

Where has the Future Gone?

On the Thread of Space-Time

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'Human groups started from attempts to know the future before they had built up even initial systems of knowledge of the nature and history of past events. The first system is the hereditary tradition of notions concerning how to guard against mishaps, dangers, cataclysms; it comes after the even embryonic recording of contemporary and past facts and data. The chronicle was born after pragmatics. Everyone who forms and possesses projects, works on data of the future' (Property and Capital, 1948).

'Marx, Lenin, all consequential and radical Marxists, never liked the expression class consciousness. This notion contains implicitly the condition that revolutionary consciousness in all members of the exploited class must precede their revolutionary action. This notion is as conservative as can be' (Volcano of Production or Swamp of the Market? 1954).

The thesis we want to develop in summary is this: the counter-revolution underway for a century has pinned humanity in a limbo from which it would seem impossible to escape. A society that only compares itself with its past instead of the future is dead. In fact, the comparison with what has been instead of what could be prevents the stimulus for qualitative change; while the consolatory quantitative change (theoretically there is no limit to the quantity of goods produced, but the quality of life does not depend on it) goes into crisis due to the failure of the law of value, as predicted by Marx. This has a gigantic scope and not seeing it forces the classes into an asphyxiated brick dance, huddled, immobile, unaware of the deadly theft of the future.

Ambiguous present, paradoxical reality

Already St Augustine considered it philosophically problematic to reason about the nature of time:

'...Neither future nor past exists, and it is only improperly said that there are three times, past present and future, but more correct would perhaps be to say that there are three times in this sense: present of what is past, present of what is present, and present of what is future.' (Confessions, Book XI).

The recognition of the present as the only reality is an ambiguous consideration that will follow us in the course of this work. Our criticism of the Augustinian present will not be accidental. In the discourse we are making on the subjective elements of revolutions, time must be correctly framed because it is the most important factor. In the scale of values of any revolution, the future comes first, because past and present are part of goals already achieved. No revolution worthy of the name can do without starting with what will be achieved. And if it will be realised, it is because the way to do it will have been adopted. So the future is, at the same time, a goal and a path; the past is the experience we have of other, unrepeatable revolutionary situations (whether positive or negative); the present... from a physical point of view, does not exist.

Point to reiterate: a complete theory of revolution consists not so much in describing the goal as the means necessary to reach it. The goal and the path to reach it cannot be thought of in isolation. To consider the goal alone is to treat it as utopian; to devote oneself solely to the path is to indulge in activism. The path designed by the goal is the solution. So: path designed by the future on the basis of past determinations.

It all sounds simple, but it is not at all: between Past and Future there is the indefinable Present. This entails some observations in relation to nature and in relation to human society, which will also have to pass through one point to reach another. The Eleatic Zeno is said to have challenged the Pythagoreans on the question of the continuous and the discrete ('Everything is number', they said). If we accept the divisibility of the world, we have to overcome the famous paradoxes: the arrow seems to us to be moving, but in reality at each instant it only occupies a space equal to its length; and since the time it takes the arrow to move is made up of individual instants, it will be motionless in each of them. Space and time are in the world of the continuous; if we discretize them in order to measure them, we must know that we introduce an arbitrariness.

Today, time is not considered a matter of logic, as by ancient philosophers, but of physics, i.e. time would be a different reality to the flow of our individual lives. Time must be considered relative to context and this leads to important differences in the evaluation of the phenomena to which it relates.

Let us help with an example: our current published an important series of points in 1952 concerning the immediate programme of the revolution (Forli Points). This was a declared response to the attitude of the then Italian Communist Party towards investment, a constructive attitude towards capitalism. An opportunist attitude in the present, but no different from that of its past. Nor from that of its future. Let's say its programme was one long immobile present. A deadly paradox. The points of our current were based on an opposite dynamic: capitalism was already outdated, in fact, a century earlier; at the time of those considerations, one should not only have not invested but disinvested, drastically diminished the frenzied hyper-productive cycle. The past was dead, the present too, the future... was already in the past, as capitalism had been surviving on itself since 1848. Our programme was a long dynamic future. Analysing the points of 1952 we see that the same criteria that had prompted their publication are undergoing an important relativisation: considered as measures to be implemented through coercion of the proletarian state, they are in the present epoch measures that would be implemented almost automatically in the event of victory of the revolution:

- (a) Disinvestment, i.e. less capital goods and more consumer goods.
- b) Raising the quality of life.
- c) Drastic reduction of the working day.
- d) Sub-production plan that increases the amount of work needed.
- e) Breaking of company limits. Transfer of means and not of men.

- f) Abolition of merchant-type social security.
- g) Stopping construction and limiting unnecessary traffic.
- h) Decisive fight against the technical and social division of labour.
- i) Control of the new state over schools, press, radio, information.

Anyone reading these points now thinking of the time of the Third International and the tasks then typical of the 'dictatorship of the proletariat' would be making a mistake: that is, they would be replacing relative time with the absolute time of the idealist philosophers. Similarly, those who imagine revolution as a repetition of past events would be making a mistake. Invariance is something else. The invariant system involves:

- 1) masses of men fighting for a goal outside this society;
- 2) a party that summarises the characteristics of the goal within itself;
- 3) an organised layer between the moving masses and the party.

This is the invariance within which revolutions find their way by transforming subjective time into objective time. The great tactical 'questions', especially regarding the power relations between classes and subclasses, demonstrated the Third International's lack of theoretical elaboration. Elaboration because, as Bordiga said, in principle one cannot be against, for example, a united front, but one must know that it is a trap and must therefore be used to trap the enemy, not to open the doors of our house to him. The lesson must be learned, otherwise we risk repeating the mistakes.

'Phase transition', zero time

The mathematician Hermann Minkowski, who made a contribution to Einstein's theory of relativity, thus posited the need for a new conception of time and space:

'The conceptions of space and time that I wish to expound to you have arisen from the ground of experimental physics, and in this lies their strength. They are fundamental. Henceforth space per se or time per se are condemned to vanish into pure shadows, and only a kind of union between the two concepts will preserve an independent reality.'

Einstein, on the subject of what we call past, present or future, pointed out:

'There is something essential about the present moment that is outside the realm of science. We who believe in physics know that the distinction between past, present and future is only a stubbornly persistent illusion.'

The refusal to consider the present as part of science is rather curious, but it has important implications: if the present is not part of the scientific world, how is it that men act almost exclusively on the assumptions of a present that they consider easily linked to the past but difficult to locate as a basis for the future? In *Dialectics of Nature*, Engels makes a fundamental observation: in all of recent human history, ever since classes have existed, there have been very few manifestations of conscious modification of the future, while those that present themselves as spontaneous, chaotic, unintended according to a plan, are almost all. Yet, man has shown that for his artefacts, from everyday objects to great works such as monuments, canals, roads, he has been able to plan, i.e. foresee the end result. Methods, tools, procedures were present in societies that remained organic for millennia. At a certain stage of their development, their productive capacity required a great deal of organisational capacity so that grandiose achievements became the basis for personalised central power. Thus the 'egalitarian' social order, as some archaeologists put it, which had allowed societies to know themselves well enough to direct their energies towards optimised forms of shared well-being, disappeared. Yet, paradoxically, the new social forms, compared to the previous ones, had more means to organise society than to construct a monumental artefact: for instance, they had 'invented' the state, a highly effective instrument of centralisation and coordination. Men interact with each other, they self-organise, they know what to do at every moment of their productive life according to their assigned place, inanimate things do not: it would therefore seem simpler to organise men than to organise the production of highly complex 'things'.

As we have already written (n+1, issue 1, 2000):

'There is enough to push communists towards the investigation of all phenomena that anticipate the new society, thus already representing the ambiguous separation with it. Ever since the Manifesto, revolutionaries no longer feel themselves to be a separate reality and no longer fabricate utopias to present to others: they anticipate a known reality, precisely because the goal is not separable from the path to reach it. Between today and tomorrow, between the two opposing historical classes, there is a no-man's-land that is difficult to explore but must be known.'

From Lenin onwards, communists interpret the specific character of modern financial capitalism as 'phase transition'. Ultimate capitalism is the Leninian shell that no longer corresponds to its contents: we are therefore not in a 'transition phase', an expression that gives the idea of a slow metamorphosis,

but in a condition reminiscent of the passage from water to ice, from a loaded beam to its rupture, from pressure between plates to earthquakes.

Transition, then, as a sudden change from one state to another. From water to ice there is no intermediate state, there is no time. The previous state we know, it is history, the next one is not a hypothesis, it is derived with mathematical certainty. Unfortunately, history usually lends itself to interpretation, one would have to find a way to eliminate this approach, as one does for example with the area of a triangle: $a = \frac{1}{2} bh$. This applies to all the infinite triangles in the universe. Some peremptorily assert that for human things, observation does not apply, that their complexity and indeterminacy are too great and that man with his free will blunders every attempted calculation in the social sphere. Even in the field of physics, complexity and indeterminacy produce different interpretations, currently without explanation. This does not prevent extremely precise results from being achieved with the so-called Copenhagen interpretation, which is much debated but democratically victorious in terms of the number of votes it received in the parliament of science.

No time for discoveries, 'shut up and calculate'

Faced with interpretations, physicists less influenced by matters of theory of knowledge blurt out: 'Shut up and calculate'.

The imperative suggestion can be interpreted (we are always there) in two ways: 1) as an appeal to adopt the Galilean method (don't be overwhelmed by your impressions, use calculation to rely on the certainty of the laws of nature); or, 2) don't ask too many questions: we don't know how, but it works, so the hypothesis is valid.

It is attributed to Feynman and claimed by Mermin, probably used in the second sense, the one that would be subscribed to by almost all physicists. The same ones who 'vote' for interpretation, precisely what Galileo wanted to avoid by resorting to the methods of science.

The Copenhagen School, accused by its now few opponents of having introduced conceptions into physics that are typical of metaphysics (a particle would behave as if it knew it was being observed), retorts by asserting that Newtonian mechanism is forever outdated and cannot be placed at the basis of our way of reasoning. Let us remember this passage when we speak of Marxist pathologies, since one of the criticisms levelled at us is precisely that of viewing things of the revolution with a scientific method, a term that encompasses the Newtonian mechanistic conception. Is there also a Copenhagen School in revolutionary science? That reality is indeterminate ontologically (because that is the way it is) and not just epistemologically (because we have a lack of information about it)? Einstein was not convinced, nature could not respond to

different laws depending on whether it was observed at the micro or macroscopic scale. He was the subject of criticism bordering on contempt, from some exponents of the aforementioned school, such as Wolfgang Pauli (who, in keeping with his metaphysical veins, studied with Jung the problems related to synchronicity, i.e. a-causal phenomena, such as coincidences, or pseudo-causal phenomena, such as astrology). We mention this as a topic raised in the discussion, but it is clear that we cannot accept metaphysical groping, i.e. finding explanations only in themselves, thus projecting beyond scientifically proven reality.

Ambiguous reality of the present, certainty of becoming

Knowledge has a cumulative character, it feeds on knowledge. When Giordano Bruno describes the revolution that Jupiter intends to carry out in order to upset a universe of zodiacal beasts, he comments metaphorically that revolutions of that kind are made after lunch, when the organs, especially the brain, are well supplied with energy and can afford to make judgements that are not influenced by primary needs (*Spaccio a la bestia trionfante*).

Galileo, we have seen, will similarly argue that reality is best understood if man is nourished with non-subjective knowledge, capable of providing him with an unambiguous key to interpretation by means of found, tested and generalised laws (i.e. he must learn the language in which the great book of nature is written).

A half-century later, Newton, in presenting his great work on the laws of motion, declares:

'I have not yet succeeded in deducing from phenomena the reason for the properties of gravity, and I do not invent hypotheses. Whatever, in fact, cannot be deduced from phenomena is to be called a hypothesis; and metaphysical, physical, occult or mechanical hypotheses have no place in experimental philosophy' (Naturalis Principia Mathematica).

Bruno had been a Dominican friar in his youth even though he had not actually embraced any religion, Galileo was a fervent believer and Newton wrote more about alchemy and esoteric aspects of research than the scientific matters for which he is famous. Their beliefs did not prevent scientific lucidity. These are, these, three specific cases in which 'shut up and calculate' is invoked to say that every discovery must be tested in the light of a method that does not come from the other world but is our own construction. It can be abstract, and it will be all the more useful the more it succeeds in reducing complex phenomena into simple models. It is a fact: we must be fed with knowledge in order to know more. And if we seek something we do not yet know but glimpse in the knowledge we have acquired, we turn to the future.

'Shut up and calculate' can therefore be invoked by both materialist scientists and exponents of schools of metaphysics. In the second case, research is usually characterised by an ipse dixit. Aristotle said it, argued the inquisitors against Galileo. And he ready: if Aristotle were here he would prove me right and not you; with his logic I prove you wrong.

Now, as is the case with the whole of humanity, it is certain that even those whom we will simply call Marxists for the sake of brevity 'are doing things', but more importantly, they will do things and organise themselves accordingly. In the course of time they learn, memorise and apply. Thus, theory follows praxis, but when it consolidates precedes it, the possibility arises to overthrow praxis itself with the power of design. Scientism, in the derogatory sense, does not exist. Science, as it advances, truly subsumes under itself previously autonomous fields of knowledge. Marx records this with his famous note on method (1857, Introduction to For the Critique of Political Economy). Anyone who has in mind to achieve a goal notes it down in his agenda with some explanatory detail concerning time, methods, relations with others, access to materials and tools. Anyone who keeps an agenda keeps the future in his pocket. More precisely, he keeps a flow chart in his pocket. We can already hear sharp lamentations rising to the heavens: See? They are lowering the revolution to the level of an industrial production cycle! They want the factory-society! One moment: apart from the fact that others even wanted the co-operative society, even Marx was criticised for the same reason. The factory-society, how horrible! The barracks society! Marx writes in the Manuscripts: industry is the true anthropology. And in the Grundrisse: in the factory, the partial worker does not produce goods. The factory is barracks only because it gathers labour slaves under its roof. But the automatic factory is a means of liberation from labour: what for the standardised Marxist is a trade union problem, is instead one of the greatest achievements of the advancing revolution. The company is the problem, the factory is the solution, we add. For the Marxist without adjectives the agenda is the future, as you turn the pages the potential energy that will be unleashed in its kinetic form under the leadership of the party grows. In this consists the What is to be done without a question mark. And Lenin in the famous essay adds: liquidate the past, that is what one must dream!

Enemy philosophies of time

As is well known, Marxists are specialists in splits, they have an enormous practice of 'natural selection' that has not been transformed into experience. The ambiguous separation between epochs continually produces physical and political separation between men. If this separation were not due to material causes, we would have to conclude that Marxists are a mass of imbeciles, incapable of putting into practice the most basic assumption of any struggle: union is strength. What's more, in addition to cultivating what appears to be a masochistic tare, Marx's followers take on the function of megaphone as their

mission. They launch proclamations as if they were leading millions to attack capitalism. And since the millions of people do not care what their would-be guides say, the impact of the proclamations on reality is nil and the material effects of non-action are attributed to someone's mistakes. From this quasi-religious conception of guilt comes the holy criticism of the other, now canonised in procedure and content. Criticism that, as we have often seen, is armed not only metaphorically. We are deterministically convinced that the tendency to break up and separate is due to physical forces capable of influencing psychology and behaviour, rather than to supposedly nefarious influences of individuals: there are none so powerful.

Therefore, it is basically not accurate to say that the influence of philosophers such as Hegel and Croce represents a danger to the development of science: rather, it is a deficient development of the scientific method that allows idealism to spread. So much for the scientistic approach: if society were more permeated with science than metaphysics, everything would be solved with an easy criticism. The two philosophers are not only making mistakes: their lack of grounding in the scientific method allows them to speak without knowing the subject they are dealing with, confident that they will come out unscathed. This is the most polluting and most widespread attitude. Croce, for example, excludes mathematics and logic from having a cognitive content, while in the biological field he is highly critical of Darwinian evolution. Hegel, in spite of the chemistry of his time, still speaks of matter with Aristotle's categories. Certain that no one will cover them with ridicule, they allow themselves the luxury of theorising outside of time. In the course of a chat with a professional philosopher, we were erudite about the fact that philosophy is superior to science because its propositions would be timeless, whereas those of science would be contingent. This is undoubtedly true, but let us think for a moment what such a conception might mean: remove the arrow of time from our knowledge and it will no longer have past, present or future. If knowledge were a non-cumulative factor in time there would be no evolution, the world would be nailed down to an eternal, unchanging level of knowledge. This may be the explanation for Croce's aversion to Darwin, but it is certainly the explanation for our anti-scientists' aversion to science used in the social field. In fact, since they cannot imagine the application of scientific methodologies to the historical course of the revolution/counterrevolution underway, they do not deviate from the political categories of the Third International (after all, the International itself functioned with the political baggage of social democracy, from which science was excluded, despite the claims). Thus they treat the transitory character of capitalism as if it were eternal, both from the point of view of its permanence on the scene and from that of its structure. But the structure participates in the arrow through time: it is not always the same because, like all evolutionary systems, it is born, grows and dies.

Does she die? Will she not be killed by the insurgent proletariat? The outraged activist has the question ready. Stupid. If there were no proletariat to kill it, capitalism would still die. The question simply should not be posed that way. The crystalline Engels says that communism is not a doctrine but a dynamic. It is not the result of the victory of particular principles but of the unfolding of facts. It is not a philosophy but an accumulation of history. Communism is born out of the factory, out of the relationship between the bourgeoisie and the proletariat, and thus out of the class struggle that ensues. Communism is therefore the theory expressed by this dynamic.

'Our conceptions of the differences between the future society and the present capitalist society are exact deductions based on historical facts and real processes of development. If they were not presented in close connection with these facts and this becoming, they would have no theoretical or practical value' (Friedrich Engels to Pease, 27 January 1886).

Becoming. Exact deductions based on material history. Modelling reality and studying change over time are indispensable elements in understanding what position and role man has within nature moving towards communism. The ability to understand, to convey what is understood through formalised language, to increase skills as knowledge increases, are aspects that do not only concern the scientific world but the entirety of our stay on this planet, and of course the succession of socio-economic forms. So let us repeat: to shape the future, one must know the past and the present; but nothing can be known and shaped unless one is able to sketch a dynamic of the system in question.

When entering this field, one must have the strength to understand that we are talking about the totality of all things that move in the biosphere of the planet. Understand that, if we make separations (e.g. 'us and you' or 'them and the others', 'the proletariat and the ruling class', 'man and nature', etc.), we do so in order to have a scheme of reality that can help us solve problems. Unfortunately, we cannot help but interpret reality by means of reality itself, rather like measuring a yardstick with a metre.

In fact, we built a standard metre using a platinum-iridium bar, and on that, up to sixty years ago, we produced all the metres in the world. We invented the indefinite precision: each of the world's metres was in theory a sample metre, although we realised that that kind of precision was not enough. Due to environmental conditions, the sample bar was subject to greater variations than the degrees of precision needed in certain cases. The original bar was therefore only useful to the extent that higher accuracies were not needed.

So, interpreting reality by means of reality is not the best, but we have no other way. We must therefore set our hearts at rest and give ourselves a method

to simplify reality so that simplicity becomes a goal to pursue for a profound understanding of phenomena.

This can be achieved in two ways: 1) by perfecting the instruments of detection and measurement, and above all 2) by refining the techniques for processing the data collected. Revolutions do not only change the world, they also change themselves and the men who represent their becoming.

The future cannot be bought at the grocer's

These are arguments that have been raised against our current for a century and once produced thousands of written pages: are revolutions made or directed? Are they a product of the will of men or do they represent a social polarisation that the revolutionary party directs and guides? Does capitalism have to be brought down or could it also croak on its own? Who fights to bring it down? Who constitutes the party? Who ensures that it does not degenerate? And finally the question of questions, the atomic bomb of questions:

'But you, what do you do? What contribution do you make to the revolutionary struggle?'

Once upon a time, it was necessary to constantly reiterate that these questions formulated in this way are nonsense. After a few decades, even the proverbial attempt to 'straighten the dogs' legs' loses substance. However, it will not be superfluous to reiterate a few nails against this persistent Marxist treacle, this sweet mixture of platitudes, sentimentality and a religious sense of martyrdom that characterises third-internationalist militancy (even if, as soon as it is possible, all activist psalms end in comfortable electoral glory).

Speaking of the future and the need to draw from it indications for the present, it occurred to us that there has long been an old dialogue on the Internet between a number of people discussing our revolutionary suitability. It is material produced more than ten years ago and we had only considered it out of curiosity to understand its genesis. But in fact it is an evergreen, since its content is actually a century old. Since 1921 it has been an exploited topic and, since 1924, an obligatory corollary of Stalinist Bolshevization. In short, we are faced with a critical paradigm, a preconceived, idealistic rejection of the Galilean method, which method demands that every investigation of nature and its laws be accompanied by a method of abstraction that avoids the ravages of individual perception. They say about our foolish recourse to the scientific method (the quote is long, but it is useful because it sums up a complex of recurring criticisms)

'[n+1] It's a group that harkens back to Bordigism [...] but they sound like fools to me, for example when they claim that you can study the social with the laws of thermodynamics and other scientist/positivist/mechanist bullshit. They are amazed that capitalism didn't end in 1975 and claim that it still lives on as a 'zombie' [...] and you don't need to bother to make a party, because it is mathematically certain that capitalism will turn into communism, it is only a matter of decades [...] Obviously the whole thing is independent of the will of man, who merely assists [...] I have not found any n+1 documents where it is claimed that it is not inevitable that communism will come [...] they are victims of a dead and buried positivism [...] Degrading Marxism to cold mathematical formulas apeing physics is a dirty game. If one then makes a show of an extraordinary erudition, it is even dirtier [...] The truth is instead simple, with feeling one is on the side of the exploited, with reason one is on the side of the proletariat. With muscle, with brain, with heart, one fights every day to make that even infinitesimal contribution for which there may be the possibility of communist revolution.'

What a mess. The reader may say that material found on an organisation's forum does not count because that is a place where everyone speaks their mind without restraint. Instead, that is precisely why we find it interesting: it lends itself to accepting what goes on in the heads of those who frequent it; the brakes only serve to mystify, if you can get them out of the way it is better. The reading of the passage is clear: we are accused of a finalistic superdeterminism on which an intellectualistic abstentionism from daily struggle would rest. There are other colourful as well as fanciful nuances, which we will gloss over.

To prove we have been caught out on finalism, these unseen interlocutors of ours make a copy-paste highlighting the body of the offence, namely a quote taken from one of our articles. The laws of determinism, it says, destroy philosophical finalism and replace it with a design finalism... which of course is no longer finalism. We jokingly called it teleodynamics as opposed to teleology and teleonomy:

'The laws of determinism destroy the ancient mystical finalism, but they are based on an inexorable formula, which shows us that the future is inscribed in the path necessary to get there, in the same way that the path is established by the possible future. The end, therefore, in our way is there' (Pathologies of Investment, n+1 issue 0).

Here time comes up again: the quotation simply states that realising something one has thought out involves having given oneself a goal and having applied the necessary means to achieve it. The future commands; present and past are inessential. Incidentally, 'banging to make a party' does not seem a very efficient method: after a hundred years of banging, the party of these naive event-makers is not there. In spite of all the activists who would like to create the conditions to achieve something, if the past is gone, if the present is gone,

the only variable on which it is possible to act is the future, not because someone has come up with a futurist theory, but because we have been shaped by the future ever since we were single-celled organisms wallowing in the primordial soup.

When we had to find food to survive, we had to implement a strategy to realise our future meal. This is the essential element that has shaped the rest of our evolution to this day. And today, strategies to achieve a goal involve more than just food.

Before we go any further, we need to remove disruptive elements such as those introduced by the forum participants: on the path to the goal to be achieved, the use of science would be a cold attitude, while sensitivity, the heart more than the brain, would be of value. Now, we have always said that revolution is the product of passion and algebra, we have quoted memorable passages from our current in which it warned against the belief that 'historical and scientific materialism' meant the reasoning of the human masses. No, it is the viscera that move the masses, and a well-equipped party welcomes the message that comes from them to direct its force. But the creatives do not even feel the need to read what they criticise. They have in mind the What is to be done? as a question, while Lenin provocatively asked himself to give an answer.

Activism as negation of the future

It was Marx himself who first had to introduce this type of problem, when he was forced to say 'I am not a Marxist' in the face of the rampant, even then, dilettante chatter, the empty formulae that attributed the future of revolution to the politics of men. These current champions of Darwinian adaptation to the currents of commonplace - communism have reappeared. Apparently very confused, they finally prove to be clear and determined. Today they can do no harm, but for example in the Red Biennium their activist forebears kept proclaiming the need for general strikes, expropriations, proletarian dictatorship, and every time the workers really went on strike by occupying the squares they backed down, stabbing them in the back. And it won't be superfluous to mention that that social-democratic and frontist jam was precisely the one that theorised the need for a workers' and socialist culture, because you know, the proletarian class for them is never ready for revolution, whereas it would always be ready for election. The critics in the ranks of Stalinism (even when they are self-styled anti-Stalinists) are not just ignorant, they are dangerous.

It is not just a matter of avoiding the effort to understand the tribulated, immense path traced by nothing less than antithetical social forms in collision. Along with the positive forces that the revolution throws into the battle, there are negative remnants of the old society, represented by all those who believe it is still useful to draw on the scrapheap of the bourgeois set-up. Fortunately, it is

easy to recognise them: in an invariant whole, i.e. in a system in which all parts contribute organically to the functioning of the whole, it is enough to vary just one element of the entire structure to make it collapse.

Place representative democracy in an organic system (e.g. the party), and it will collapse even if democracy weighs one thousandth of the whole. Allow wage labour to exist in a transitional society and you have rigged capitalism instead of socialism. Use money albeit calling it something else (good work, etc.) within a society you believe to be socialist and you will have capitalist accumulation in no time.

How many are there who, embracing one of Marxism's various ways of being, have completely eliminated any concrete relationship with capitalist society and feel themselves to be militants of a new society? It is difficult to assess a social situation if the assessment tool is malfunctioning. In any case, it takes little to document what we say about automatisms of revolution:

'If the critique of political economy is at the same time an affirmation of the future society, and the latter will be possible with the end of the quantitative pseudo-science of commodities and money, of the fetishistic character of capitalist production, it is evident that it is not enough to expect social revolution only from a change in quantitative aspects: if the relationship between things corresponds to a relationship between people, between classes, in the final analysis it will be precisely the interweaving of things and people, of quantities and classes that will be decisive.' (*Historical Crisis of Senile Capital, Preface, 1985*).

Light at the end of the tunnel, perhaps it is the future

We say 'perhaps' because it may not be now, it may be another train of counterrevolution coming towards us at full speed with its headlights on. The timing of the revolution may not be what we want it to be. The street demonstrations that have mobilised millions of people in recent years have objectively different characters from those that preceded them. That is, they have begun to represent not only the past (experience) but also the future (lack of demands for the present). We will still see uprisings such as that of the French banlieues, Greece, the Arab Spring, the Indignados, Occupy Wall Street, Nuit debout, the Gilets jaunes, the Anti-Pouvoir of Algeria. As we write there are demonstrations in China, in Algeria, in France, in Chile, in Ecuador, in Bolivia. Compared to the past, these movements no longer have a clear class composition like the trade union movements, but they are still not anti-system. The criterion to identify their nature can only be that of time: are they aimed at claiming a past that no longer exists or at paving the way for a future that is not yet there? This was the criterion adopted by our current to evaluate anti-colonial movements. At the time, it was a question of understanding that one could not be indifferent to them because they involved immense masses who, waking up

to the roar of machismo, shook the society of the time from its foundations. Indeed, it was said that with their urban warfare, the coloured peoples exerted a classist, modern pressure, while the backward peasant masses exerted an ancient, racial pressure in the countryside, even in non-backward countries.

The flurry of fires in the French banlieues was anti-form, an absolute opposition but still in the guise of rejection without alternative. The demonstrations of the Indignados and the Nuit débout movement were largely within the democratic logic; those of the Arabs were against the government in office and not against the system (let alone the social form); those of the Gilets Jaunes have too pronounced an interclass characterisation that prevents them from being anti-form. In the last fifteen years the accelerated urbanisation of China, India and other major countries has brought more than a billion people to the streets. These were not classist uprisings but interclassist urban uprisings, but they possessed a classist charge because of their radical extremism, just as the coloured peoples had during decolonisation. With one important difference: until recently there was still a considerable mass of manoeuvre by the middle classes, afraid of the prospect of being cut out of the capitalist pie. Today this condition has been drastically weakened and the petty-bourgeois masses have been permanently ruined. Taking away a good part of their spending power from a hundred million people has given America, for example, a jolt fraught with consequences, and has undermined the very foundations of what will never again be the powerful locomotive of the world economy.

The only wave of demonstrations that were clearly anti-form and with strongly proletarian connotations (in the sense of without-reserves) was the American Occupy Wall Street. We will not dwell on the specifics, as we have covered the subject in issue 30 of this journal, but at least one of these aspects needs to be emphasised: nothing that the protesters professed could be the subject of demands and negotiations. OWS was a purely anti-form movement even in its marginal manifestations (or rather, wrongly considered marginal): it attempted to create communities that tended to be outside any capitalist logic. And, what is more, with a purely American pragmatism, far removed from the European leftist liturgy. Irreversibly marking the future of all the uprisings that will erupt from now on.

Scientist positivism, better than nothing

We are travelling on somewhat distant paths from Marxist luogocommunist, and we won't waste time doing a copy/paste of any of the thousands of examples that show us how much Marx and Engels cared about elevating 'socialism from utopia to science'. But a little curiosity is inevitable. We are faced with a world situation that sees an irretrievable crisis continuing, that sees unemployment at unprecedented levels, that sees the ratio of profit to capital advance at levels impossible to sustain over time, that sees relative

surplus value rise enormously, so much so that it is a destruction of the law of value. There is enough information to understand where we are going. What can be the material reasons that lead individuals to have a particular hatred for everything that is not immediatism, activism, primitivism, all the 'isms' that that great troublemaker Lenin threw at improvisers?

What is scientism? Why does someone pop up every now and then to throw it back at us in blatantly extrapolitical tones and arguments?

The Treccani encyclopaedia, with its Gentile-Crocian approach, is particularly well placed to provide us with a definition:

'The particular intellectual attitude of those who consider the only valid knowledge to be that of the physical and experimental sciences, and thus devalue any other form of knowledge that does not accept the methods proper to these sciences.'

This definition is simply nonsense and it is somewhat surprising that those who call themselves communists can make it their own. None of those who are called scientists by the anti-scientists believe that the only valid knowledge is that of science (certainly some of the knowledge peculiar to societies considered primitive is, for example, even superior to our own scientific knowledge for - say - successfully conducting the protein supply of a community through hunting). Nor does it devalue any form of knowledge that does not accept the methods of science. Those who support the scientific method believe precisely that all the knowable world can be subjected to the scrutiny of science, and indeed consider contemporary disciplines mystical or spiritualistic - and therefore already addressable by the scientific method - that cannot be framed in scientific research programmes. Anyone who rejects such an approach is part of a spiritualistic, non-materialistic world and therefore of no interest to us.

Psychology, for example, is certainly one of the disciplines least 'contaminated' by scientism, but it is at the same time the field in which the use of drugs such as psychopharmaceuticals, the result of complex research into the action of chemical substances on the brain, is at its highest.

There may be scientists in the frontier disciplines, but while these tend towards research conducted on a material basis, metaphysicians can only resort to an idealistic approach. Today, the term 'scientism' is used exclusively in a negative sense, and certainly not because of science, but because of the positivist mess that has been wedded to philosophy. Used therefore to

'to indicate the undue extension of scientific methods to the most diverse aspects of reality' (Treccani)

it stands for conservation. If the extension of the scientific method is undue, the tendency to explain phenomena through ideas, through thought, becomes justified. But the opposite tendency is the advance of the materialistic explanation of phenomena, it is the great 'Galilean' conquest that revolutionised every theory of knowledge by founding modern science. This is Marx's discovery on the road to revolution, when in 1837, at the age of 19, he wrote the important and never-quite-known Letter to his Father, a true programme of scientific research in the modern meaning of the term.

In spite of what the sufferers of Marxist (Hegelo-Crocian-Gentilian) pathology claim, we will provocatively wade through scientific propositions even where it is not always considered indispensable even by the followers of scientific materialism (the adjective here would be superfluous). But faced with the accusation of scientism (a charge made infamously by the opponents of science) can we deny that we are scientists? Evidently not. If we read the Treccani with our eyes, scientism is nothing other than science in the act of gaining ground in all fields.

Anyone of us can call himself a scientist if he uses science as a key to open up new worlds of knowledge. Before Galileo, there was no science as we understand it today. As the scientific method became established, it invaded new fields, just as the Treccani entry says. Unduly so, because until then these fields were exempt from the scientific obligation to find the laws underlying phenomena, to elaborate a theory and to subject it to experimental verification, i.e. to the test of repetitive experiments. Therefore, if we take the official definition at face value, there will be scientists as long as there is something new to be known from the perspective of science.

We can therefore call ourselves scientists not because we would be convinced that science is the holy book of a religion that allows us to explain and justify everything, but because we think that only that which science proves the material existence of is part of reality. To pretend that there exists some part of the universe, some reality, of a different nature than that proven by science, only serves to cultivate chatter.

Only after making these clarifications can one move on to the critique of science in the capitalist age. To criticise anything, be it religion or science, one must at least put oneself up to it.

Marx said that the results achieved in each country are immediately the heritage of all others. This does not seem to be the case with the results of revolutionary theory, about which everyone says and does what they want, wiping out any possibility of sharing.

Science is not a hammer

It is sometimes said: science is like a tool, its function depends on who uses it. This may be propagandistically effective, but it is an incorrect platitude. If we say that science is a hammer, then it is true: I can use it to pound a piece of land, or to smash an enemy's head in. But this is a somewhat gross generalisation that falls down when faced with slightly more complex examples. For example, Newton's theory of gravitation is a law of nature; if one were to think of its use as a tool, one would have to resort to ballistic bullet parabolas or space warfare with trajectories of spaceships gravitating between celestial bodies and the like. The law as such remains the heritage of knowledge of the species in any context. The hammer has nothing to do with the laws of nature, unless one thinks of the very complicated physical-mathematical description of its use, from the lever effect to the heat dissipated by hammering in nails.

The real trouble, for our species, with the persistence in power of a class as nefarious as the bourgeoisie, is the ideological prejudice that prevents us from advancing our understanding of the world. Galileo and Newton could not imagine a flat Earth around which the Sun orbits because their materialistic conception of celestial bodies, supported by calculations and experiments, prevented it.

Perhaps it can be said, without shocking anyone, that our current's opposition to the old tertiary-internationalist policy was dictated by the fact that we were forced, due to the theoretical limits of the environment, to reaffirm a 'strong' materialist conception, to realise that it was not simply a matter of people being 'wrong' but of something deeper, e.g. a transition.

We have never dedicated ourselves to a display of memories with which to celebrate 'our' distinctiveness because the real distinctiveness is that of the Left. Yet, some minimalist observation must be made. When any third-internationalist bastion is questioned, a disproportionate furore is immediately unleashed, a hysterical wave submerges any attempt to refer to the future and the unwieldy and unrepresentable past takes over. It is clearly not a question of aesthetics: let us ask ourselves whether a 20-year-old today would be attracted to a fight for what was at stake in the 1920s, let us ask ourselves whether he would risk a bullet to get Stalinist Russia as a backdrop for his existence. A 20-year-old in the early 1900s did not know that Stalinism would take over, today's 20-year-old knows that it did. Even if he does not rationalise the phenomenon, he has breathed in the opposing Cold War propaganda, lived in a climate of ideological falsehood that has intoxicated him. He has no exemplary past to refer to, not even to invent some artificial myth. If he were attracted to change, he could only refer to the future. That future to strive for if seen within a framework of demolition of the present, that from which to flee if a framework of preservation prevails. But escape to where?

The dominance of the future

A kind of generalised Bolshevization has erased all memory of the few voices outside the chorus. As if no current existed after the war to pick up the 'broken thread' and put the doctrine back on its feet. Only the loss of lucidity resulting from the pathological identification with past events can explain the resounding 'forgetting' of what had been worked out for future events. Obviously, so much forgetting also has endogenous causes. The current that, uniquely in the world, represented the organic becoming of our species through consistently organic Party action, came close to extinction by ending up homologous to the Marxist environment. By now there is no one who dares to argue about socialism 'from utopia to science', while pages and pages can be written to justify a few crumbs of trade union action alongside one mini-union rather than another. All this while exchanging an appalling lack of competence for a healthy distance from scientism. That 'bourgeois' science is polluted by ideology and self-interest, even the bourgeois know it, of course. The mathematician René Thom, in polemic with other scientists critical of his 'catastrophe theory', notes that today's science shows enormous shortcomings, but this does not mean that a scientific conception of the world must be renounced:

'It does not take a great deal of scientific culture to realise that our current knowledge of human physiology is ridiculously rudimentary; and one only has to consult a treatise on the resistance of materials to be convinced that the theoretical basis of corrosion and the so-called ageing of structures is frighteningly deficient. An individual with any scruples for theoretical rigour would avoid consulting a doctor or boarding a Concorde'.

In a revolutionary environment one should argue about the problem of health in the future society, production for human needs and energy-saving technology against the inherent wastefulness of capitalism: discovering that bourgeois science is... bourgeois seems an unhelpful exercise.

Let us try to visualise a model representing the clash: at the beginning we have a fairly homogeneous environment that inevitably maintains ties with the past and on this basis proves destructive towards itself: having to defend the USSR and the whole Stalinist system, it will collapse miserably with the latter.

But there is no opposition, so the dialectic of transitions fails, when the old dies and the future presses on. Unfortunately, the future presses on in a very relative way: the mode of production is not only ripe to fall, it is rotten; while the proletariat has not yet risen from the drubbing of the 1920s. Indeed, even what remains of the original current of 'left' communism seems to be tragically overwhelmed by the general dissolution. Whereas after the Second World War it had been possible to contrast the pestilential past with a few invigorating injections of the future, today the regurgitations of democratic

third-internationalism no longer have anyone to stem them. Even if they had been all in all irrelevant, the lefts of Marxism had on the whole performed a task of safeguarding the theoretical heritage (or rather: of the possibility of that heritage being rediscovered in the future). But from the beginning of the 1960s, the siege of the new form of opportunism that was apparently critical of the old one was replacing it.

Unfortunately, history is unforgiving: the stratified accumulation of Marxisms was again loaded with contents borrowed from the damned counter-revolution. At the beginning of the 1970s, third-internationalism was taking hold. Opportunism no longer appeared monolithic around the Stalinist social-democratic model, but varied and apparently new. For the Marxist currents it was a disaster: the organic structure, already severely tested by so many defections, collapsed, opening the way for the influence of the new opportunism. Which, in general, apart from a few variants that attempted to introduce an anti-form discourse, was not too different from the old one.

Projected invariance: the future of the modernisers

Criticism of Marxism might suggest the usual 'issues' (national, agrarian, trade union, tactical, military, etc.) that have provided material for debate for a century. Something is changing. The dialectic between conservation and revolution has, as it were, assigned places that none of the actors on the scene consciously occupied. Therefore, the great subdivision identified seventy years ago by our current between deniers, falsifiers and updaters of the doctrine should not be interpreted as a field choice of subjects but as a material distribution of probabilities, just as occurs between social phenomena involving the movement of so many individuals, which can be treated like molecules of a heated gas. The question is therefore not 'what field choice' a subject has made but 'what field' the revolution has thrown him into in the ongoing Darwinian selection. The areas to be occupied have shrunk, so history has reserved for the future of the revolution only one large adverse field. As we have noted many times, the arrow of time entails a simplification of relationships and tasks.

In the beginning were the deniers of the original doctrine 'of Marx'. They were the open enemies, belonging to the bourgeoisie and viscerally attached to its ideology. They are now statistically irrelevant, since the maturing of capitalism has entailed fundamental theoretical capitulations on their part. Obvious capitulations, even if not admitted, but capable of changing the social environment, real 'defeats', as our current defines them, with respect to the future of capitalism.

The second cohort, that of the falsifiers, was the historically most flourishing, dangerous and mystifying. It was the social bilge where opportunists of all stripes gathered, from those of the social democracy of the Second

International to those of counter-revolutionary revisionism. They were defined by our current through the subtractions they had made from the general body of revolutionary doctrine: they assumed that it was possible to eliminate from it the catastrophic historical trend, the necessity of the organic political party, the task of destroying the old relations, anti-parliamentarism, anti-gradualism, the inevitability of the violent class-on-class clash. The original core of the falsifiers would not have held up under the blows of the revolution if another, parallel phenomenon had not brought water to that mill: the defeat of the revolution had pushed into the limelight a falsifying current with ample state power, influential because of the conquest of power in Russia, capable of undermining the invariant edifice of revolutionary theory from within. Stalinism was a powerful subset of the falsificationist complex.

Again, the irreversible historical movement, the arrow of time, produced a weakening of the assumptions on which this current was based. Having removed Stalinism with its Russian homeland from the future horizon, the counter-revolution should have difficulty in finding equally deadly alternatives, even though already in the early post-World War II years our current, with a certain prescience, identified the third wave of adversaries:

'Finally, in the third sector of the modernizers we place those groups which, while considering the aforementioned Stalinism as a new form of the classic opportunism beaten by Lenin, attribute this fearful reversal of the revolutionary workers' movement to defective and insufficient forms contained in Marx's first construction, and assume to rectify it by claiming to be able to do so on the data of the historical evolution subsequent to the formation of the theory; an evolution which, in their opinion, contradicted it' (The Foundations of Revolutionary Communism).

The neo-Stalinist spontaneism of the activist groups coexisted with the veteran-Stalinist forms of Maoism and the workerist forms that blossomed in the left of the PSI. In a nutshell, if by Stalinism we mean the enormous negative influence of Russia on the international workers' movement, by neo-Stalinism we can mean the enormous negative influence of the same opportunist form but without Russia, thus with a disguise that could make it survive.

The social model was clear: faced with the Stalinist form of the 1970s, the ultra-minority current that had preserved the theoretical heritage as best it could had to succumb, to die, because it was the only way to break with the influence of the past and be reborn under the influence of the future. In the years that followed, a social ferment inherent in the transition from one era to another and not from one group of erring individuals to another became particularly visible. Today we know that in this case saying 'from one era to another' means 'from the past to the future'. Was this predictable? To answer in the affirmative would be a poor reflection of reality. The crisis was so profound that it drove individuals to futile rearguard battles. The demise of that historical current was, however, in

a sense seen by us in advance: against those who foresaw an eternalisation of winning opportunism, we pointed out that an obvious self-cannibalisation was underway and that only when the cycle of elimination was over could something new arise.

It was a '*filo-tempist*'¹ decision

Something new was maturing in society, otherwise we would not have been able to decide anything. But, as far as we were concerned, it was a decision made possible first of all by the ongoing change in the industrial structure in the major capitalist countries. As invisible as our micro-reality was and as inexplicable as the environment's refractoriness to the determinations so well elucidated by the Communist Left seemed to us, it was clear to us that there was a leap between the first and second post-war periods and that to remain anchored to the texts of the first while neglecting those of the second was a serious mistake, not just a preference. Only on the edge of time would it be possible to frame a daily activity consistent with the future. The aforementioned change was taking place with the radical use of intensive exploitation, i.e. machines that drastically altered the production of relative surplus value. There is sufficient documentation on this issue and we include it in the bibliography. Once again, the future laid down the law over the past: once the trend was set in motion, each capitalist sought to safeguard his individual profit, remaining as insensitive as ever to the general fall in the rate. We wrote a book on the irreversible senility of capitalism. Irreversible means that this mode of production was granted no further capacity to survive. Unless it implemented measures to lower the organic composition of capital. As predicted by Marx. The proletarian stratum of the unreserved, an intermediate form between the condition of proletarians and that of slaves, was to assume great importance.

The cycle that made a connection with the future possible can be summed up in a few lines. The great all-out strike that shut down Fiat for 35 days in 1980 represented a turning point. Or rather: the turning point that was taking place in society and in the production structure took the form of an all-out strike. It seemed in those days that the cloak of union and political control could be broken, and indeed some signs of this could be seen. Despite the defeat, for a few years there seemed to be a chance to resume a critical discourse. This illusion was short-lived, and by the mid-1980s we were very close to the extinction of that glimmer: the old conception still dominated that there was a movement, no matter how substantial, that could tell the masses what they should do. A kind of self-hypnosis that produced more like a certain number of exclamation marks in the periodical press (a sport that is much practised even now). How was this possible? The answer is quite simple: it was not generally realised that times were changing within the capitalist mode of production. The latter's senility was not (is not) an option of history but an obligatory passage

¹ [Thread of timeist would be the closest translation possible we believe] S.C.

that forces those who look to the future to adopt an adequate theoretical heritage. This heritage is there, it is enough to be able to see it.

It is not that things were better on our side, quite the contrary. We were at the usual point: when Bordiga died, in 1970, a reminiscence had appeared in *Programma comunista* (Communist Programme) consisting of some twenty articles among which only a couple were post-war works. The Bordiga Foundation will soon complete the collection and publication of the works in nine large volumes, from 1912 to 1926. There are no plans for a continuation that would also collect the post-war writings. Since 1990, we had devoted most of our efforts to copying and then digitising the post-war material, which a few years later we also began to disseminate via the Internet. The prevalence elsewhere of material on or against the Third International had in any case been reflected in the work in general: the past had won out again, the future was systematically ignored.

There was something inexorable and tragic about the erasure of the Left at the hands of its own followers. But there was also a logic. Doesn't Marx say that the revolution advances first by eliminating the unnecessary trappings of the previous revolution (*Class Struggles in France*)? It could have been a favourable moment to select (unduly, according to the metaphysicians) forces by attacking the field of activist chatter to proceed to demolitions. But what was left of the internationalist diaspora wasted ten years debating the great open 'questions' of the 20th century.

Zero is an even number

In empty space, time does not exist. If we reason along the lines of space-time, we have to have a model involving something moving in space. Aristotle defined time as an interval between the before and after of a moving body, today it has been pointed out that to describe the Aristotelian scenario we need at least four dimensions of space-time and two objects immersed in it, since the movement of a body can only be defined relative to one or more points. One can imagine that the present is time zero, but there is no way to use this observation mathematically: time flows, and zero plus even a billionth of a second is no longer zero. If we discretize time, we see that the infinite series of numbers divides in half, with zero acting as a separator between -1 and 1. And since an even number is the one between two odd numbers, zero is even. If we consider ordinal numbers zero does not exist, the series begins with the first number, which is one (Bartali could not have said 'I'm glad I got zero'). So, time is the interval between one event and another measured with sufficient precision for the purpose we have given ourselves, and that can never be zero. In short, there is no way to combine a present in mathematics.

So first of all: if in an empty space, time cannot be imagined, why in a space with objects can it?

Indeed, the observation that in an empty space time is not there is reflected in space with objects: if we were enclosed in a space capsule in the absence of gravity, Einstein's equivalence principle would prevent us from knowing whether 1) we are in free fall towards a gravity, 2) we are in orbit around it, 3) we are in constant rectilinear motion in space. Let's add another case: 4) the accelerating capsule travels through an increasing space in constant units of time and we, enclosed in it, could not know whether the 'weight' we feel is due to acceleration or to the mass of a planet on which we are resting. Space and time cannot be treated separately. And this also applies to revolutions.

With Minkowski, we saw that the philosophers' absolute time disappears and is replaced by space-time. Our current said that basing any programme of action only on the present is 'true party existentialism.' Our birth was not characterised by theses or stances on the situation of the moment but by a programme of work for the future. Not a set list of class assignments but an exposition on the working perspective, the only way to say what we wanted to be. A small reversal of praxis, without pretence, as befits those who do not believe they can blow up the world on their own, especially in a historical phase marked by counter-revolution.

In continuous theories, there is always a flow (of matter, energy, information), never a separation. If I do calculations on objects of the size we are used to in everyday life and far below the speed of light, I do not notice the small differences between two consecutive events. But if the two events occur simultaneously, one on Earth and the other on Mars, I will have no way of knowing whether they are really simultaneous or are instead out of phase in time. Also because clocks mark different times depending on the speed at which they are moving.

The theory of relativity has thus eliminated time and space 'in itself', dealing, among other things, a tremendous blow to the 'existentialist' theories of revolution, which aim to achieve a result based on the present. But the fact that social time, unlike physical time, only flows in one direction has consequences. A proof of the difference in the nature of time is also given by thermodynamics: if there were no dissipation of energy, every physical phenomenon would be perfectly reversible, it would be enough to change the sign of time, as one would do by mounting a film backwards on a projector. But dissipation is there and therefore time has a direction, events have a direction, consequently revolutions also have a direction.

Minimalist scientist introspection

Our critics will be happy: we have finally come clean. For them, it is impossible to make sense of what they see as a muddle between four-dimensional physics, thermodynamics and the march of the revolution towards its outcome; and which in any case would be a muddle that serves no purpose, would have no influence on the disposition of the proletarian armies in the class war.

Let us grant for a moment that this is true. In fact, the great social questions can be addressed as they always have been. Programme, organisation and material action are not influenced in the slightest by the results of a study of them. At most, we can assume greater theoretical clarity in the organs directing the revolution (well, that would be no small achievement).

The remarks even seem reasonable, but they are wrong. Indeed, one continues to reason as if the revolution is a matter of will, organisation, tactics and politics. As if it were an event piloted by forces in control. But revolutions are none of these things. They are earthquakes, tsunamis, eruptions, immense forces of nature overwhelming the miserable forces of humanity organised in its categories and actions, ordered according to peacetime criteria, when there is no earthquake. The clarity of the direction to be taken at the bifurcations of history does not come from the self-maturation of individual brains, but is a product of the social movement. The week Lenin did not want to let pass was the historical 'window' that opens at the bifurcation, but it would have been useless to discover this at the moment: the party and the environment of the revolution had to exist before. It is the future window that projects its influence on the present: the future is an anticipated potential. That is why we invented the term 'tele-dynamics'.

It is not the right politics that makes the good revolution, it is the good revolution that makes the right politics (and the good party). The revolution must be able to permeate the whole of society with itself, theory is only a weapon of victory if it conquers masses of men; not in the sense that these masses must go to school in order to acquire a conscience, as our culturalist socialist adversaries demanded, but in the sense that theoretical conquests must go to modify the genetic code of these blessed masses. There must be a theoretical synthesis translated into propositions that are memorised and recorded by the social brain. And this synthesis can only come from the party. Famosapolarisation is not an organisational but an environmental condition. The counterrevolution did not win because it eliminated the old guard of the revolution with firing squads, but it got to the firing squads because it won. This victory lost us a century of history. An immense leaden cloak has plastered everything, paralysed it, reduced it to a commonplace, even imposing its own language totally inadequate to communicate a serious conception of

communism. Of course, salvation does not lie in a new vocabulary or a new collection of theses. Looking to the future, it is essential to see what obstacles block the way. Some even obstruct the goal and must be the first targets of revolutionary artillery. They are the same ones that froze a century by fully adopting the counter-revolution. Which, most efficient in carrying out its task, first covered the goal, then littered the road with misleading signposts: proletarian democracy, patriotic war, partisanship, national socialism, socialist profit, peaceful coexistence. Finally, it rented out a democratic opposition by making it play the part of the adversary, contracting it to write the words on the signposts.

Forget scientism, we haven't even reached its level yet, we need to rediscover in the rubbish of a century the traces of the revolutionary programme, the rest is affabulation, in short, chatter.

Identifying the path and its time

Bordiga said that it is not Marxism that arrives at *'sceptical, agnostic and elastic positions regarding the precise itinerary of the revolutionary future'*.

The future revolutionary party, therefore, will respond to scientific criteria, which means laws of physics, not laws invented by men. It will not be based on a system revealed by supernatural forces, prophets, leaders or individuals full of will, wisdom and strength. It cannot be content to peer into the future, which would be little, nor to want the future, which would be too much, but it must

'... preserve the line of the future of one's class.... The communist movement is not a question of pure doctrine; it is not a question of pure will; however, the defect of doctrine paralyzes it, the defect of will paralyzes it. And defect means absorption of other doctrines, of other wills' (Property and Capital).

If in physics there is an 'arrow of time' with regard to dissipative phenomena, then it must also be seen to act when we speak of revolution, a phenomenon that manifests itself precisely when social dissipation opposes the further development of the social productive force. It must be added that in nature there are forms of self-organisation capable of locally reversing dissipative tendencies. Living beings, for example, can add order to their environment, thus reversing the natural tendency (order for a fish is not the same as order for a beaver barring a river).

In Marx's time, two forces competed for the leadership of revolutionary movements: anarchy and social democracy. Marxism' was the scientific answer to the inadequacy of both. When the revolution exploded in Europe between 1917 and the early 1920s and inflamed parts of Asia, half of humanity was projected into the future on the assumption of a socialism born old. The fact that the revolution had given birth to a Marx representing 'scientific socialism' had

not changed the balance of power, and the revolution, having discarded anarchy, had inexorably marched under the unfurled banners of social democracy. We have pointed out elsewhere that the manifesto of the third-internationalist revolution, *The ABC of Communism*, was strangely poor in comparison to a programme based on the results of Marx's research (communism was presented there as a kind of special government and the future society was likened to a large cooperative).

Today, the whole of mankind is projected into the future on the assumption of a new world, derived from the symbiosis of the 'born' and the 'produced' (cf. Kevin Kelly), so new that it has not yet had time to recognise itself as the vanguard of the world in turmoil. So-called opportunism may resurrect even more virulently than in the past, but it can no longer, materially, wreak the havoc it has wrought in the past: the scientific criterion may be a loser in some recesses of society, but it now permeates it as no other material force can.

Marxists seem not to realise that the bourgeoisie is forced to continually revolutionise its mode of production (*The Manifesto*). Nor does the awareness that some of the bourgeoisie have of the accumulation problems of their class emerge in their press. Just as a transhumanist beyond-humanism has been hypothesised, someone will undoubtedly have invented communist-like utopias, a cyber-Marxism, an astro-communism, an Andromeda League, a Martian brotherhood or something similar, indeed, it is deterministically impossible that, under other names, it has not been done, but as far as we can read, there has been no parallel and incompatible evolution between capitalism and its enemies. Primitivist reaction, degrowth, environmentalism, anti-consumerism and even the collectivist practice of communes were born and developed in the school of the bourgeoisie, which enforces its ideological dominance without even the need to programme it. Obviously, we are not just dealing with the work of the bourgeoisie in an anti-revolutionary sense, nor are we dealing with (well harnessed) intolerances that come from a rather worrying future. While the bourgeoisie launches itself into a hard future made of cyborg supermen and an improvement of the species (they say), the 'Marxists' declare themselves followers of the soft doctrines of the same bourgeoisie. Some will not believe it, but a 'communist' periodical has come out as we write with a declaration of solidarity with the movement represented by Greta Thunberg. Of course it is a conditional solidarity, the general strike should be Luxemburg-style, the goal should not only be ecology but the overthrow of capitalism, a petty-bourgeois movement should be turned into a proletarian movement, etc. It would have to be. In the meantime, a united front, a unity of purpose, a common goal is foreshadowed. No future, all present.

What is frightening is that at these groupings that claim to be communist, the future disappears. As if a molecule had been inserted into their genetic code that forbids talking about it.

Leafing through the complete collection of the theoretical journal of a party claiming to be Marxist, we have not found a single article on the perspective of capitalism, an analysis of its dynamic towards its own negation, a commentary on some future-oriented book or article, a study of the consequences of robotisation on the structure of the proletariat, the fall of the law of value and its consequences. Nothing, for forty years there has been what can be considered painstaking archive work, useful, for goodness sake! But not a work on the march of capitalism towards its own negation. A compilation of canonical themes. The same lack of vitality can be seen in the newspapers, just a little dampened by the presence of news articles, usually trade unionist.

Paradoxically, the approach to the future of a bourgeois magazine such as *The Economist*, a liberal conservative bourgeois weekly, is more vivid. While the English weekly offers a dynamic description of the world, and opens up to the reader a perspective on what the editors intend to demonstrate today (and in some cases tomorrow), the Marxist periodicals devote themselves to what jurisprudence calls 'authentic interpretation' intended by the legislature in the presence of disagreements, on incidents that have taken place or discussions that are underway, in which the sense of discourse is completely lost for a 'normal' reader, because there is a continuous self-reference to texts that are only known in the environment.

The editors of the English periodical (who do not sign themselves because they are sympathetic to an editorial line) are careful to outline trends in the economic system to which they belong. This is not just a matter of professionalism. Their critique of the non-liberal tendencies within the bourgeoisie, i.e. their opponents, is conducted on the thread of forecasts, on trends always illustrated by graphs with values on the ordinates and time on the abscissas. Precisely, time. If you draw a diagram on the variation of some value over time, it means you want to see what the projection of the curve into the future might be. In Marxist circles this is not used. There are skilled wielders of formulas and diagrams derived from Marx, usually isolated, but the future remains in the shadows. Scratch that for the norm-Marxist, communism is still a political regime, not a true social form in total antithesis to the present.

Time resurfaces

Yet, one admits the use of calculations and models to manufacture cars, buildings, missiles, who knows why human things must escape science. The suspicion arises that one does not want to contaminate the animate world.

Which means 'with soul'. To things, calculation, to the king of creation... thought. You've heard it all before, haven't you?

In spite of those who want revolution without numbers and diagrams, it is precisely the Cartesian coordinates that give us an immediate insight into a social model. The variation of a certain value over time is the synthesis of many dynamic situations. We may not know what data is represented by 'value', but we can still depict these dynamics. If we imagine a set of parameters that suggest revolutionary intensity, a value that we invent there and then, we can depict it with a Cartesian system. 'Intensity of a revolution' means nothing until we specify the criteria and quantities we have called 'value', but we have a potential tool to explore that avenue. When Lenin minutely recorded the variation in the number of strike days over time he was merely formalising the variation in intensity of the class struggle, which can be a particular, fractal aspect of revolutionary intensity. Our current, in the 1950s, depicted an index of the mineralisation of production, relating it to the dehumanisation of the economy. And it drew a large and very precise graph on which the historical course of capitalism was depicted through the decrease in industrial production year on year. These works have been commented on or republished, but there is a systematic lack of elaboration on the dynamics.

When it was no longer possible to do without the Internet, two small parties announced to their adherents, via the press, that they had a site: they announced it by apologising for having to use these bourgeois tools from which, moreover, they did not expect much. Without even having grasped, in their 'readings', that for Lenin the information and communication network was not just an instrument of the party, it was the party (Letter to a Comrade...).

The mystifications and even the insults of a few rough militants in the service of a counterrevolution from which they draw their arguments, may amaze or make one shudder, but the undeniable fact is that even in invective one can smell the stench of a corpse: activism has no other support than the belief in the miraculous capacity of individuals to solve great social problems. From the point of view of time, it is as if the past, which has never proved activists right and on the contrary led them to slaughter, is being taken as a model for the future. A future that would not be a material historical trend, but an invention, an artefact cobbled together from the defeats that were.

But is it true that there is a future?

Compared to opportunism, today substitute forms have spread that are practically unrelated to the main tension, which is that of the clash between modes of production, between social forms. With Marxisms on the wane, the once gigantic 'debate' on the nature of Soviet communism and all the other more or less coherently adjectival branches disappears. In its place, an

epidermic unease takes hold, nurtured at the moment with a violence of low social impact, a civil hatred that has its peaks in a racist, nationalist, network-fuelled attitude.

By contrast, the waves of protest that have been swirling around the world for fifteen years have a completely different social impact. In which one can feel at an epidermic level that a good part of the populations involved are fed up with the 'meaningless life' they are forced to lead.

Let us anticipate that we do not derive any immediate optimism from the general set-up of the forces in the field, since the power gap between the two poles representing the counting classes of society is all too evident. But neither do we derive the sense of defeat that some feel when analysing 'the situation'.

As the aforementioned conservative *The Economist* clearly shows, if the production of surplus-value is to be safeguarded, the time scanned by capital demands an interest in the future. Capitalism only works with capital advances on each production cycle. This means that every capitalist is forced to work on predicting future data. Even speculation is directed towards future data of grain or oil production. Even revolution forces one to work on future data. If this does not happen... well, a look at today's social landscape clearly shows what lies ahead.

The operation of comparing a liberalist periodical with some 'Marxist' periodical is clearly not intended to draw impossible parallels. We merely wish to point out that any bourgeois periodical needs to rely on a dynamic reality while the tradition of the Marxist milieu demands that the infamous 'questions' (which were already under discussion at the time of the Third International, at best before it degenerated) be addressed from time to time in the bloody present. To realise that something is wrong, it would be enough to take an article by the 'Marxists' and try to remove the present-day references: it would remain a universal text that could be used as a 'template', a compilable model valid for decades. As a simple mnemonic device it might work; but now, if it is true that 'it is better to repeat like parrots' than to update creatively, let us not exaggerate. In physics, time does not exist, but space-time does.

In our work on the juxtaposition of politics and science, referred to as 'foul play' in the lines we have quoted, we want to demonstrate, and not with philosophical-literary affabulations, that the revolutionary arrow of time is not nonsense invented by Marx but a universal constant: we find it throughout physics.

If so, it must be possible to identify the guidelines that necessarily lead both to the new opportunism and the expressions (read programmatic stances) necessary to neutralise it.

In space-time the trade unions - all of them - are integrated entities in today's corporate society, it would make no sense to try to take over their leadership or form new ones: in both cases it would not be possible to make them what they are not. The process of which they have been spectator-artisans is today as irreversible as an entropic cup of coffee going cold. This does not mean that one should be indifferent towards organisation and what little conflictuality remains; trade union work is still the best field on Mars for the proletariat. The discourse changes in the case of a revolutionary situation, but there other factors come into play.

The party question was already outdated in the 1920s when our current began to speak of organic centralism, referring to its functioning as a biological organism.

The agrarian question used to be the peasant question, today it is more about real estate in immense metropolises and, of course, energy and raw materials.

The national question in the sense of the formation of nation states no longer exists. What remains is a nationalism with which we have nothing to do, so stupid that it should not even arouse curiosity in the news if it did not have tragic consequences.

The tactic, which was once closely linked to the single front, has already become something else after the evidence provided by the latter.

Silicon Valley and similar realities in other countries that now dominate the world from the heights of improbable capitalisations are techno-scientific islands capable of influencing the whole of capitalism. The remaining trade union heritage is no longer of any value in the face of these realities, not only because of what we have just said, but also because of the social order resulting from the enormous imbalances due to the growth of the industrial reserve army, according to the old definition: the 'class' of the unpaid will sooner or later be forced to weigh its strength in a context in which, if the trucks don't run for three days, the immense metropolises begin to collapse for lack of food.

Islands of the past in a sea of the future

Technoscientific islands? If we look at the technological giants with an eye on the industrial plot, we perceive islands of the future in a sea of the past. After all, they employ only a few thousand wage earners in comparison to the millions who still work for traditional industry, especially in the more recently industrialised countries.

Capital does not stop camouflaging itself even when it plunges into the deepest crises. In reality, the continuous techno-scientific revolution has evolutionary effects on humans; it is just that, in the absence of the reversal of praxis, the perception of change is out of step with reality. The feeling that Apple or Google are islands of the future is based on hard data but, on closer inspection, the production set-up of the major countries shows an inverted situation: the typical industry is not that of Silicon Valley but, statistically, a more traditional set that still employs two billion wage earners. What counts is not the raw numerical data but the coefficient, the imprint that these giants transmit to the rest of industry or, in any case, to productive activities. It is from this point of view that large islands of the past survive in a sea of the future. The bourgeoisie is realising this and the 'revolutionaries' are not. The very representatives of what remains of the last revolution feed on the past, they do not even consider the hypothesis of 'reparametrising' the mass of available data in order to go and refine research and orient it with the criteria just outlined, in order to appropriate theoretical tools to observe in the direction of the arrow of time.

'Our school, faced with every problem, first of all turns back to the search for the key to the historical process. And only then does it come to establish that the alleged eternal laws are, in fact, only the laws of a given and temporary mode of production, especially the capitalist mode of production... Marxists proceed in this way in every treatment: They do not describe, as in a cold bureaucratic-statistical report, what they see around them, but go to the derivation, the unfolding, the development in time, to even distant origins, so as to establish what is transient and transitory in what to the common scholar appears eternal and stable' (Commodities will never feed man).

Let us ask Marx what the mythical god Vulcan would be today in the face of modern steelworks. What would the Paris Commune be today after the wave of Occupy Wall Street? How would the soviets function after the failure of the Nuit Débout parliaments? Would international discussions on workers' and peasants' government still arise? Would a discussion on the tactics of the United Front still make sense? What kind of party would arise from the forces on the ground today? How would the dictatorship of the proletariat manifest itself at a time when the state is in obvious disarray?

What is present and what is already future

With a question mark is the title of an article that came out with the first issue of this magazine. It may seem trivial, but for us the future is simply $n+1$ in relation to n . Since the dynamics of real movement towards the future are already present, communists do not invent anything, but anticipate something material.

That 'something material' depends on the development of productive force and the force fields of society, as well as the condition of proletarians, rather than the 'political' conception that social groupings have of themselves. Where do those who, despite living in an era strongly characterised by $n+1$, reason about the 'seizure of power' exclusively in terms of $n-1$ stand?

One must be careful: there are semantic traps.

In 1948, Bordiga (at the founding congress of the PCInt.) stated in no uncertain terms that the party programme cannot be based solely on negation: you always say no, you are immobilists. We must move forward. The historical dynamic has a future and the path to get there is affirmation. And in the meantime, his interlocutors, to be concrete, were agitating themselves by pushing forward the past. Bordiga reacts: we have a heritage that allows us to go beyond what has already been achieved. One cannot face the future by projecting into it the categories of the past: instead, with a balance of victories and defeats, one can erect the basis on which to develop knowledge of the process that leads to the future.

Let us remember that the profound break with the past is imposed by comparing the yields of modes of production and not by the thoughts of individuals or groups. The yield of a mode of production is in principle calculable, just as the comparison between two modes of production is calculable. The future cannot be dealt with on the basis of opinions but on the basis of mathematical certainties. This does not give us the perfect solution but helps us in a 'sub-production of nonsense'.

Marx had spotted the problem at 19 and based his analysis of social phenomena on the methods used by the science of physical nature. We cannot go back and base our action on subjective interpretations of reality. If we talk about revolution, about social movements, we must adopt the same processes of abstraction as those adopted by mathematics, physics, information science, cybernetics.

Naples, 13 June 1948: don't 'make' the party!

The militants of the Communist Party of Italy, having resumed contact after the end of the war, had shown signs of impatience. Without pondering too much on the differences between the new situation and the old, they had not deduced from it that if fascism was militarily defeated, the liberal-democratic, anti-fascist and pro-American bourgeoisie had inherited its theories and methods. The reference to past revolutions (Russia in particular) served as a security anchor. Better a parrot than a 'creative' one, Bordiga had judged, but in a letter of 13 June 1948 he had to take up the theme again, noting that even the parrot's level was far off. If one was not more than sure of the result, why hold

the constituent congress of the party, against the contrary opinion of many comrades? The party is not formed on the sidelines of a congress. Without strong class pressure, and above all without the programme of the revolution being clearly outlined and accepted, the party remains a virtual entity, rootless, hanging on a cloud, without material foundation. Only the possibility of realising a future has given every party of every revolution the possibility of not being a mere product of the present. It was written in 1921 in Communist Review, in 1922 in the Rome Theses and in 1924-25 in the party press in criticism of opportunism in the International. Why this serious lack of continuity?

Bordiga insists. The comrades knew that the discriminating factor against the centrists united under the banner of the PCI was acceptance of the bourgeois programme and active participation in translating it into reality; they knew that participation in elections meant capitulation before the bourgeois state and its new servants; they knew that acceptance of the democratic mechanism within the party would distort it. They knew, but they had not materially invested the constituent party with responsibility, they had not questioned the phase the capitalist world was going through, and above all they had not dwelt on the lesson that came from the Stalinist degeneration. The great problems posed by history were working hypotheses that would allow a preliminary theoretical rearrangement, the formal constitution of the party would come later, when it would become clear that it was not a question of restoring the past but of representing the future.

Or, if the comrades were all in agreement on the hypotheses for the party's constitution, he added, then a homogeneous centre would have to impose on the delegates a programmatic set consistent with the necessary directives. If, on the other hand, there were doubts and contradictions, then a way had to be found to achieve clarity, even at the cost of a split.

In any case, the attempt to solve problems at the table would have taken on a democratic electoral character not unlike that in use at bourgeois party congresses. Imposing a programme by a stroke of the hand or making it emerge from a selective confrontation of positions would not have been a solution in any case.

'Evidently both the one and the other have been lacking, and the right solution for the party's activity is not even in one of these two paths, both of which are abused and old. How one could have gone from mistaken optimism to no less exaggerated pessimism I cannot understand.'

Abused and old both: in 1948, anyone who had correctly interpreted the social situation of the world would have understood that the revolutionary party could no longer resemble anything that was part of this society. Bordiga put this down in black and white in the post-war Theses, in Outline of Formulation, in

Nature Function and Tactics of the Party, etc. Later, when the party had been in existence for a few years, his theses made it clear that it would not be a party among others, intent on fighting on behalf of a social part, but an organ of the human species, an intermediary with respect to the rest of nature.

The lack of an understanding of the future was allowing spurious elements to remain in the party, something that throughout its history, until its demise, only provoked continual crises, always caused by the fact that the party was still part of this society and not of the one in the making. It had served no purpose to warn the comrades about the world reality and the need to reason and act on the thread of time, that is, on the dynamic that led beyond the present: the evaluation of the historical moment, Bordiga said in the above-mentioned letter, *'is not a fad like the fashion of short or long skirts, but is the substance of doctrine'*.

Not being clear that the question of time did not concern the contingent situation but the historical course, the comrades were surprised that the fall of fascism was followed by the enormous success of the Stalinist party, allied with the imperialist countries in the war. Hence an undue distrust in the possibilities of the proletariat, which no longer seemed to exist as a class and was even considered by some as a pivotal element in capitalist reconstruction. If there was any gleam of truth in these observations, it meant that an 'extreme scientific prudence in evaluation' was even more necessary. The present showed itself to be the worst possible, but it was no solution to take refuge in the defence of the past, i.e. in the glorious struggle against the exuberant opposing forces within the International. It was necessary to get out of this trap: if the present seemed to permit no action, nothing would be solved by rejecting everything. Assuming a position of indifference or rejection with respect to a hostile world that had overwhelmed was not a solution, since 'he who is indifferent is silent and no light is cast by casting a shadow on all sides.'

In reality, as would be made clear with the article 'Activism' (1952), membership of trade unions and participation in immediate struggles was not precluded, but the most important task was to safeguard the party. Without it, any social context would have been counter-revolutionary. But safeguarding the party meant completely abandoning the liturgies of propaganda, proselytism, the quest for immediate success, internal democracy and delegation to the leaders, liturgies identical to those of the adversary.

When it comes to the party, the alternative posed by the unfavourable power relations is never absent. As we have said, in the present the alternative is non-existent, in the past it was, only for the future does it make sense. In 1949, the publication of the articles in the series 'On the Thread of Time' began. They have a Yesterday-Today partition that also stimulates the addition of a

future (this is why, developing the Forli series mentioned above, we have adopted the Today-Tomorrow partition).

The place of science. Time again

Anyone who has had anything to do with the technical-scientific world, even if only through books, has seen for themselves how empty and trivial its exponents are. Not all of them, of course: the future society recognises no boundaries when looking for its supporters. Normally, however, even Einsteins do not escape a depressing social homologation. It does not seem strange, then, that with regard to science and technology there are many who launch into unbridled apologia or radical criticism of the most spectacular achievements. It has always happened: Francis Bacon warned against using scientific achievements to arouse wonder and amazement, while Hegel argued that science, especially mathematics, were not true forms of knowledge. There is therefore a badly paved road full of potholes in the path to the description of reality. Today, precisely because science has been contaminated by philosophical positivism, there are those who can speak of scientism in the sense of undue encroachment; and this contamination has in turn provoked the metaphysical vitalist reaction. We read on the website of some left-wing Marxists:

'Scientism is a current of thought that stems from the following misunderstanding: that is (sic) science, or at least a minority component of it, would pursue knowledge for knowledge's sake, and in this disinterested pursuit would converge from time to time with the discoveries typical of Marxism' (sinistracomunistainternazionale.com).

It is clear that if one invents the object of criticism, one can then unscrupulously misrepresent reality. Scientism is not a current of thought and has nothing to do with the quest for knowledge for knowledge's sake. Scientism is defined as such by the philosophical currents opposed to scientific positivism. These currents, as the Treccani puts it well, consider the penetration of science into fields that would be foreign to it to be undue and call such penetration scientism in a derogatory sense. It is quite clear that such considerations are a ridiculous artifice: in reality the bourgeoisie is far from having embraced science to that extent, if anything it has difficulty in breaking away from idealism. Indeed, as a reaction to positivism it has churned out vitalist philosophies in all fields, from the theory of knowledge to the nature of evolutionary phenomena, from political economy to the study of the mind and consciousness. Far from being scientistic, the bourgeoisie is still very much attached to the Bergsonian vitalist impulse, to the specific nature of man as king of nature. Therefore, the indignation at the superstructural implications of acting for class interests, as if the bourgeoisie could do otherwise, is utterly puerile:

'This misunderstanding/belief,' continues the website quoted, 'is in turn based on a misunderstanding of the procedure governing the (interested) funding

of scientific research, both in the industrial and military fields. Moreover, this belief does not even consider the close connection between these two fields and academic research itself. Science and its discoveries are functional, in this society, to the game of competition that takes place in the economic structure, and to the power of the military industrial complex that allows a given state superstructure to defend the interests of its national bourgeoisie.'

This collection of words does not even rise to the level of an Eisenhower who, as president of the United States, denounced the overwhelming power of the industrial-military complex. The bourgeoisie uses science for its own interests and ideologically influences research. This is truly a great revelation! But the discovery of the laws of nature is not the prerogative of one class, otherwise we would have to counterpose 'bourgeois science' with 'proletarian science', nonsense that Lenin had already severely crushed at the time of 'proletarian culture'.

Machines building machines

Science and technology are not separate elements of (and also from) revolution. The machine system is part of the evolution of Homo sapiens, and when we speak of the evolution of our species, it is no longer a history of a past lasting millions of years that is in question, but a future measured in decades, so advanced is the influence of science, technology and automatic machines on human life. Nature has led us to capitalism, which we believe is a transitory parenthesis to be erased as soon as possible. The future society is in a sense a struggle against the spontaneity of nature in favour of man's capacity for design. When one speaks of communism, therefore, one is not at all speaking of a form of government or some similar banality, one is speaking of a total overthrow not only of society, of production, of the way of life, but of the entire universe of knowledge, of technical practice, of the relationship between men and between men and nature.

'In the future economy, resolved in a rational defence of the species against nature, the victory over this stepmother will be able to go so far that everything will come from her... If the laborious cultivation of grain causes our body to be nourished by the transfer into it, after closed cycles of chemism in an even balance, of a small portion of the energy that the sun radiates into space... If we can replace the ox with the machine; if we add to this machine that hydroelectric energy which comes to us annually from a regular tribute always paid us by the great star, then . . . It will remain, you will say, for man to do the organisational, directive work, to turn the switch keys' ('Never shall merchandise feed man', 1953).

There follows a remark that seems to be taken from von Neumann's work on the theory of the technical reproducibility of machines by means of machines:

'But a machine of the machine will replace man at the knobs of the machine, after having recorded by electronic processes the actual behaviour of man, the make-up that distinguishes it, in order to transmit it back identically. Then it will indeed be nature that will give us everything, starting with the breakfast tray that will arrive without anyone bringing it' (idem).

Even language must bow to the power of the future: if we take something that is not ours without paying for it, we are thieves in this society. Until language changes, if we use the energy of the sun without paying for it, we are committing theft by living off an annuity. But annuity is theft only made possible by ownership:

'When no one works, the goal will be achieved that we all enjoy annuities. Then we will live by stealing from Mother Nature. Today there is no annuity for a single individual that is not stolen from human labour. Let us deny the thieves the alibi of economic science: the body of crime I have stolen from no one, it is nature's divine gift, ray departed with my address from the Star of Fire' (idem).

'Divine gift of nature'. Note how the adjective is used, by extension, in the sense of sublime. Note especially how science is criticised at the same time as it is used as a factor in the revolutionary overcoming of labour.

In the late 1940s, John von Neumann designed an ideal machine that could replicate itself. The scientist died and did not have time to finish his book on the subject, which was printed some twenty years later. The replicating machine was hypothetical, as was Alan Turing's machine, and both anticipated a reality: thus the research of those years did not explore utopianism in the realm of the impossible but in that of the feasible project. The architecture of today's computers was foreseen by von Neumann himself and realised; that of the replicating machine was a realistic experiment with respect to the existing capacity for abstraction and design.

Bordiga could never have written a text like "Commodities will never feed man" with the langue de bois of the Third International. It was necessary to be projected into the future, not buried in the past. And this could be done by maintaining one hundred per cent the firmest and least polluted Marxist orthodoxy there is. Those who prattle on about revolutions being 'made' without theory and without numbers, without an organic party, without understanding that today's capitalism is the projection of yesterday's, and tomorrow's is the projection of today's, are destined to side with the counter-revolution. If they ever had the chance to 'lead the masses' they would take them where the Stalinists took them, while proclaiming to be anti-Stalinist. It is the romantic idealist eagerness that has always gotten in our way, not the excess of reasoning.

We talk about the future, despite the general aversion to doing so. Industrial automata have to do with relative surplus value and thus with the reproduction of capital. In Marx's time, industrial automata were already widespread and some chassis functioned as Turing machines, anticipating computers. From a technical point of view their use does not change anything to the functioning of capitalism, and Marx wrote important pages on machinism. A beautiful example of looking to the future by studying the anticipated potentials of it. But the shift to electronics produces a major social change. Electronics is arriving at forms of intelligence that the bourgeoisie, committing a serious epistemological error, calls 'artificial'. The symbiosis between machine and biological organ is a fact. But it is part of nature, it does not come from the heaven of metaphysicians. This still crude symbiosis is changing the world under our noses without raising too much attention from those who should already have a foot in the future society. It is just that we are not used to these very short times. In fact, however, the whole of society is adapting. The production of machines that simulate thought in turn produces cascading effects. All this has to do with capital (both the mode of production and Marx's book) and the erosion of the foundations on which the law of labour-value is based:

'The theft of other people's labour time, on which today's wealth rests, presents itself as a miserable base in comparison to a new base which has developed in the meantime and which has been created by big industry itself. As soon as labour in its immediate form has ceased to be the great source of wealth, labour time ceases and must cease to be its measure, and thus exchange value must cease to be the measure of use value. The surplus labour of the masses has ceased to be the condition of the development of general wealth, just as the non-labour of the few has ceased to be the condition of the development of the general forces of the human mind' (Fragment on Machines, Grundrisse).

Thanks to science and technology, which have made possible the system of big industry, and thus man's detachment from the law that dictates the division of the working day into necessary labour and surplus labour, we can today see in the material condition society finds itself in the anticipation of a non-miserable, liberating future, in which inhuman labour ceases, replaced by human activity:

'With [the advent of machinism] production based on exchange value collapses, and the immediate material production process also comes to lose the form of misery and antagonism. The free development of individuality takes over, and thus not the reduction of the working time necessary to create surplus labour, but in general the reduction of the necessary labour of society to a minimum, to which then corresponds the artistic, scientific, etc. formation and development of individuals thanks to the time that has become free and the means created for them all' (idem).

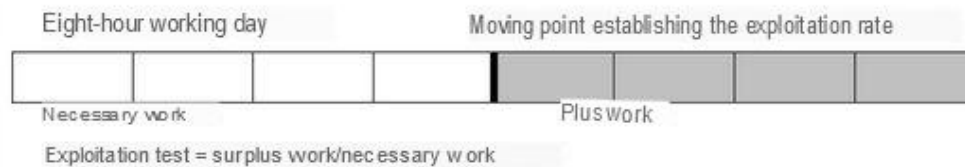
When the production of relative surplus value has reached such a level as it has today, it is no longer possible to absorb the resulting overpopulation. The

worker population has always been relative to economic cycles: it increased in boom times, it decreased in times of crisis. But today, the quality of machines blocks the economic cycle by undermining capitalism in its essence, i.e. in the production of surplus value, or rather in the consistency of the law of value as such. Worker overpopulation is no longer relative but becomes absolute. He who does not see in this a revolution, denies himself the possibility of understanding that the future of capitalism and what comes after is determined. Without that future, the lazy, bungling Marxist stops at the 'miserable base' that capitalism itself has meanwhile overcome.

To the extent that industry concentrates, centralises and strengthens through the use of ever more sophisticated automatic machines, the calculation of the number of workers being replaced by production systems can no longer be done simply by recording that a robot replaces a certain number of workers: the modern factory is already born with operational robots, they do not 'replace' workers, they simply make them redundant. Today, a young person entering society is not an 'unemployed person', he is an element of the overpopulation that capital no longer even needs as a 'reserve industrial army'.

According to Marx's law of value, the value of a commodity is given by the amount of labour it contains. Since the working day is divided into labour time needed to reproduce the worker and surplus labour time, the value of the commodities produced in a day is ultimately the value of a day's labour.

In this scheme (work is the abstract average activity of an average worker, etc.) it is easy to increase surplus-value for the same value of the commodities produced: all one has to do is to increase the surplus-labour and lower the labour required, for the same amount of working time. That is, increase the number of hours worked per worker. It is also simple to increase surplus value by another route: you intensify the rhythms or/and increase the automatic machines. Absolute surplus value in the first case, relative surplus value in the second.



So far, it is all quite simple. But let us hear what Marx has to say with a singular mention of the space-time unit (Grundrisse):

'If one considers the working day spatially - that is, if one considers time itself spatially - it is a juxtaposition of many working days. The more working days with which capital can exchange objectified labour for living labour, the greater is its simultaneous valorisation. It can exceed the natural limit constituted by an individual's day of living labour ... only insofar as it, alongside one working

day, simultaneously creates another, that is, through the spatial addition of several simultaneous working days.'

If the capitalist produces and sells enough to afford an expansion of production activities, he can hire workers; instead of additional time he has what Marx calls additional 'space'. If a worker works 12 hours a day (6 for himself and 6 for the master) it is difficult to increase the amount of surplus-labour time; but if the master can hire another worker he will have 12 hours of surplus-labour instead of 6. Percentage-wise nothing changes, but in practice the spatial extension of the factory increases the mass of surplus-labour.

This is why the capitalist, at a glance, without too much theory, is not against the increase of the worker population.

'It is the actual process of reducing necessary labour that makes it possible to put new necessary labour (and thus surplus labour) into action. In short, the production of labourers becomes cheaper; in the same time it is possible to produce more labourers, to the same extent that the time required for the production of the living labour-power decreases relatively or the time required for the production of the living labour-power decreases relatively.'

Marx had already expressed considerations on the ambiguity of time when talking about the introduction of railways and telegraphs: the increase in the speed of communication (i.e. the decrease in the time it takes to connect one place to another) makes space less extensive. Considerations on space-time are also present in *Capital*, where for example it is explained how the law of value is independent of when a commodity is produced and where it is produced (cotton is produced, say, in India in the summer, thread in England in the winter and cloth in Flanders in the autumn). Returning to the quantity of workers, less space is needed for production if more workers are rationally (rationally for production itself, of course) amassed. But the effect of greater contraction of space-time occurs when productivity increases: with the increase in relative surplus value it is the machines that decree the final attack on the law of value. The spatial extension of the factors of production becomes superfluous when machines replace workers. Having reached this point, productivity takes on the task of greatly contracting the labour required in the typical working day, so that it is no longer possible to extract as much surplus value from one worker as was extracted from four. If at first the expansion of absolute surplus-value produced a general lowering of the value of labour-power, so that the latter increased in numbers, at a later stage the rise of technology produced a reduction in labour-power without, however, causing an increase in its value.

The production of value, which is labour time, depends to a decreasing extent on the number of hours worked, the amount of labour supplied, and to an increasing extent on the power of the automatic machine system to which scientific research is subordinated. The effectiveness of this system is not

comparable with the productivity increase that used to be achieved through the organisation of work, the old Taylorism, which involved intervention in the man-machine pair. The high productivity output of the new systems no longer bears any relation to living labour, it is completely dependent on factors extraneous to production, i.e. general progress in science and technology.

This impulse towards mechanisation had been imposed by wartime requirements in parallel with the use of much traditional labour, and this double track of development did not disappear after the war due to the demands of reconstruction. But it could not last long. The growth of the social productive force had already produced in those years all the theory necessary to reduce the proletariat to relative, eventually absolute overpopulation.

As we have said, after the war von Neumann had already described the configuration of the computer we still use today and, in 1948, he set out to design an abstract machine that, once switched on, would take all the necessary steps to replicate itself. First of all, the machine would derive a model from its own structure, then it would develop the ability to read this model in a purposeful manner. Since the state of each cell depends on the state of the adjacent cell, the self-replicating system takes information from itself and transmits it within the self-replicating mechanisms as in a simulation of living matter. Von Neumann invented the term 'cellular automata' for this process.

Today, automated machines are limitedly self-replicating, but there is already no theoretical limit to the construction of plants in which machines build themselves.

The visionary entrepreneur Elon Musk has attempted a practical experiment in total automation (Gigafactory) that seems to have failed. In normal production, a number of shortcomings that only human practice can overcome have not yet been overcome. For example, the process that lies at the origin of a decision, that matures it to the point of compatibility (comprehensibility) within the area of application, is not yet a sufficiently reliable process to allow the machine system to take possession of it and use it as a guide for action. To become reliable, it must pass tests, as in an initiation programme. These tests are inevitably inadequate: their necessity stems from experience, and the latter represents the state of the art of the system ready to certify itself by means of knowledge from the past that no one adopts uncritically any more.

Society as a whole will retain knowledge of the system at time x , knowledge which will have its limits, as we have seen, but which is the only knowledge at our disposal. If we use it to achieve purposes, this knowledge broadens our horizons and can provide useful feedback for the development of work. Total automation in capitalism is impossible, but we are very interested in

its anti-capitalist developments. We reiterate that this is not a fantasy of ours but the gist of Marx's work, summarised in the preface to *For the Critique of Political Economy*: the development of the social productive force produces conditions that translate from forms of exponential growth into chains for growth itself. The development of machinism invalidates the law of value and absolutizes that of the falling profit rate. The latter remains tendential only because it is virtually impossible to reverse the arrow of time and return to 19th century industrial revolution forms of exploitation.

In the light of these latter considerations, the concept of 'struggle against nature' that we have encountered in the course of this exposition takes on primary importance: man, a product of nature, struggles against it in order to assert the possibility of freeing himself from labour. This, once it becomes a truly human activity, will unfold according to what Engels recalled: in the transition from the realm of necessity to that of freedom, planned activities will increase and spontaneous activities will decrease. Capitalism is incompatible with this reversal. Should it succeed in planning more than it does today, it would be committing immediate suicide. Passing the same task to communist society would instead be the process contrived by nature to harmonise on a higher level. The necessary reversal of praxis would be nothing other than the confirmation of communism from theoretical to modal form.

The long journey through the decades is over, a journey that we do not hesitate to call organic. Who is tuned in to this wavelength? We fear few, for now. The situation of the Marxists is at present as described by Engels about the diaspora following the defeat of the Commune, only on an incomparably vast scale:

*'After every wrecked revolution or every counterrevolution, a feverish activity develops among the refugees who have escaped abroad. The different gradations of parties band together, accuse each other of having driven the cart into the mud, blame each other for treason and all possible mortal sins. Thus, people remain in close connection with their homeland, they organise, they conspire, they print flyers and newspapers, they swear that in twenty-four hours they will be back on their feet again, that victory is certain, and they distribute themselves in the expectation that they will already be in government offices. Naturally disillusionment follows disillusionment, and since these are not to be ascribed to the ineluctable historical conditions, which one does not want to understand, but to the fortuitous errors of individuals, thus mutual accusations accumulate and everything ends up in a general brawl' (Engels, quoted in the article *Activism*).*

This disaster could be interpreted positively. To reiterate in current language Marx's assumption about '48 in France: a gigantic reset is being prepared in the computer of the revolution.

RECOMMENDED READING

- - *n +1*, *The historical crisis of senile capital*, Quaderni di *n +1*, 1985.
- - *n +1*, *Revolution and trade unions*, Quaderno di *n +1*, 1986.
- - *n +1*, *Dynamics of historical processes*, Quaderno di *n +1*, 1987.
- - *n +1*, art. 200th anniversary of the birth of Marx, magazine *n +1* number 45.
- — Marx Karl, "Introduction" and "Preface" to *For the Critique of Political Economy*.
- - PCInt, *Commodities will never feed man*, Quaderni edition of *n +1*.
- - PCInt, "Trajectory and catastrophe of the capitalist form in the classic and monolithic theoretical construction of Marxism", *Il Programma Comunista* n. 19 of 1957.
- - PCInt., *Property and capital*, Quaderni di *n +1*
- - PCInt., *The foundations of revolutionary communism*, Quaderni edition of *n +1*.
- - PCInt., *Production volcano or market swamp?* Quaderni edition of *n +1*.
- - *n +1*, "The autonomy of Capital and its practical consequences", *n +1* n. 17.
- - PCInt. "Thesis of Naples", *The communist program* n. 14 of 1965 and n. 7 of 1966.
- - Marx Karl, *Grundrisse*, La Nuova Italia.
- - Engels Friedrich, *Dialectics of Nature*, Works, vol. XXV, Editori Riuniti.
- - Kelly Kevin, *Out of control. The new biology of machines, social systems and the world of economics* . Ed. Hooray.