With his book *The last mile: Journey into the world of logistics and e-commerce*, the journalist Angelo Mastrandrea has penned a consummate piece of reportage, published in the weekly *Internazionale* magazine under the title “Le regole di Amazon” (“The Amazon rules”). He reveals the mystique, akin to a police regime, of this big American multinational, which he describes as “aseptic and military-style, inhuman in its scientific approach”. This is a company that “is efficient, effective and imposes submission without any opportunity to answer back”.

A worker in Passo Corese (a small town in the Italian region of Lazio), employed in the racks of the Robotic Storage Platform, after an operation on her arm, still swollen with a 10-centimetre scar, tells the author: “My arm was locked because of the muscle strain from the repetitive movements involved in picking the goods off the shelves.” She was making the same movement 500 or even 600 times an hour.

Here we are at the new frontier of global capitalism, which for Mastrandrea calls to mind the Fordist factory and the way it organised the work of its operatives. This is how it is, for example, in “Book City” in Stradella (Lombardy), with its 8 000-square-metre building and its 100 million books ready for distribution. To demand that their rights be respected, the workers there recently went on strike, which was put down when the police charged brutally against the strikers. “Alienation and exploitation are coming to the fore again – it’s like a coal mine in the 1950s or like a basement workshop, when production is relocated from the Far East to Italy itself, maybe in a Tuscan Chinatown or a Bangladeshi shanty town at the foot of Mount Vesuvius.” Mastrandrea describes these processes as “authoritarian capitalism”: “the technological revolution is increasing realising the unspoken dream of every capitalist: to do without workers”.

In the fourth industrial revolution, digital rationality, embodied by the algorithm, has replaced the physical forms of control exercised by foremen, and community-based society has given way to individualism. What was called the working class in the 20th century, now fragmented, insecure and delocalised, is experiencing the “social insecurity” referred to by the sociologist Robert Castel. The conflict between “workers’ wisdom” and “corporate wisdom” revolves around the notion of time. Digitalisation, in industry in particular, has led to a new rationalisation of time, a stepping-up of productivity and an intensification of work, an increase in workloads and the elimination of downtime: all of which the Toyota engineer Taiichi Ohno, the inventor of the Lean Production method,
cynically described as a system that could "squeeze water out of a dry towel". This system results in the automation of workers: in fact, "workers are often represented as cogs in the production process", as Dario Fontana, sociologist at the University of Turin, explains in his field study entitled "Digitalizzazione industriale" ("Industrial digitalisation"). There are plenty of examples of mechanisms for monitoring workers in the logistics field, starting with the electronic bracelet used by Amazon and the tracking algorithm installed on couriers' smartphones, and, by increasingly invading private life, they are advancing the "neo-authoritarian distortion" brought into play by Facebook, Google and Alibaba, which, in an essay, Shoshana Zuboff, a professor at the Harvard Business School, called "surveillance capitalism". The research, started in September 2018 and completed in March 2020, focused on people who work every day in an Industry 4.0 context (where the virtual world meets financial transactions and marketing).

40 000 redundancies

Workers' interactions with algorithms evolved in the factory with the digitalised industrial machine, and in office environments with the computer. These interactions became truly overwhelming. Things sped up dramatically, as had happened in the past when the weaving loom arrived in the textile industry and when Fordism was introduced, and this radically altered the relationship between humans and machines. Now we have workers “with almost no scope for self-determination”.

In industry, surveillance is carried out through analytical monitoring of the production process, while in the banking sector, for example, it takes the form of remote tracking of work operations, or chats which suddenly pop up on screen when productivity slows down. The financial sector has already clocked up 40 000 redundancies in 10 years, specifically resulting from the use of technology in work processes, which is set to be one of the problems of the future. In an article published in the Internazionale, entitled "Il capitalismo dei robot" (The robots are coming), the British essayist, John Lanchester, imagines the future scenarios of the world of work, and it is a rather worrying picture: "In the next two decades, 47% of employment is 'in the high-risk category', meaning it is 'potentially automatable'. Interestingly, though not especially cheeringly, it is mainly less well-paid workers who are most at risk. Recent decades have seen a polarisation in the job market, with increased employment at the top and bottom of the pay distribution, and a squeeze on middle incomes. Rather than reducing the demand for middle-income occupations, which has been the pattern over the past decades, our model predicts that computerisation will mainly substitute for low-skill and low-wage jobs in the near future. By contrast, high-skill and high-wage occupations are the least susceptible to computer capital.”

Musculoskeletal disorders

In the digital world, now that distance is no longer an issue, we can talk as though we are really face to face. Even though, when I interview him, Dario Fontana is on holiday in Sicily and I am snug among books in my ill-lit office in Fermo, in Italy's Le Marche region, there is immediately a kind of empathy between us. Sometimes the connection fails, I miss fragments of speech, words are swallowed up by the network, but then, serious and scholarly, he patiently persists, starts speaking again, and the conversation recommences. His work is seeking to update the old "workers' inquiry" and this has involved visits to workplaces and preliminary interviews with shop stewards. "I had the opportunity to see how they work," he explains, “talk to the workers, attend a presentation of production processes and so monitor the work as it was going on. There is a trend towards a relationship of low self-determination, where the machine controls the worker, particularly for manual workers. There's greater freedom for the technicians, the employees who are in charge of production, but their autonomy is still only very relative. Once there were timesheets; now there is remote control.”

"Working with machines leads to more intense work rates, more solitary activity and less cooperation among workers. The will and the capacity to manage are entirely in the hands of the company," he concludes. I can see him clearly on the PC screen in front of me, with his thick, curly hair, his black-framed spectacles and an alert look in his eyes. This is all very dangerous, he says: “This intensification of work leads to musculoskeletal issues plus stress-related disorders, which are on the increase.” His book tackles this question as well as gender-based discrimination. Women are still more disadvantaged than their male colleagues. In a passage from his essay, he explains that “the neoliberal discourse has made purposeful workers' action a relic of the past; it unceremoniously condemns conflict as an obstacle to progress and restricts the role of unions to formal, functionalist participation.”

“There has been a change in the political perspective,” he now points out. “As long as universities are not independent, those who fund them influence research and the value system. The workers' inquiry was effective because of the political and social impetus that existed for some years, but this cycle has come to an end because the concept of work has lost its centrality.”

According to Fontana, the background to this is more political than industrial. “The more time spent working, the more profit you make. Making time pay is a matter of the dialectic between the worker and the manufacturer.” I can see him on the screen, a concerned look on his face. Then, with a hint of a smile, he starts speaking again, fluently and intensely: “One of the canons of the capitalist world's ideology is about delegating everything to business, the common good that should be preserved, with the claim that the emancipation of the worker can only be through the emancipation of business.”
Unemployment worries

This is the historical context, what is called the balance of power. “In a mixed system combining human work and the work of the electronic instruments that feed into the plant, the more work I get out of a machine, the better the return for me, and the worker will not always be able to keep up with the rate of the machine. This is the algorithm that makes production flows hard to estimate, which makes the use of time a political issue.” On the other hand, in his view, unions are still very closely tied to wages and welfare, while production – all the technical and technological issues relating to time, workloads, work rates, psychological conditions and work constraints – is a more complex question that is only partially taken into consideration in negotiations. “If you are not completely in control of the organisation of work as a whole, you are also not entirely in control of wage bargaining,” he points out. IG Metall, the national metalworkers’ union in Germany, tried to tackle this. Negotiations began from the grassroots, based on the inquiry, with technical experts who could interpret the production processes and understand workers’ needs. “There is a need to return to a scientific approach. The role of the health and safety representatives is also seriously underestimated: they could be properly trained to do more important work on internal research and surveys, not least about illnesses – there is always a very strong link between intensification of production flows and illness.”

In any event, insecurity in the world of work is on the increase, as the study also shows: between 55% and 70% of people questioned worry about finding themselves unemployed, being replaced by technology, not finding a new job, or being relocated or replaced by workers abroad or temporary workers. This fear, which first arose in the post-Fordist era, when flexibility and insecurity were growing, has now reached explosive levels.

But, I ask Fontana, what is the relationship between workers and machines? I am interested to find out about certain typical conditions, to understand what things are really like. “I’ve been struck by certain situations that I thought existed only in works of science fiction,” he says, somewhere between concerned and amused. Working by “voice control” in logistics is an example of this. He tells me about a warehouse in Modena that serves supermarkets, particularly one large supermarket chain, where “the workers have a headset and a microphone, they’re separated from each other, they can’t speak among themselves. Every 30 seconds, they receive an order from a soft female voice, saying: ‘Pick box five from rack two, box five from rack two,’ and for eight hours running they keep on replying: ‘Picked, confirmed’, and all this comes back in their dreams. During the night they’re tormented by the voice.” The workers become machines or mechanisms. Control is both omnipresent and intangible: “You used to see the boss and shout at him, but you can’t do that with a machine. Some of this company’s workers told me that, when they’re worn down by this exhausting work rate, they sometimes shout at the machine or hurl insults at the voice, but you might as well talk to a brick wall: it just goes on repeating the same orders.” These work dynamics lead to illnesses, as illustrated by a food product assembly company that Dario Fontana visited: “It’s all done by robots; there are workers alongside who pick up the finished product, at an output of 120 items a minute. Many of these workers suffer from pain in their shoulders and hands, the turnover is very high,” he explains. “Where there’s no collective bargaining, where there’s no trade union monitoring, the company always increases workloads and work rates.” We are still looking at each other, face to face. He continues: “It’s a trend, a process that is becoming established. Technology is a tool and you have to understand how it is used, its purposes and its functions. Digitalisation has intensified production processes, there’s something new to understand. The machine is new, but the approach is the same as ever: to reduce workers’ ability to control production systems.”

Before we end our conversation, disappearing from the computer screen to return to our own affairs, Dario Fontana has one last thing that he wants to tell me: “The problem is not the machine. I hope that, one day, people will be able to free themselves from factory work, which is not a pleasant thing. Technology could foster greater emancipation, machines could make work less stressful, but this comes into conflict with the manufacturers’ historic mission. There is a political will not to do this. Business has no obligation to protect the human dimension,” he concludes, before signing off.