Death Prayer of the Trinity of Religion, Philosophy, and Science

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> *'An exact representation of the universe, of its development and that of mankind, as well as of the reflection of this development in the minds of men, can only be constructed dialectically with continuous regard to the general vicissitude of becoming and passing away, to the transformations that proceed forward or backward'. - Amadeo Bordiga, Notes on the Theory of Knowledge, 1926-27*

A Work in Continuous Sequence

The great mystification that accompanies the ageing of capitalism is there for all to see. Everything is turned upside down: The most trivial-materialist society in history is cloaked in idealism, ruthless violence is passed off as humanism, war is a peace mission, peace is a decades-long war with hundreds of millions of dead, prosperity is hunger and suffering for billions of people, religion is politics and commodification, superstition is dressed up as science, a regurgitation of metaphysics and fetishism accompanies progress, medicine would fail if it cured the sick people on whom it profits, the family is increasingly sacralised while parents slaughter their children and vice versa, democratic freedom is deified while ultra-narrow oligarchies enslave the planet, the selfish individual is elevated to absolute while immense crowds are slapped into the ring of anonymous, massified and coercive commodity consumption. We could go on, but we are not so much interested in keeping a meticulous list of the 'system's' wickednesses as in hinting at the structural mystification that underlies disciplines that are still named separately, such as philosophy and science.

Introducing the reader to the meaning of Bordiga's writings that we publish in this issue means above all making it clear that there are no salvific

fields that can be extracted from the whole. Therefore, there is no philosophy that can justify or even explain the survival of capitalism; there is no science that can give hope for an improvement in life, production and social relations within capitalism. Philosophy should mean ‘love of knowledge’, but humanity has never known so little about its own life. The vicious circle must be broken, the paradox eliminated, logic restored. Bordiga's research is about what will bring about such a break and how the process will unfold.

Economics and science love the quantitative, the measurable, so they encourage reasoning in figures. The system daily sanctifies the economy and science that make such figures available, and builds its triumph on them. But it is precisely the figures, the quantitative data, that denounce the qualities of the system, the growing misery despite the increase in wealth. Figures, not philosophies, condemn capitalism to death.

Today, we are no longer at the vaunted struggle of free democracies against dictatorships (a lie that already did not stand up, since post-war America supported all existing fascisms except Stalinism), but at the struggle of Good against Evil. Anyone with any salt in their noggin knows that this has a lot to do with theology, mysticism, metaphysics, idealism, anything you want except science and progress. Yet not since today is there talk of the death of philosophy and metaphysics at the hands of science. Even ‘God is dead’, and it is commonplace to say that communism has gone after him. Religion, Philosophy and Communism, the latter in the Stalinist sense with the sun of the future as a surrogate for Religion and Salvation, are no longer sufficient for the irrationality that mankind increasingly needs. Science with a capital letter has arrived.

Now, Bordiga is not alone in stating that the triumph of Spirit and superstition in the age of science and technology is a fact. Moreover, one only has to look around. Science, it is said, has attempted to act as a substitute for the mysticism of salvation (i.e. hope), but every salvific myth is religion, and therefore irreducible to rationality. Therefore either one mysticises science or abandons it for the irrational tout court. Modern man, confronted with the contradiction between the unfolded power of the system in which he lives and the misery of the results in terms of enjoyment of life, would ultimately seek Salvation in metaphysics, whatever it was. He cannot believe in the rational one, blatantly promised, and therefore contributes to the recovery of the irrational and its survival. When the Immanent sucks, the Transcendent triumphs, as the dialectical union becomes indigestible, but this is normal.

Bordiga makes a deeper and more complex argument. Capitalist man does not recover the ancient irrational at all, for that had its own ‘scientific’ dignity; what present-day society continually gives birth to is at best a caricature of it. The central argument of the critique of today's theory of knowledge is not, and cannot be, the commodified irrational, nor is it only industrialised science,

subject to the laws of value and exchange. It is the entire conception of man and nature that is being violently challenged, the one that is in the books, in the academies, in the heads of those who make the history of science today.

Science-knowledge is not an aseptic container placed outside mankind, which each individual brain can draw upon as a conscious element and as such deposit further elaborations into it; nor is it a biunivocal relationship between the individual and the library of knowledge (pseudo-Enlightenment form of the Spirit), but a set of knowledge, skills, learning and elaboration possibilities that thousands of generations have handed down to us, and which we will hand down in a continuous dynamic, not broken up and distributed in grains of individual consciousness. Knowledge materialises not so much in concrete supports and brains (libraries, factories, scientists, philosophers, etc.) but, above all, in continuous elaboration in the process of production and reproduction of the species. Only when the continuous accumulation of knowledge comes to find a barrier to further development in the social system does a blockage occur that must be broken, and then the entire system, including knowledge, is revolutionised.

Today, this dynamic is very much in evidence. A knowledge enormously enhanced by the results of capitalism itself, is as if closed in on itself. The system, instead of making the best use of these results, dissipates, slows down, acts as an obstacle preventing the advancement of both productive force and knowledge in general. The sum total of human possibilities, of the quantitative and above all qualitative accumulation of knowledge (today impossible to decipher in its fullness), of the interactions between billions of men in the course of their physical lives, of labour energies, of the battles between groups, parties and classes, of the bonds that are formed independently of subjective consciousness; all of this is today mostly wasted, because there is no conscious order, no direction, no polarisation that tends towards an unambiguous result other than that of the brutal preservation of the system. Capitalist society is like an overheated gas in which the chaotic movement of molecules dominates and, fatally, in accordance with the second principle of thermodynamics, the loss of useable energy, i.e. the loss of vitality that physicists call entropy, has the upper hand.

It is in this context that Bordiga's critique of bourgeois knowledge takes place: if it were not for the aforementioned dynamics, he would not have felt the

need to rewrite Engels' Antidühring and Dialectics of Nature (implicitly also Lenin's Materialism and Empiriocriticism) on the basis of further scientific results. On the other hand, he could not replace a social brain, the world party, which had already degenerated by that time. The revolutionary period, which ended with 1926-27, had put transition on the agenda, but could not achieve it. The attempt on the battlefield also remained an attempt on the theoretical field: just as it was not possible to unify the theory of relativity and quantum mechanics into a synthesis, which remained hopelessly dualistic, so too a revolutionary synthesis in the social field was lacking. When the revolution in Russia degenerated, capitalism and its ideology took over, and this was taken over in full by Stalinism, complete with the cult of the leader and the state.

As a result, no further development in the field of theory of knowledge was possible. It is true that the fundamental shift away from metaphysics and all philosophies had already taken place with Marx, but the immense tragedy of the counter-revolution demanded equally fundamental clarifications with respect to continuity and invariance. This is why in the post-war period, as was the intention of Bordiga and the movement to which he belonged, a veritable body of theses on knowledge as a basis for adherence to the revolutionary movement should have been elaborated, beyond the confines of the working group that, in 1960, declared it felt such a need.

The communist revolution (which, according to Marx and Engels, smoulders under the ashes even in counter-revolutionary times) takes away the monopoly of knowledge from the ruling class and forges its militia to be able to see far. It is of no importance if, in unfavourable times like the present, such militia are scattered throughout the fabric of society, are unable to fight in close ranks, according to a given strategy and tactics, and do not even recognise themselves as such: they for now represent a potential in advance of the inevitable explosion, whether they are proletarians organised for immediate ends, ruined petit-bourgeoisie, or bourgeoisie no longer in line with the ideology, science and praxis of their own system.

We are not dealing here with extemporaneous inventions born during the boredom of the prison camp in Ustica in the discussions between Bordiga and Gramsci (the Epistemological Notes); nor are we dealing with material for the use and consumption of a group of survivors of the great fascist, pseudo-Soviet and American counter-revolution who were foolish enough to believe that in the universal debacle it was possible to avoid frontal attacks on the fundamental doctrine of revolution (the three meetings on the theory of knowledge). But it is instead a work in continuous sequence with the general development of revolutionary anti-capitalist theory, as can easily be shown by starting from very far back, for example from the young Marx. It is an oration in death of a society that no longer has any reason to exist, a bulldozer blow against its supporting pillars: religion, philosophy and science.

The Need for Knowledge in the Young Marx

The first volume of the Complete Works of Marx and Engels opens with a school essay by Marx on the choice of profession written in 1835. The 17-year-old future revolutionary dwells not so much on the choice itself as on its consistency and the need to ground it firmly in a noble 'working for mankind': for only in this way does '*our happiness belong to millions' and 'our undertakings live silently but eternally operating*'.

Marx, as everyone knows, railed against 'Marxism' while he was still alive, but this did not prevent his writings from being incorporated into a kind of new philosophy, which, in the Stalinist counter-revolutionary regression, became a veritable religion with its trinity, its relics, its icons and its liturgy. The boy Marx was made out to be a conscious forerunner of Salvation, just as was done with Lenin and then Stalin by unearthing a hundred proofs of their revolutionary precocity. It is significant how the romantic fluttering of a sensitive young man struck the imagination of the 'popular Marxists' more than his other, far more interesting observations, for example, from the point of view of what would have been Marx's work in demolishing philosophy. If we really wanted to note an 'early something' in that text, we would not rely on a bombastic platitude: there are more pregnant hints. Indeed, Marx states that only he who does not deceive himself can be happy; he who does not take positions based on abstract truths detached from reality; he who does not obey the fleeting moment but well-grounded ideas. He, on the other hand, will be 'annihilated' who, having embraced ideas proven false in the light of experience, will see salvation only in illusion and self-deception. All this is admittedly said en passant, without complete awareness, but, as we shall see, it will be the dominant motif of the first chapter of the German Ideology:

> *'Every profound philosophical problem is resolved with the greatest simplicity in an empirical fact'.*

Philosophy, like religion, is nothing more than the refuge, the escape route into the illusory, an ideal substitute for reality on which one can opine.

From whom did Marx take these cues? Nothing is created, not even thought, so the concatenation must be recognisable. For at least a century, philosophy had been struggling between determinist scientific rationalism, advancing with the industrial revolution, and the freedom of the spirit, which did not allow such prosaic interference. On the young student's syllabus was Kant, through whom philosophy had already attempted a critique of those philosophers who relied on the materialistic method in science, but lingered, without reaching a synthesis, in metaphysical beliefs (e.g. Descartes). In the German Ideology, Kant is mentioned little and even treated badly, as an exponent of the immature and powerless German bourgeoisie, capable only of 'purely conceptual ideological determinations and moral postulates'. Perhaps the young Marx had

noticed the acuity of Kant's critical analysis but the impossibility of synthesis. As the separation between the real world and the idea persisted, philosophy merely issued sentences. Marx recounts that the young Hegelian philosophers he frequented had realised that they were criticising nothing but sentences; to which, however, given their conceptions and method, they could '*oppose nothing but sentences, fighting not the really existing world but the sentences of the world'.* The 'new' philosophers of the time, including Feuerbach, had certainly criticised both religion and philosophy, but only to replace them with a new religion. Once again, the synthesis of physics and metaphysics proved impossible. Had not Hegel admitted that his entire philosophy of history was based solely on the progress of the concept of history, expounding the true theodicy?

The Complete Works presents as its second text a letter from Marx to his father, dated 1837, in which the 'philosophical' programme that would lead to subsequent elaborations is outlined, almost in full if in a very discursive manner. The core is still the relationship between abstract truths distinct from reality and the search for salvation through illusion and self-deception, attitudes represented here by recourse to the philosophers of German idealism (Kant, Fichte, Schelling, Hegel). Through an attempted distillation of the parts on the philosophy of nature ('*I came to seek the idea in reality itself*', to *'find the spiritual nature just as determined, concrete, firmly encompassed as the physical one'*), the young Marx realises that, without a radical turnaround, such work 'leads him like a deceiving siren into the arms of the enemy'. He falls ill, wandering 'like a madman in the garden', takes up Hegel again and reads him '*from beginning to end together with most of his disciples',* heals, burns all his notes and poetic compositions, attends the Doktorclub of young Hegelians in Berlin and writes a diary on the scientific conception of the world in his time, which his father, in reply, will judge *'a mad aborration that shows how you squander your talents only to give birth to monsters'.*

Science as a Support for Saving Needs

The 'monster' will still be born and will have this programme: every step in the real movement of humanity represents the communist becoming through the suppression of the present state of affairs. Every philosophical aspiration of man is eliminated through its realisation. Just as the ancient philosophy of the classical world is suppressed-absorbed by religion, religion is suppressed-absorbed by modern philosophy, which is suppressed-absorbed by science.

But ancient classical Greek philosophy had in turn supplanted another form of wisdom: the unified wisdom of the world, not yet influenced by the division of labour. We have seen that 'philosophy' means 'love of knowledge', but it seems that before Plato, the term did not even exist. There was not yet a

category of men who specialised in the love of knowledge, there was just knowledge. It was distributed in the form of myth-religion and the whole population drew on it, through ‘places of worship’ such as oracle sanctuaries. The enigma in which the answer to small and big questions was hidden was a key to set in motion a loosely structured knowledge, of a diffuse kind, in the sense that it was not made up of separate notions but of intuition, sensations and natural drives, a sense of life. The oracle was a kind of catalytic mechanism that made possible an emotional reaction from which the individual drew indications for behaviour (no different from other types of divination, such as shamanic divination or the I-Ching, the Book of Changes). This was human science, primordial but human.

The Bible, which Bordiga reads in a meeting to amused and also somewhat perplexed militants (some will leave violently slamming the door in the face of the mockery of sacred science), is a sapiential text as well as myth and history. The holy book is more reliable than a scientist's article because it brutally shows history, war, blood, sex, struggle, violence, betrayal and redemption, that is, it shows itself to be what it is: condensed life, not an elaborate ideological mystification. Archaic myth, or even the logic of medieval theologians can therefore teach us more than the scientific prosopopoeia of our time. In today's latest class society, science is by no means as neutral and objective as it claims to be. On the contrary, it is imbued with ideology, i.e. with content and methods suited to the interests of the ruling class. It is divided into branches already starting with those concerning nature, let alone in the field of man and society, where they reproduce the social division of labour. It is full of contradictions that it thinks it can resolve by simply setting them aside, hiding them under the curtain of technological success that fuels production; it sends probes to Mars; it smashes atoms with machines the size of cities; but it produces a philosophy of science that instead of paying attention to ‘knowing physics’ emits lucubrations ‘about physics’.

As you can see, we are at the meta-physics, and it is not just a play on words. That there was something beyond physics was, for example, Jung and Einstein, but they wondered what physics really was, the one citing telepathy, the other studying astrology. Science, it is said, is a liberating power, the bearer of progress, the solution to the problems of capitalism, indeed of humanity as a whole. Science (with a capital) is thus slipping into the saving hypothesis, but it is saving the capitalists and their opportunist entourage while billions of people live in suffering. The next phase of transition from one mode of production to the other will therefore be the suppression of this science-surrogate of salvific needs, to which man resorts not only to solve existential problems but also as a refuge in which to place his illusions, perpetuating the self-deception that it would be possible - all it would take is a little effort - to set the goodwill of governments in motion. Bourgeois man is stuck in Berkeley: it may no longer be through philosophy, but it is certainly through science that he can still believe himself to

be at the centre of the Universe and say that the latter does not exist unless he thinks so.

We obviously do not know what the knowledge of humanity liberated from capitalism will be called. We do know, however, that it will be neither an ersatz of religion-philosophy, nor a fragmented knowledge arranged in the two great ancient spheres, the celestial and incorruptible one, which has been replaced by the ‘scientific mind’, and the earthly, transitory, confused, constantly metamorphosing one, in which men today are juggling philosophical indeterminism with its opposite, empirical ‘experimental research’. Two antithetical attitudes within the scientific world itself, which even some members of the bourgeoisie rightly refuse to include in the scientific vocabulary as nonsense.

Science is such, says Marx in the Manuscripts referring to the early Feuerbach, only when it proceeds from the sensible world and not from ideas. When, therefore, it proceeds from the dual form of the sensible, from necessity (determinism) and from the consciousness of it, that is, from the knowledge that man's ideas arise from natural processes, within which man's history, that is, his becoming human, is included. Through what? Labour and industry. Thus the science of nature will absorb the history of man within itself, just as the science of man will absorb the knowledge of human becoming, i.e. the science of nature and industry. In the future society there will therefore be but one science.

Lots of Science and Technology, Little Knowledge

Today, humanity, master of admirable techniques for the production of goods and complex theories about the Universe and matter, has a problem with knowledge as such. Or at least with what is now understood as science, since we are at the point where the old categories are no longer needed and there are no new ones. Many scientists are well aware that the approach to knowledge can no longer simply be ‘interdisciplinary’, a term that still denounces the social division of labour, a kind of federation between separate sciences, but will sooner or later have to be unitary. Richard Feynman, Nobel laureate in physics, recognised that we are in a state of profound transition unease. Both Einstein and the quantum scientists spent decades seeking the unification of knowledge, at least in physics. They have not succeeded. Science ‘works’, but knowledge is approximate.

Feynman sees this indeterminacy reflected in the school books from which future scientists will have to emerge. Bordiga, who in addition to having little admiration for today's science hated the academia of the profligate wage eaters, would have been delighted to read these lines:

> *‘Those disgusting textbooks said things that were useless, abortive, ambiguous, confused and wrong. I cannot understand how one can learn science from texts that are not scientific at all'.*

On one of them was the question: what are cars, spring-loaded toys and bicycles with cyclists moved by? The answer was: they are moved by energy. Feynman observes:

> *'It didn't make sense. If the answer had been: 'quelchetipare' we would have had the same general principle: it works by quelchetipare. The kid doesn't learn anything that way, he just hears a word'.*

We know how to calculate phenomena, but we know little about them. While the ancients tried to answer the 'why', we have adapted to the current mode of knowledge and limit ourselves to looking for 'how' things happen. To understand the state of science, it is useful to resort to the vocabulary paradox: we know that the explanatory capacity of this tool is very limited, since it tries to explain terms with other equivalent terms. But in the case of the scientific lexicon, we are faced with a real disaster. Let us take the Zingarelli and give it a try. 'Energy: aptitude of a body or system of bodies to perform work'. This is Aristotle: energy as the aptitude of a body; but if the definition is so generalisable, why do scientists use 36 ways to define it and thus measure it as Feynman observes? Let us move on: 'Matter: that which constitutes the substance of a body'. As we can see, we are back to Aristotle, or the Middle Ages, since substance has its complement in accident, assuming we really know what both are (in this regard, the reader will find further on, quoted by Bordiga, the Don Ferrante of Manzonian memory). 'Electromagnetic field: region of space in which electric and magnetic forces exist'. Let us translate this in the Feynman manner and we shall see that his 'quelchetipare' is used again. 'Mass: ratio between the force applied to a body and the acceleration impressed on it'. We'd be doing a bit better, if only we knew what force is. 'Force: a cause that perturbs the state of a body'. We are back to 'thatchetipare'.

Since there is a relationship between mass and energy, we would need to know why the energy associated with motion occurs as additional mass without the apparent intervention of a transformation of matter. But is this true? We do not know, mainly because a definition of 'matter' eludes today's scientific knowledge. Nevertheless, some scientists, disturbed by a gratuitous creation, of matter, particles or energy (all synonyms?), go looking within matter for those who 'pay' for the transformations so that the energy 'balance' (or physical symmetry), is respected. Language - in this case the economic definition in terms of value - has such limitations, but it is one with knowledge.

It is true that in the case of the terminology listed above, we were looking in a dictionary of the Italian language and not in a treatise on physics, and it is true that we are not doing academic research but struggling with the tools allowed by existing power relations; however, even if we changed tools and research environment, the result would not be very different. Today, we know

enough about the world, the stuff we are made of, the relationships between the various parts of it, to realise the obvious inadequacy of our knowledge. Instead, we lack the elements to explain what we 'discover' and we do not even have the language to describe it. Never before, Socratically, do we know - or should we be aware - that we do not know.

But language does not fall from the sky. '*Language is the real, practical consciousness, which also exists for other men and is therefore the only one that exists even for myself; language, like consciousness, only arises from need, from the necessity of relations with other men'*. Bordiga insists on this point: true, complete knowledge, including the language to express it, will only come about after the elimination of capitalist society. Today, from the point of view of the new unified science of the future, we know more about social becoming than about the laws of nature. We know about the succession of social forms, we know about their production and reproduction and their science of nature, not our own. This is normal, because the sequence of events in the current revolution towards communism places the breakdown of the bourgeois system before further knowledge.

A Double Scientific Dichotomy

When Bordiga says (and not only in the texts presented here) that it is necessary to retire God, Spirit and... Hegel, he is merely echoing Marx and Engels on the *'end of philosophy'*. As we have seen, however, even in the opposing camp many philosophers seem to have come to the same conclusion about the end of their own subject matter. Pure appearance: on the one hand they resurrect the old metaphysics under new forms, on the other hand they claim that the death of philosophy is due to the triumph of science and technology, a phenomenon to whose implications they devote their studies. Some consider this triumph to be positive despite the obvious flaws of science; others interpret it negatively, as a renunciation of man's humanity. Bordiga denies both assumptions, the neo-metaphysical one and the contradictory one of science viewed positively or negatively: even science and technology, whether praised or criticised, are nothing more than a new form of philosophy, and moreover metaphysical. He even adds that today's science can be likened to a magical superstition.

This huge provocation is not out of the air: men cannot help but express what the real world determines them to say and do. Their technology is superb and their science allows them to build atomic reactors, but in the end they behave like the classic sorcerer's apprentice who cannot control the forces conjured up. This is why, in the first of the meetings published here (Florence), Bordiga states: communists do not throw away anything that mankind has produced throughout its history; material in support of their theses, whether positive or negative, can be derived from any human experience.

What have scientists and philosophers admitted in spite of defending their jobs and their salaries? That today's science, far from killing philosophy, has revived it, more metaphysical and linked to the celestial spheres than ever before. There has of course been a shift towards official science, which in no way means a more scientific approach to the world. The name has changed, and from philosophy in general it has become, enriched with attributes, 'analytical philosophy', 'philosophy of science', 'philosophy of law', and so on; but always philosophy remains, with the aggravating reference to the social division of labour. As we shall see in a moment, tracing their history, science and 'philosophy of science' had to mark time in the face of the obstacles raised, paradoxically, by their own great achievements. They have not yet caught their breath, nor will they ever catch it again.

In the first half of the 20th century, a scientific ferment exploded that surpassed the already triumphant achievements of the 19th century. As a result, philosophy also exploded, transcending from positivism to neo-positivism (i.e. merging more with science but in a less optimistic way). The theory of relativity and quantum mechanics seemed to open the door to a new era of knowledge, and the results were grandiose and precise. Or were they? Just as they were being celebrated, the principle of causality came into crisis, that is, the ability to know the very objects of research, space-time, matter-energy. Philosophy imposed itself and brought to victory the thesis that definitively and irreversibly determinism would no longer make sense and that the laws valid for macroscopic reality would no longer be valid for the atomic world. Thus all logic was lost, Einstein pointed out, because the macroscopic world has the microscopic world as its underlying matter, and contradictory laws could not exist simultaneously. He even exaggerated, saying that even atoms could be considered nothing more than a useful convention. There were sides that were reminiscent of the religious wars. But in general the scientific world accepted the new philosophy en bloc; only a few scientists were not convinced: Einstein, Planck, Schrödinger, Ehrenfest, De Broglie and a few others.

The situation has not changed since then: the pillars of modern science continue to be the theory of relativity and quantum mechanics. They give us information about the Universe and the microworld of particles, experimentally confirmed with an incredible degree of precision. Cosmologies, nanotechnology, molecular biology, the study of the structure of matter, etc. are based on these theories, as if to say that they hold up the current world of science. They have only one flaw: as they are formulated, they cannot both be valid. All the science in the world rests on two mutually incompatible theories.

This is the first dichotomy. The second is the underlying philosophy: if the physical world is indeterminate, let alone the social world, made up of chaotic, unquantifiable interrelationships between men. There is no professional

politician, no groupie who is not willing to swear by this dichotomy. Indeterminism becomes idea, man becomes particle-mass, his existential engine is egoism, which he calls free will. Again, capitalism drives the individual towards the illusion of choice, towards escape and self-deception: I act, therefore I am, therefore I shape reality. We know that this miserable activism is at the root of every undoing.

Philosophy and the Industrial-Scientific Revolution

For thousands of years, men have believed that there are two incompatible worlds: a physical world, the one we see, touch, experience, and a metaphysical world, beyond the earthly. The sensible world is, from experience, the one where its elements (men, things, environments) are born and die, become, transform, disappear. The supersensible and transcendent one is the one where everything is immutable and given forever, where we find the perfect models to strive for in our imperfection. This was true for the ancient Greeks, for the entire Christian world, not just the Middle Ages, and for most modern philosophers, who complicate their explanations, but all in all still rely on these oppositions.

Bordiga states that not only philosophy, but also science is subject to this determination. The difference is that, whereas in the ancient and medieval worlds, the compensation of reality came through the intangible worlds of philosophy and theology, today it comes through the intangibility of value (money) or capital Values (Liberty, Democracy, Dictatorship, Good, Evil, Progress, Welfare, etc.). On one side is wealth, Capital, and on the other what is believed to be in antithesis or at least neutral to the troubles it produces: philosophy and science. But philosophy, once it has placed the Earth anywhere in the Universe and not in the centre, must do without myth, metaphysics and mysticism. One has to preach the centrality of Man and the Soul, in an infinite universe where man is nothing! And things are no better on Earth either: what would become, says Marx, of Jupiter in front of a lightning rod, Vulcan in front of a steelworks and Hermes in front of the Bank of England? The advent of the industrial and scientific revolution, like all revolutions, breaks down barriers; on Earth, first of all, with manufactures and trade, parliaments and universities, but also between Earth and Heaven. Priests and philosophers could do nothing but take note, the Universe was now unified, the atoms in our brains are indistinguishable from those in the farthest galaxy, the laws governing motion, masses and energy-matter exchanges are the same. Philosophy was forced to become first philosophy of science, then science tout-court. In the sense that science took its place, inheriting metaphysics, incorporating it into the actual processes of knowing matter.

The serious Enlightenment took it in their stride, the idealists registered the crisis and elucidated loopholes. But under the pressure of industry they both

had to give way. Some were useful to those who came later, others disappeared from memory. Today the ‘normal’ philosopher counts for nothing, and in any case his anguished question is whether the craft he does can still be considered some kind of knowledge. Bordiga answers: no, from Hegel onwards knowledge exclusively takes other paths. If it can. Science bars its way, or at least makes it an absurd obstacle race.

In the relativistic space-time of the Universe and in the infra-atomic folds of quantum matter, there is no place for the supersensible chased out of the celestial spheres. Nor is there any place in mechanics, among the machines that punctuate the organised work of men. From Galileo onwards, science sees itself as experimental and transcendence is forever evicted from the laboratories. It then takes a terrible revenge, which from Hegel onwards has incalculable consequences: starting from that part of the world where science is completely or almost completely equivalent to ideology, i.e. from the pretended social science, from economics, from the surviving philosophy, from psychology, medicine, sociology, politics, from these areas it returns everywhere, in the science of the cosmos (creative Big Bang) and in the science of sub-atomic particles (rejection of the principle of causality, of determinism).

Already Kant, realising that the scientific revolution had given birth to incoherent hybrids, had sought to distinguish himself not only from Berkeley, whom he described as a dogmatic idealist, but also from Descartes, whom he described as an empirical and sceptical idealist, because of his attempt to bring metaphysical categories back into the realm of the physical environment (‘I think therefore I am’ means proving the existence of matter through thought; it was no different to finding a place for a supersensible entity such as the soul in the pineal gland). Now, while Descartes remains a great scientist and philosopher despite Kant's justified criticism, scientists who behave in the same way today are simply ridiculous (recall the definitions of Feynman and the vocabulary, a small paradigm of current science).

Bordiga, with historical detachment, places Kant among those who laid the foundations of modern knowledge for having swept away all transcendent categories, traceable to a given antecedent, to the point of retaining only two, immanent ones: time and space. Marx and Engels, at the time closest to Kant, reproached him for having transferred to the world of ‘goodwill’ all the categories that he himself had helped to sweep away, in a world that is the world of faith and hope, certainly not of scientific theoretics. The criticism of Marx, Engels and Bordiga strikes anyone after Kant who does the same. Today, science is at that same point: it has depopulated the heavens but has transferred the relevant categories to the real world of everyday life.

Thus myth and the sacred are mingled with everyday impulses; the ‘people’ are called upon to decide whether to shut down nuclear power plants,

their representatives vote at the UN on whether to give importance to the ‘hole in the ozone layer’, throngs of scientists traffic in the delicate field of genetics and reproduction for money, robotic mercenaries kill the ‘enemy’ with superlative technologies in the midst of a sermon on the categories of Good and Evil, for a crusade blessed by God. In reaction, millions and millions of people, who have grown up suckling at the teats of Science, devote themselves to ‘alternative’ pastimes, fuelling a business that comes right after that of the automobile industry.

The Impulses and the Barriers

Bordiga certainly places Kant at a higher level than Hegel even though chronologically he comes first. From the point of view of the work in question, which holds in the foreground the importance of the social process and thus its maturation towards communism, Kant is a breaker of barriers, while Hegel is a restorer of them against knowledge. We read Kant with interest as a man of his time, while we read Hegel feeling a deep rejection for his profoundly anti-scientific approach. After the Enlightenment (including Kant), no great philosopher ever again made a materialistic connection with science. Above all, the idealistic-metaphysical line named by Marx, that of the Fichte-Schelling-Hegel had the upper hand against the scientific achievements of the industrial revolution, and Bordiga's pyramid once again rested dangerously on its own thought-centred apex. With Hegel even science rested on the elaboration of thought, and he did not conceive of the dual theory-empirical world direction.

Marx and Engels recognised in Hegel the dialectical framework of a system of the world made up of relations, but no more; we are used to thinking in terms of invariants, and if even one part of a system falters, the whole thing falls apart. In a scientific context where philosophy is dead, its return is absurd. Yet today, the major theories about the cosmos and matter are elaborated ‘philosophically’, without a dual direction between products of thought and the empirical world. Bordiga's veiled reproach to Lenin for his ‘infatuation’ with Hegel in the age of modern science is significant. It is only a small example, but it can be extended to the whole historical arc, because for communists, only any real movement that abolishes the present state of affairs has revolutionary value: Kant understood that science kills metaphysics because a revolution was underway; Hegel not only did not understand science, but claimed to revive metaphysics when it was already dead and buried long ago.

Bordiga's judgement is extremely drastic, so much so that it was not shared by all the militants of the party to which he belonged. On the other hand, on the possible developments of his discourse we could only speculate, as we possess only fragments rather than the complete body of theses whose drafting was planned. The only way out is to work on the same assumptions, to carry on

the work. We note en passant that we have a little experimental verification: Hegel today is only revalued by Stalinists, Trotskyists, university workerists and... theoretical scientists of philosophical indeterminism such as Prigogine. Dialectics has nothing to do with the fact that, privileging the qualitative over the quantitative, one then says what one wants, free to treat invariance laws and historical processes according to one's own opinion. Like philosophers, in fact.

Young militants of the revolution would pick up the baton of the relay between generations and carry out Bordiga's notes. There was no revolution going on, least of all in Germany, when Hegel wrote his philosophy, while the previous period had exploded in the process of the bourgeois revolution. With Kant and the French Enlightenment, the metaphysical presuppositions of past philosophy were truly shattered under the pressure of industry, science and feudal decay. Hegel, on the other hand, died still spreading concepts about Spirit and the Absolute a year after the red flag had already flown for the first time on the Paris barricades.

Knowledge of the real is only possible within the confines of the real world, says Kant. But if, after the advent of science, metaphysics can no longer survive, then philosophy is nothing more than taking note of the sensible world, recording the data of experience in order to make it an object of transcendence. True philosophy is a critique of the metaphysical presumption to know the supersensible, it is reasoning about the necessary demarcation between science and deception of the mind, that is, between actual and illusory knowledge. It is easy to understand why Bordiga, within his discourse on the critique of philosophy and, at the same time, modern science, takes Kant as a turning point model: from the point of view of the theory of knowledge, Kant was the first philosopher to base knowledge exclusively on the scientific model, even though he was the first to ‘transcend’, i.e. to rise with thought above what science could offer to the needs of thinking man. He called ‘immanent’ that which stays within the limits of sensible experience, and ‘transcendent’ any principle that leads thought to rise above these limits, and in this there was a historical justification. In our time Bordiga sees in modern science only a new and degenerate transcendence, an escape beyond the real; he sees in the surviving philosophy the by-product of an inhuman science, that is, an existential response to needs that science has not been able and could not satisfy. It is no coincidence that he violently rails against philosophical and political existentialism.

The Intrusion of Metaphysics into Science

Metaphysics, already beaten at the time of Kant and the encyclopaedists, as we have seen, had to give way to science and industry. Afterwards came the reaction, which, however, did not undermine the solid foundations of the rampant capitalist certainties due to the industrial revolution. Today's surviving philosophy, which cannot do without metaphysical residues in its various

opinion-programmes, rails against science, with clearly visible reflexes in the existential rejection by fringes that include the devotees of the alternative, mystics in search of oriental archetypes, primitivists, etc.

The so-called philosophy of science seems to be saved, but it too has its problems, since the various Prigogines represent a vast school within it. The phenomenon of the death of philosophy is generalised, while scientific philosophy rages against science. It sounds like a play on words, but in reality no one is willing to give importance to the Unabomber and his hatred of science, even though millions share his rejection of inhuman technology, while from within science metaphysics flourishes with its publicists, its experimentalists, its academics (Prigogine was awarded the Nobel Prize). There is no anti-scientific philosophy, no metaphysical current, there are dozens, and all of them in one way or another deny the cognitive possibilities of science in relation to man's existential problems. Here we had Croce and Gentile, but the line-up is vast, ranging from Sartre to the Frankfurt school, and it also makes its way through unsuspected scientists who are not keen on the flutterings of philosophers. Hardly anyone can resist the call - theological rather than philosophical - to put the Earth back at the centre of the Universe and Man at the centre of Creation (with the corollary of the selfish Individual on the pedestal of subjectivism).

Gramsci, with whom Bordiga had opened an epistemological discussion of enormous scope, had precisely a thought-centric conception of philosophy, as if it could represent a factor in social reality rather than being its product. A metaphysical conception therefore. He had not assimilated the basic upheaval wrought by Marx and summed up telegraphically in the Theses on Feuerbach: Philosophers have only interpreted the world differently, it is now a matter of transforming it. This shift necessarily involved the destructive critique of philosophy, not its transformation into an engine of change. Crazy as it may sound, Gramsci instead imagined an active function possible for philosophy, indeed for individual philosophies, to the point of judging the validity of each of them by its degree of actual social force:

> *'Many philosophical systems are purely (or almost) individual expressions and the part of them that can be called historical is often minimal and drowned in a complex of abstractions of purely rational and abstract origin. It can be said that the historical value of a philosophy can be 'calculated' by the 'practical' effectiveness it has achieved (and 'practical' must be understood in a broad sense). If it is true that every philosophy is the expression of a society, it should react on society, determine certain effects, both positive and negative; the extent to which it precisely reacts is the measure of its historical scope, of its not being an individual 'lucubration' but a 'historical fact".*

Even Marx does not now admit this possibility. Neither does Bordiga. Philosophy has been dead at least since the Enlightenment onwards, i.e. since the encyclopaedists and Kant recorded the industrial-scientific revolution. Their

inability to free themselves from idealistic regurgitation places the false Marxists among the true continuators of Hegel, and it is no coincidence that their movement has its apotheosis in the ‘absolute’ capitalist state of the Stalinist type, a phenomenon that mirrors fascism. They return to considering man as the fulcrum of the universe's becoming, not as a mere part of nature through which it itself arrives at a deeper knowledge of itself. While Lenin, in Materialism and Empiriocriticism, still touches on the dichotomy between nature and man, Bordiga clearly rejects this separation: he too describes the former as capable of thinking itself even in the absence of the latter, but only to conclude that the entire process of nature's becoming must be unified, with the whole of biological evolution and thus man being included.

It is only by shifting the focus of thought from man to nature as a whole, as Bordiga does, that it is possible to understand the Marx of the Manuscripts where he seems to attribute finalistic characteristics to nature, as if it were the shell prepared to accommodate man and his industry. Without this we would read a Marx still a prisoner of Hegelism, as indeed some do, not a powerful destroyer of it. But Marx emphasises man, his industry and his economic and social system because he specifically deals with the revolution within man's society, not because he considers nature to be something else, detached, to be ‘used’. For Marx, humanism, as well as for Bordiga who expresses it in different but equally powerful terms, is nothing other than accomplished naturalism, i.e. there is no specific subjectivity, Idea or other metaphysical contraption, there is only diverse objectivity within nature:

> *‘Here we see how accomplished naturalism or humanism distinguishes itself both from idealism and [vulgar] materialism and at the same time is the truth that unites them both. We see at the same time that only naturalism is capable of understanding the action of universal history'.*

Thus man as part of nature, and human history as natural becoming. Gramsci, Stalin and all the continuers of Hegel, by placing Man, the State and History at the apex of nature, identify reality with social movement alone; while the Universe obviously goes its own way, without being disturbed in the slightest by one of its smallest components developed on planet Earth in the Solar System of the Nebula we call the Milky Way. And even if one day a man-made change were to occur somewhere far away in the Universe, nature would have done nothing more than change itself. If we notice, the critique of thought-centred cosmologies is also well suited to a critique of group ideology, which adopts the conception typical of ‘primitive’ peoples who call only themselves ‘men’ and believe that their village is the navel of the world. The divorce between thought, language and reality reaches hilarious heights in the case of the little groups.

The science of the bourgeois era is no less: it investigates the physical world from the heights of the now developed human thought as if looking ‘outside itself’, in the direction of an alien Universe. At the time of the first rockets and artificial satellites, serious scientists took part without batting an eyelid in the saga of the ‘conquest of space’, knowing full well that the Universe is a little larger than those paltry leaps made a few kilometres away from home (today's International Space Station is as far from Earth as Florence is from Milan). The orgy of words, the raped semantics, the promotion of the scientific product as a commodity, take over every other consideration of knowledge. Even money and exchange, as Bordiga shows in the third meeting, become part of the explanatory lexicon of phenomena that should be exclusively linked to the structure of matter. And yet it is precisely the scientist who first demands a precision of language in order to make the description of phenomena shared without subjective interpretations; if he cannot break away from the current mode of production, which has nothing to do with the objectivity of nature, it is because ‘ideas do not exist separate from language’.

Since its inception, philosophy has passed through changing phases of a single worldview, the one that for convenience we can call platonic. In its various nuances, it has always started from the assumption that the world of man had something to know ‘outside’ of itself, something that concerns nature and has been called ‘reality’. As we have seen, Kant represents a turning point due to the leap of science onto the scene, but the forms of transcendence to which his studies gave rise and, above all, the regurgitation of romantic metaphysics due to the Fichte-Schelling-Hegel trio did not eliminate the classical search for reality ‘outside’ man. Later, neither nineteenth-century positivism, nor twentiethcentury neo-positivism, nor indeterministic epistemology succeeded in overcoming this obstacle. Having displaced philosophy with science, the latter still set out to seek ‘reality’ somewhere ‘outside’ man, since the Universe is unreachable and microscopic matter escapes observation precisely because the observer investigates it.

Feyerabend is therefore right when he concludes that current science is a chaotic accumulation of a posteriori justificatory lies with respect to an alleged method of scientific research. We might as well let all kinds of research run wild, since, as things stand, ‘anything goes’ to do science and official science, religion, magic and New Age beliefs have equal status.

For a Revolutionary Theory of Knowledge

Bordiga's powerful treatment of the theory of knowledge starts from Marx's well-known assertion in the Manuscripts ‘Communism is the solved enigma of history’, and ends with the overthrow of Platonic conceptions that have remained substantially unchanged throughout the ages, up to and including capitalism, under the name of ‘philosophy’.

It is therefore not a question of pitting philosophy against philosophy, but of initiating a positive critique of philosophy (to replace it with a new theory of knowledge). It is not a question of posing new questions, but of destroying all the questions that man has asked himself so far on the basis of his conception of the world. However immense the task may seem, the solution is not a thing of the other world: new questions would only prepare the ground for other questions, as children well know, who are not satisfied with the circular definitions deduced from our inner vocabulary and nail us with their 'why?'. Therefore, the solution lies not in criticism but in action, i.e. in the real change that takes place before our eyes and is oriented towards the future society (a movement which, with Marx, we call 'communism'). Liberation of physical energy, work, struggle, confrontation between men and nations, especially between classes, a process that communists know how to grasp and analyse (this is why they can consider themselves anticipators of the future). This is Marx's Second Thesis on Feuerbach:

> *'The question whether human thought is entitled to objective truth is not a theoretical question, but a practical one. In praxis man must prove the truth, i.e. the reality and power, the immanent character of his thought. The dispute over the reality or non-reality of thought - isolated from praxis - is merely a scholastic matter'.*

What counts, then, is the system of relations within nature, including man, which in the meantime has become industry; it is necessary not to consider these relations as a priori absolutes to be ordered according to the metaphysical hierarchy that sees thought pre-eminent over matter. The real movement that destroys this hierarchy is one with the end of class society. Bordiga's overthrow of the pyramid of knowledge is all here: it is not science that will give us the answer to knowledge of the world but the social revolution.

Bordiga takes up Marx on this subject in a slightly different way than Engels and Lenin. He states that nature is not simply the original entity in itself, which is reflected in man's thinking - once it has evolved from matter to acquire processing capacity - producing knowledge. The power we find in Bordiga's meetings, in spite of the 'semi-finished work' we have at our disposal, consists in the clarification that the entire history of the universe is permeated with knowledge, in other words, information (and the refutation of the arguments put forward by a hypothetical 'half-materialist' in the Florence meeting is significant). Participating in the same work as Marx, Engels and Lenin, Bordiga follows in their footsteps, but provides something more than this definition that we find in Materialism and Empiriocriticism:

> *'Did nature exist before man? The natural sciences state with certainty that the earth existed in such a condition that neither man nor in general any other living being existed and could exist on it. Organic matter is a further*

phenomenon, the result of a very long development. There was therefore no matter endowed with sentience, there were neither 'sensation complexes' nor an ego 'inextricably' bound, according to Avenarius' theory, to the environment. Matter is primordial, thought, consciousness, sensation are the product of a very high development. This is the materialistic theory of knowledge, on which the natural sciences instinctively rest' (emphasis ours).

It is not entirely true that matter is insensitive, and it is precisely Lenin who in the same book quotes the Enlightenment scholar Diderot who demonstrates, with the famous example of the egg, that matter is. Thought is the product of a development of matter at a very high stage of self-organisation, but it cannot be creation from nothing. If we do not specify that the information already exists and that it is only to be processed, the 'half-materialist' can jump up and ask us, in the manner of children with their 'why?'

'If you say that in order to know you need a naturalism that is at the same time humanism, that you constantly need the clash between man and nature, how did man evolve? How did man proceed when there was no thought in the cosmos and nowhere?'.

The interlocutor's question is a logical one. Indeed, there was no clash between man and nature that gave rise to knowledge as we now understand it. But such a question cannot be answered by simply connecting to its premises that already start with man: it must be rephrased in other terms. If we do not reformulate it, we are stuck in the logical paradox of the chicken and the egg recalled by Bordiga. We only come out of this by pointing out that the 'struggle' between natural elements, i.e. earthquakes, hurricanes, eruptions, tides, continental drifts, etc., is part of the formation of the world. During this struggle, nature knows itself, writes its own history in the geological strata, in the formation of carbon compounds, which can be either oil or protocells that anticipate the living, with their baggage stored in molecular sequences that anticipate DNA.

There is absolutely no dichotomy between the world of matter as such and the relationships within it, the molecular, chemical, thermal, electrical potential differences, and so on. Matter could not self-organise if there were not these differences in relation to each other. Therefore, the whole system of relations is nothing but a 'sense organ' of nature, something that is not at all 'primordial' to be arbitrarily contrasted with 'evolved' as Lenin does, somewhat hastily denying it sensitivity, in the polemical battle. Here then we have the answer: not to the original question, but to the one we had to ask ourselves in relation to the complexity of the world-system, which, before the appearance of life, was certainly not inhabited by human 'thinkers' but had its own sensitive thought, like Diderot's egg. Every sub-relation within the complexity of the system-world is but a particular case that reproduces the global one, so every difference, at every level, always produces the activation of some sense organ. Matter is

therefore sensitive even without a man to think it, it is by no means inert. And it is capable of organising itself at ever higher levels. This process of continuous self-organisation is no different from that which, expressed in other terms, we find in Marx. It has been interpreted as idealistic ‘finalism’, but it bears no resemblance to the overthrow carried out by the epigones, who put man at the centre of creation, the party at the top and Secretary Moustache in God's chair.