workers sent to the Paris Exhibition of 1889, electricity is one of the most extraordinary sights, and justifies, in their reports, an excessive use of superlatives:

“At twilight it was a marvel to see the Arc de Triomphe and the Place de la Concorde surrounded by large gardens filled with stupendous and most beautiful statues pouring water. But the most beautiful thing to see was the great illumination by gas and electric light, which was wonderful: in fact it seemed to be lit by the sun”\textsuperscript{21}.

Although it does not yet have its own space in the Exhibition circuit\textsuperscript{22},

\textsuperscript{21} AcMi, Esposizioni e Fiere, Esposizione in Parigi, 1889, Relazioni degli operai visitatori, cart. 3, “Relazione del viaggio e del progresso all’Esposizione Internazionale di Parigi 1889 di Baroni Francesco della società dei lavoratori di Crema”.
through the spectacular play of lights arranged for the Exhibition electricity comes to represent the triumph of science and takes on a metaphorical value. Indeed, it personifies the deepest values and the most typical ideas of progress itself. These values not only promise a better life, but refer to the traditional symbolism, very common in the labour and popular imagination of the time: the concept of Aufklärung, a rational illumination hostile to superstitions and fears that keep the people chained, and the value of education against the workers’ ignorance. These values are, finally, fighting those negative aspects of tradition identifiable in war and violence. In this sense, electric power assumes almost a sacred value, not deprived of millenarian tones:

“[...] The era of fighting is over [...] the era of work is in its full development [...]. The genius of war has to run away blinded by the shining of the electric light, as in the mystical paintings of the middle-ages the devil ran away before the Cross”\textsuperscript{23}.

To reinforce the assignment of this almost sacred value, in 1889 electricity is seen as something miraculous, supernatural, albeit in a rational and modern sense:

“Every day we can see what electricity can do. Nowadays electricity is subjugated by science in every possible way, and helps solve the most difficult problems. Moreover, I would say that in certain domestic applications it’s more difficult to find something which still needs to be solved than the solution itself. It performs real miracles, even if they are not really miracles [...] It moves forces at great distances, moves trains, melts infusible metals at the highest heat. Its field of application is vast and almost inexhaustible. Since the immortal Volta discovered his battery an irresistible succession of new inventions and discoveries has followed. But only in recent years has it assumed a really practical industrial development, since before electricity was regarded as a scientif...
tific curiosity except for the telegraph and electroplating and some other applications”24.

Like any technology, though, electricity has a cycle. After a first moment in which it assumes a spectacular and phantasmagorical value, it then tends to be trivialized, to become a common element of everyday life, and so she loses almost every visibility. This process is clear in the reports of successive Exhibitions:

“[…] Visiting the grand palace of electricity we could not help but be amazed at the many applications that were represented. Suffice to say that electricity is applied even to the most unlikely things, from the most serious applications to those which seem more funny”25.

Fig. 1. Frontispiece of the report on electricity at the 1900 Universal Exhibition in Paris, by the worker Guido Milanese Iamundi (AsCcMi, Esposizioni e Fiere, Esposizione di Parigi 1900)

24 Ibid., cart. 2. “Relazione dell’operario meccanico elettricista Montegani Antonio, all’esposizione di Parigi 1889 addetto allo Stabilimento del Tecnomasio Italiano”.
25 Archivio Storico della Camera di Commercio di Milano (AsCcMi), Esposizioni e Fiere, Esposizione di Parigi 1900, Relazioni presentate, scat.190/b12, “Relazione sull’industria del legno all’esposizione di Parigi 1900 degli operai Montorfano Arnaldo e Giacinto Angiolini”.
Even in Milan, in 1906, electricity plays a pervasive role, both for technical and economic reasons. Its presence is now accepted with a much more pragmatic and prosaic tone:

“There are various machines that work in that gallery, and all driven by electric motors […] so that [electricity] has completely replaced the powerful steam engines that were seen in motion in the previous exhibitions, to move various machines. This represents a remarkable economy, being able to save the costly installation of steam generators, engines, transmissions, belts, etc.”\(^{26}\)

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\(^{26}\) Archivio di Stato della città di Bologna (AsBo), Camera di commercio, V/141, Esposizione di Milano, L’arte meccanica rappresentata, Relazione dell’operaio bolognese Augusto Paganelli all’Esposizione Internazionale di Milano del 1906.
Fig. 3. Drawings attached to the report by Guido Iamundi on electricity at the Paris Exhibition 1900 (AsCcMi, Esposizioni e Fiere, Esposizione di Parigi 1900)

Fig. 4. Electric lighting. Arc lamps, Bardon system to the report by Guido Iamundi (AsCcMi, Esposizioni e Fiere, Esposizione di Parigi 1900)
The pervasiveness of the new technology could almost be seen as an element that weakens the spectacular nature of the Exhibition:

“No doubt there are some interesting things, but something lacks in grandeur, in newness, in short, a machine which makes the crowd stop in excitement and deeply impresses them. Where are the wonderful Tosi locomotives! The presence of this world famous brand would have raised the industrial prestige of Italy in this exhibition! The Neville engines! The simple gas engines! The steam turbines! None of that! Everything is driven by electrical energy [...]” \(^{27}\).

\(^{27}\) Ibid., Relazione dell’operaio aggiustatore meccanico Rizzoli Ugo.
The disappointment of the worker from Bologna reveals the way electricity, although undoubtedly characteristic of modernity, may appear as ordinary and “normal” once learned and interiorized, thus deprived of any evident effect on the imagination of the workers visiting the Exhibition. The workers’ refusal to see the “occult” modernity of electricity, the persistent call for the spectacular and imposing machines reveal how, despite recurring references to the cold rationality and superior functional efficiency, an aesthetic perspective prevails in fact. As it grows in intensity technology tends to become less apparent, its power seeming almost “hidden”. This is what the worker engineer Settembre Cuppini acknowledges in his 1906 report:

“In the phenomenon of evolution, everything changes, and the Exhibition in Milan paid the price for this. In the previous Exhibitions the mighty steam locomotives still towered, giving life and energy to all the other equipment, primarily in the galleries of work. Here everything is in motion, but by a nearly occult power. Electricity”\textsuperscript{28}.

The phenomenon is also verifiable in other areas where technological change makes the previously used means and devices redundant:

“What surprised me more than everything is a great telegraphic apparatus in the hall of the post office. This multiple printing engine is formed of four machines put together, and is capable of sending 130 telegrams per hour and receiving equally as many. I have to call this invention one of the most important in my little report. Thinking about what our good old men said about couriers: when interesting news came, something that could be the fortune of the whole world, the delivery was entrusted to the speed of the legs of a man”\textsuperscript{29}.

\textsuperscript{28} \textit{Ibid.}, “L’Esposizione di Milano. La scarsa mostra di macchine a vapore in genere. Relazione dell’operaio macchinista Settembre Cuppini della Società Tramw elettrici di Bologna”.

\textsuperscript{29} AsCeMi, Esposizioni e Fiere, Esposizione di Parigi 1900, Relazioni presentate, scat. 188/b7, “Relazione dell’operaio meccanico Marco Antonio Fagiolini di Sondrio”.

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A few clear answers emerge from these reports, almost all relating to “pride in workmanship”. The workers are sometimes surprised, sometimes bewildered, sometimes astonished when confronted with the performance and the power of technology. They often manifest their enthusiasm, but do not appear submissive or discomfited in the face of its dominant presence. The awareness of their professional skills - the mastery of their craft - is well rooted and is clearly the fundamental background that unites these groups of workers.

At the same time – albeit only virtually and taken in perspective – the Exhibition is the place where their professional profile is greatly undermined. The reactions, as we have seen, are numerous and varied, but rarely take the form of an uncritical acceptance or a radical opposition. By far the most common reaction is a cautious and critical approval, accepting the dominant message of positivity and strength of the technology and the inevitability of scientific and technical progress, but at the same time strongly suggesting the theme of the preservation and protection of workers’ prerogatives.

The phenomenon of World’s Exhibitions can thus be interpreted as a gigantic effort to convey an industrialist and progressive message that can subdue and marginalize the strong anti-technology Luddite impulses originally present in Italian workers.