

The Universal Movement for the Unity of Knowledge

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'History [of man] is a real part of natural history, of nature becoming man. Natural science will subsume the science of man under itself, in the same way that the science of man will subsume the science of nature: then there will be only one science' (Marx, 1844).

'They say that future events cast their shadow on the times that precede them. Could it not be that they sometimes cast their light on the times that precede them?' (Ada Augusta Byron, 1851).

'Is it a fact, or did I dream it, that by means of electricity the world of matter has become a great bundle of nerves vibrating hundreds and hundreds of miles in a flash? Or rather, the whole globe is an immense head, a brain, instinct and intelligence together! Or could we say that it is itself thought, and not the matter we believe?' (Nathaniel Hawthorne, 1851).

This is one of our editorial meetings, recorded and transcribed. Some of the topics discussed in the questions and answers that arose at the end of the exposition have been included at various points. The part on Renaissance syncretism was originally much more concise: developed in a later meeting on art as the language of various social forms, it is reproduced here.

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Part One

In a world tending towards exasperated specialisation, a side-effect of the social division of labour, it was inevitable that its negation would arise. Fifty years ago, a denunciation of the dualism between humanistic culture and scientific culture started in England; today, a proposal to unify the two cultures into one starts in the United States.

This proposal has become almost a social movement. Rationalist, syncretic, militant atheist, it has nothing to do with the 'interdisciplinary' approach that occurs when separate branches of knowledge 'talk' to each other on particular occasions. It does not aim to complement current knowledge but to replace it with a 'third' culture. On the other hand, having been 'founded', it is not a spontaneous movement, although it is, of course, the result of a real push towards the convergence of separate knowledge into a whole. Paradoxically, as long as the separateness of the 'cultures' is not definitively defeated, the Third Culture will remain, in turn, separated and excluded from the other two. This is normal: in the course of evolution, a mutant always appears who, before becoming extinct or expanding, is a different, outnumbered by definition. And in fact, for the moment, the mutant we are dealing with is nothing more than a hopeful monster. Born out of the material needs that arise during scientific procedures, it is fuelled, as we shall see, by the vulgar need to make money within one of the various niches of capitalism. It is the modern version of drives that have always been present in history and is not the only manifestation of this type.

What follows are, as usual, reflections 'on the thread of time' (Yesterday-Today-Tomorrow) derived from the Marxian theory of knowledge as it was addressed by our historical current. Proceeding with the usual method of 'chained arguments', we will see that these reflections relate to the influence of the ongoing revolution on the 'thinking' of men, who are forced to take the revolutionary field even if they profess conservative ideas. It is often a question of those processes that our current has called 'ideological capitulations of the bourgeoisie in the face of communism'. Here, as mentioned, we will analyse one resounding aspect of this.

The unification of knowledge is in the revolutionary programme defined by Marx. Nature only manifests discontinuities as the result of processes, dynamics, transformations of a continuous nature that lead to discontinuous events, such as the striking of lightning, the exploding of a volcano, the crashing of an avalanche. Nature thus presents us with local phase transitions within a global pattern. The universe is a continuous whole. The discontinuity that we see between object and object is the result of our ability to observe and discriminate, but our language must take into account the overall unity: we call the set of contiguous but non-continuous blades of grass 'meadow', the set of trees 'forest',

the set of small grains of stone 'sand', and so on. Since man began to learn about nature, developing a language to describe it, something has been produced within nature itself that was not there before: the cataloguing of things by analogies and differences, the separation, on a linguistic and conceptual level, between the objects of human observation. An individual, in order to pass on to others the information he obtains from the world by processing it, will not be able to do without sequencing well-defined subjects and predicates that specify their qualities.

Towards the Great Unification

The first dichotomy is thus in the structure of language, even if man began very late, compared to his history of millions of years, to fix it in 'philosophies', i.e. in particular worldviews. In fact, in the history of human knowledge, there has always been a struggle between separation and unity, although it is only in recent centuries that this phenomenon has become more pronounced, becoming ideology.

Marx notes that after all, human activity is nothing more than movement within nature, and production is nothing more than the transformation of matter through labour. In the well-known passage in the Manuscripts in which he envisages the unification of all knowledge, he traces the model that will underpin his entire scientific construction: man is his industry; alienation from it, typical in capitalism, is non-human; the new humanity will be the recomposition of man-industry, the true anthropology. In the German Ideology he will identify, with Engels, the function of language: by transmitting finalised information between men, it is their consciousness (thus a means of production, like the design of a project, an order, a procedure). Here we are once again faced with unification fighting against separation.

In 1844-45, Marx's reasoning is complex and his way of expressing himself is the sometimes somewhat obscure one of notes written in order to clarify to himself the basic structure of the system that was about to be defined. But it is absolutely unequivocal. In the following paragraph we quote what is a veritable programmatic manifesto. We quote it without inverted commas because we have transcribed it in somewhat simplified language compared to the original, but faithfully preserving its content.

In industry as we know it, we have the synthetic materialisation of human capabilities in the form of useful objects, albeit alienated, i.e. removed from the man who physically produces them. Today's industry can be considered both as part of the universal movement of nature and as a specifically capitalist part of industry as such, since all human activity has always been work and therefore industry. A science that is alien to industry, i.e. specifically human labour (other than that of animals, however organised), is non-science. Disdainfully

abstracting from what is specifically human is non-human, it is pertaining to the realm of necessity, not that of freedom. Without the consciousness of what universal industry is, bourgeois industry remains, i.e. the non-human needs it satisfies and for which it has developed. Science has allowed for enormous productive activity and has expanded into ever larger fields of nature, while modern philosophy has proved itself alien to both production and nature. Consequently, science has become alienated from philosophy. Whenever production and industry gave rise to the need to unite science and philosophy, the latter responded with fantasies: if it sometimes understood the need for this union, it was unable to transform it into knowledge of reality.

The same can be said of branches such as psychology or historiography: they cannot be called science if they do not take into account industry, that is, the specific activity of the human being, the one that, moreover, takes up almost all of his real existence. In spite of this situation, science, through industry, has taken over man's life, revolutionised it, laid the foundations for his emancipation while contributing immediately to his complete dehumanisation. Industry is man's historical, real relationship with nature, and science is its language. Therefore, if industry were finally recognised as the true human essence, the process that within nature leads to man and from man to knowledge of nature would be clarified. The result would be an overcoming of vulgar materialism even by science itself, which would truly become the basis of human knowledge. After all, production and science are already the basis, albeit alienated, of human life. So to say that the basis of life and the basis of science are different things is in principle a lie.

Having rewritten this well-known passage, let us quote its conclusion, quoting the original verbatim:

'The nature that becomes the history of man, in the act of birth of human society, is the real nature of man, whereby nature, as it becomes through industry, albeit in an alienated form, is the true anthropological nature. Sentience must form the basis of all science. This is real science only if it proceeds from sentience, in its dual form, both of sensitive consciousness and of sensitive need: thus only if it proceeds from nature. The whole of history is the history of the preparation for man to become the object of sensitive consciousness, for man as such to become man's actual need. History itself is a real part of natural history, of nature becoming man. Natural science will later subsume the science of man under itself, in the same way that the science of man will subsume the science of nature: then there will be only one science'. (Manuscripts).

Here the terms 'sensitivity' and 'sensitive' are to be understood as the capacity to receive information from the senses. More precisely, given the context of reciprocity between man and nature, they are to be understood as

'receiving information from nature through the senses and reacting accordingly' (Lalande). Cybernetic Marx? That's right, and a shock to those who don't get it.

Deep Renaissance syncretism

We will come to the central theme of the contemporary tendency towards the unification of knowledge by passing through the example of a time when there was no need to 'unify' it for the simple fact that it was not split up and, consequently, was expressed in a unified language. Let us bear in mind that we cannot use many examples here, but that in the feudal era, in the ancient-classical era, in the so-called Asiatic era and in the prehistoric era, there was no humanistic 'culture' separate from the scientific one. Fifteenth-century humanism, the cradle of the Renaissance, had not yet made the leap to bourgeois non-humanity, to the splitting of knowledge. Although it provided the basis for the later separation, although it placed man at the centre of the universe, it certainly did not conceive of him as a selfish and alienated individual, a producer of needs and commodities. He imagined him as a being who had the task of ennobling his presence in the world through the understanding of nature, which was like the finally opened book of the divine work. Truth and knowledge were no longer to derive from dogma or authority but from research that could unveil what had remained secret about nature. Medieval theocratic universalism, which did not conceive of a nation-state, was replaced by a new interpretation of Greco-Roman society, whose paganism was assumed as symbolism within the political and religious framework of the Seignories and urban states. In such an environment there persisted, transformed, a unitary knowledge of the universe that was defended on many occasions through paradigmatic works, true political manifestos. It was still embraced by some Enlightenment encyclopaedists in the 18th century, but was soon supplanted by the impending science of the Industrial Revolution.

In Rome, in the former flats of the popes, there are several frescoes by Raphael. In a large room, called 'della segnatura', the private study and library of Julius II, scenes of considerable importance are depicted. As was the custom until the late Renaissance, the paintings had to be interpreted, as not all meanings were explicit. Today we are confronted with allegories that experienced art critics easily explain, while of others the meaning has been lost, and of yet others the meaning has gone to the grave with the author, since he did not even reveal it to the client. Having said this, it is possible to limit hypotheses to the indispensable and read what is clearly legible and interpretable.

First, let us set the time frame: the fresco work was commissioned around 1507 to the greatest painters of the time, who were joined in 1508 by the young Raphael. Then, for reasons we do not know, Julius II only wanted the Urbino painter and the works that had been started were destroyed to be replaced by

those we see today. On the reasons we can only speculate. One of them, for example, may be the crisis that the Church was going through, both from the point of view of the Faith and from the political-military point of view. An upheaval on a European scale was ripening, and triumphs were needed rather than tales. Raphael worked on the paintings as we see them today from 1508 to 1511. In 1510, if he had leaned out of the window, he would have seen Martin Luther, on a mission to Rome, kneeling in St Peter's Square, scandalised by the conduct of priests and the ostentatious wealth of the Church. Julius II was an appropriate pope for such a Church. More head of lordship than shepherd of the faithful, a warrior who did not disdain the fray, a politician who was not too subtle, a cultured humanist, he had great plans for renewal in every field. But he died in 1514 before seeing them fully realised. After the death of Julius II, the Church, deaf to the signals coming from within, insisted on commodifying its relationship with the faithful, for example by offering plenary indulgences to those who contributed to the building of the new St Peter's Basilica. The reference to the basilica then became secondary, but indulgences still had their own market. In 1517, the indignant Luther expounded his Theses, unleashing enormous social forces. He in fact reacted in a medieval spirit against the 'capitalist' Church, ending up representing instead a religiosity more in keeping with capitalism. Just as the Reformation did not begin with the exposition of the Lutheran Theses, so the Counter-Reformation did not wait for the Council of Trent to glorify the Church. Men were late in sanctioning what was already happening in everyday life. Julius II had been prescient in a sense: at war with the major powers of the time, he had ordered the destruction of works that supposedly recounted sacred episodes (such as the 15th century cycles on the walls of the Sistine Chapel), and had wanted in their place works that symbolically interpreted the glory of the Church and of himself. It was a colossal work: while Raphael frescoed the Vatican rooms, Michelangelo frescoed the ceiling of the Sistine Chapel, Bramante organised the building site of St. Peter's and the papal planners redesigned the appearance of Rome.

In the four Vatican rooms frescoed by Raphael there are various representations of Church events, for example miracles in the audience room or stories of Constantine in the room dedicated to the Christian emperor. But in Julius II's private study the traditional 'culture' of the Church is condensed through allegories representing it. The four walls show Theology, Philosophy, Jurisprudence and Poetry respectively. Not narrative, therefore, but symbolic abstraction.

The pope orders the four sources of knowledge to be brought together in a single cycle, in his studio, and the artist obeys. Syncretism is pushed, the unification of Renaissance knowledge with the ancient heritage seems perfect, pagan themes are made to fit as symbolism into Christian content. On one wall the apotheosis of the Church is depicted, on the opposite wall the apotheosis of human knowledge. On the other two walls face each other the cycle of Poetry

depicted as Parnassus (the mountain above the sacred city of Delphi, home of the Muses) and the cycle of Justice depicted through the Virtues. Overall, on three walls the symbolic references of pagan origin are overwhelming, but they are brought back into the Catholic vision by means of the glowing Triumph of the Church that looms over everything. Indeed, one could say that it is precisely the Christian triumph that needs its pagan antithesis to defeat, dominate and finally absorb it. Even the early Christians annulled the pagan temples and, with their stones, built the new great basilicas. In the plinth of the wall, with the Triumph of the Church, there is a cycle that reinforces syncretism: on the left is a pagan Sacrifice (paganism is now a thing of the past); in the centre is St. Augustine having a vision of a child on the seashore (wanting to understand the immense mystery of faith is like emptying the sea with a bucket); on the right is the Tiburtine Sibyl showing the Virgin to Augustus (the earthly empire had to give way to the Kingdom of Heaven).

Julius II could be satisfied, the Church's triumph was his own triumph. As a doctrinal precaution he had put a theologian on Raphael's tail. Not that he was sensitive to orthodoxy, quite the contrary. He was not a great scholar or philosopher, but he kept in touch with circles, even within the Church, through which he listened to humanistic works not always in line with Doctrine. Erasmus of Rotterdam recalls attending an oration in which the pope, who was present, was compared to Jupiter Optimus Maximus. Other observers note how he rewarded poets and tragedians for their somewhat too faithful imitation of the classics of paganism.

The Great Synthesis

Let us turn our attention to the two large opposing walls, where the Dispute of the Sacrament and the School of Athens (Theology and Philosophy) face each other. The first fresco is divided into two distinct parts: the Church Triumphant in the upper part, and the Church Militant in the lower part. The latter representation, critics say, is an actual Council taking place with animated discussions. Why a Council surmounted by a triumph in the heavens? The tongue bites where the tooth hurts, and the themes could not be 'free' at a crucial time for the Church. Certainly a pope like Julius II ordered the subject and mode of representation. The theologian and Raphael complied. The former merely took care that the prevailing Neo-Platonism did not distort orthodoxy, the latter cleverly camouflaged his own Neo-Platonism. With the Counter-Reformation, all this would disappear and the triumph of the Church would be evoked with apotheosis alone: tangles of gods, angels and saints, highly animated in form, glacial in substance.

That Raphael put his own spin on it seems confirmed by an analysis of the remaining preparatory drawings. In fact, in spite of the papal intent, in Raphael's fresco the world of the spirit is decisively separated from that of matter. Between

the one and the other, the painter has interposed a strange cloud, a kind of concrete barrier in which swarms of putti are kneaded. Paradise is populated by saints, hieratic beings of an unnatural coldness, while Earth is swarming with flesh and blood men, moreover portrayed from life starting with the pope and some of his family members. Raphael could not paint clouds? In his other paintings they are soft and fluffy. By separating Heaven from Earth Raphael was able to represent a Great Synthesis dedicated to the Earth of Man.

The world of secular knowledge, so to speak, is represented in dichotomy to that of divine knowledge. It is definitely another universe. Thus in the artist's pictorial plan, two separations are indispensable to achieve unification: the first within the world of the Church, between Heaven and Earth; the second between Church and society. The characters of the militant Church talk to each other and only one works, the scribe; the characters of the School of Athens do, and they are all portrayed while carrying out an activity or participating in it. The greatest expressive power is dedicated to them. Under a single architecture that could be the Temple of Philosophy of the Neo-Platonist Ficino, not only knowledge but also time is unified, since philosophers and scientists from every era are portrayed, to which the seven 'liberal arts', grammar, rhetoric, dialectic, arithmetic, music, geometry and astronomy, are mixed.

In painting the School of Athens, the artist had therefore taken some liberties, tolerated or not taken by a pontiff who was very busy with other matters. After all, Michelangelo himself had allowed himself a few transgressions when working on the Sistine Chapel. And so did Pontormo at San Lorenzo in Florence. It was quite usual. Even in the Middle Ages, when there was a greater risk, in many churches frescoed between the 14th and 15th centuries painters in the odour of heresy had sneaked in non-canonical representations, especially in northern Italy. Even the title given a posteriori to Raphael's great painting of the 'philosophers' is arbitrary. It is important to emphasise that it does not actually depict the 'School of Athens' at all, but an allegory of overall human knowledge within an ancient-classical framework. The temple that encloses the crowd of characters, often portrayed with the likenesses of their contemporaries to signify a unity in time, is reminiscent of the basilica of Maxentius and is adorned with statues and bas-reliefs of some pagan divinities (Apollo and Minerva with their symbologies being prominent). In the centre are Plato (portrayed in the guise of Leonardo) and Aristotle (Sangallo), and all around are representatives of accumulated knowledge: Heraclitus (Michelangelo), Socrates, Diogenes, Alexander the Great, Xenophon, Alcibiades, Dionysus (in an Orphic ritual scene, complete with the symbolism of metempsychosis), Pythagoras with his son Telauges, Averroes, Boethius, Plotinus, Euclid (Bramante), Zoroaster, Xenophon, Claudius Ptolemy (holding an orb), Apelles (Raphael), Protagoras (Perugino), Parmenides.

According to some, it would even depict the Alexandrian mathematician Hypatia, a pagan martyr, torn to pieces by the Christians, portrayed in the likeness - if true, that would be the last straw - of Francesco Maria della Rovere, a young nephew of Julius II. Many critics disagree with the hypothesis that Hypatia could have been portrayed also because she appears twice, on the 'Scuola' and the 'Disputa', and it would have been extremely reckless to include an antithesis to Christianity in the apotheosis of the Church. Moreover, a character appearing in paintings that confront each other can only be a trait d'union between them. Generally accepted is the hypothesis that, being the only female figure in the midst of a crowd of men, and being the only one who, with the artist's self-portrait, looks at the observer, she represents beauty-goodness (kalòs kai agathòs). In the sphere of Greek knowledge, this binomial had a profound meaning: what is good is also beautiful, meaning by 'good' knowledge, valour in battle, discernment between the true and the false. Kalokagathia is thus the principle that, in the ideal Hellenic man, unites the qualities of perfection, unites the ethical sphere with the aesthetic sphere, on which artistic production must also depend. Neo-Platonism had inherited this principle. Dante also appears twice, in the 'Disputa' and the 'Parnassus', and this too is certainly an important sign of unification. But let us stop here.

In the late Middle Ages, the previous single theocratic thought had been broken up and various branches of knowledge had begun to separate, to autonomise. But the Renaissance that followed was also the era of the man of global knowledge, the prototype, albeit still elitist, of the complete man described by Marx. He was certainly not biologically different from the capitalist man, but he was immersed in a different society that could churn out hundreds. And he did not need so many academies to mature quickly: Raphael began to have his first important commissions at the age of 17, began frescoing the papal flats at 25, and by 30 was at the head of the most important workshop in Rome, producing paintings in series and trying his hand at architecture, so much so that on the death of Bramante he was appointed head of the St Peter's building site with Giuliano da Sangallo (1514).

Continuous and discreet in the theory of knowledge

The union of ancient and Renaissance knowledge was encouraged by the Church, which transcribed what remained of papyri and parchments over the centuries for its own benefit. It was a colossal work and artists celebrated it by rediscovering pagan classicism. Art is language and language is a means of production in every society: without information transmitted through language, of whatever kind, no human activity would be possible. Humanity cannot do without the unification of knowledge, especially in phase transitions, and the Renaissance was material bourgeois transition three centuries before the political transition. Neither can capitalism, which also thrives on separation, on discretisation into saleable objects as commodities, renounce the connection

between the spheres of knowledge. We are once again in an era of transition and this unifying phenomenon is bound to manifest itself with increasing evidence. It is no coincidence that a 'Third Culture' is exploding in the United States, the country that embodies the globalised and ferocious imperialist capitalism of our times.

Humanity progresses when it solves problems, circumvents cliffs and breaks down barriers. On its path from original communism to developed communism, through the class societies within which we are still immersed, it has overcome many obstacles. The ruling classes from time to time were forced to relentlessly revolutionise the social forms of which they were the expression, and when philosophy and science were still the same thing, they laid the foundations for future knowledge. The interlude characterised by specialised and separate disciplines is like that characterised by the existence of classes: transitory. Whenever the ruling classes, instead of accelerating the processes of knowledge (and social productive force), came to hinder them, they were swept away by a revolution.

Isn't the listing of different classes, categories or words the historical basis of language and knowledge? The discretisation of knowledge is an ancient problem that mankind has tried to solve without succeeding so far. For three or four millennia, man has been abstracting, formalising, calculating, but continues to have the impression that the dichotomy between discrete and continuous is a kind of natural law, an insurmountable obstacle. Space, time, motion, magnetism, gravity, everything that is 'field' is continuous, while the material world as we have known it since we began to be human beings is made up of discrete objects, themselves made up of atoms, which the ancient Greeks had already hypothesised. And speaking of atoms, to complicate matters, an observation has intervened since the last century: in the sub-atomic world, the two properties coexist in the same particle. What's more: in a set of two particles, the variation of an observable property in one instantaneously influences the corresponding value assumed by the other, regardless of the distance at which they are located. How to scientifically describe such a property with discrete theories? So: wave or corpuscle? It is not known, but theoretical tools have been devised to get answers anyway. They 'work', but in the final analysis some questions remain: a single theory of knowledge should be approached from the unifying point of view of the continuous, but how can this be reconciled with the necessary taxonomy of subjects that was the embryo of the separation by disciplines?

When the industrial revolution explodes, it becomes obvious for the bourgeoisie to put fundamental questions on the back burner in order to focus on the physicality of the tools of production. But the very necessities of the latter ultimately force the development of theory, the discovery of laws, etc., so the dualities must be addressed anyway. And since they seem to exist in nature and

generate unassailable paradoxes, they might as well be included in class theory and welcomed into mainstream thought. It is precisely in the area of thought that the primary duality arises (or resurfaces), from which all others descend: thought and matter would be two different and non-comparable things. There would even be a duality between brain and mind, ultimately between man and nature, as if man were not part of the latter. From here to justifying the separation of knowledge into specialised academies, the step is short. The humanistic ones become reservoirs of ideology for the ruling class, the technical-scientific ones instrumental reservoirs in the service of accumulation. Croce and Gentile are just two of many who embody this fact. So much for the Renaissance man.

In a complex society such as capitalism, which for its own functioning in any case needs to concatenate equally complex knowledge, dualism between 'cultures' becomes a hindrance at a certain point. It is in this context that the fatal paradox develops: society entrusts its essential functioning, i.e. the guarantee of a regular and technically advanced flow of production, to a social sphere made up of technicians, scientists and generally of problem solvers, whether theoretical or practical. And it entrusts the political functioning, i.e. the control of the whole of society, from schools to production, to a social sphere that knows nothing about what it is called upon to 'govern'. If we think that control means responsibility over matters such as the use of atomic energy or genetic handling, we realise how dangerous it is for the species to continue along this path. A writer may know nothing about how the differential of his car works without being ashamed of it, but an engineer makes a fool of himself if he has not read a famous book. As we shall see, the bourgeoisie itself perceives the contradiction, but is powerless to remedy it.

Every social form that has succeeded so far has produced its own revolutionary antithesis, and capitalism is no exception. Firstly it has produced the theory of revolution leading to its overcoming and the future society, but it has also produced within itself anticipations of that society. The overcoming of dualisms, the absurdity of which the bourgeoisie admits, is an anticipation, something that is no longer part of the dominant ideology, which is why the bourgeoisie itself fails to do anything to overcome them. Marx deals with this early on. In the German Ideology and other writings he highlights the backwardness of German philosophy and the conflict between the pure affabulation on which it is based and the powerful advent of coal, steam, steel, telegraph and railways. The language of revolution no longer consists of beautiful phrases without empirical content, but in the real dynamics of change, which must be understood and described by identifying its laws, the paths it took and those to come. The bourgeoisie could not understand the advent of the man-industry as described by Marx: it could only understand the worker-industry and its saleable labour-power. But to lower its philosophy to that level would have been to vulgarise it, so it left it in the empyrean in which it

found itself and denied it any contact with the productive/reproductive reality of human society.

Dualisms a go-go

Marx was educated in the traditional school, but throughout his life he fed on everything that human society produces in every field. His primary source, besides the many books he buys, is the boundless library of the British Museum. We know all about his reading, the lists are published. He was omnivorous and tireless. Knowledge, he observed, does not proceed by separations but by connections and fusions. It is only for elementary needs of classification that knowledge is divided, categorised, filed. In the future, all oppositions will fall like rotten fruit: subjective/objective, matter/spirit, thought/action, life/death, consciousness/unconsciousness, continuous/discrete, and there will be only one science, that of man-industry-nature, an inseparable organic unity. All of these oppositions could fall away even immediately, if only we had the revolutionary possibility of abandoning ideology and placing ourselves in the perspective of the system of industry, i.e. the process of transforming matter existing in nature into products that serve man, mere utilities for use and not commodities. This man-nature relationship is obviously degenerated in capitalism, but will be revolutionised and enhanced in communism. This relationship is physical, not ideological. Man is part of nature, he never detaches himself from it even when he subdues and rapes it with his machines, with their productive and destructive power. Dualisms cannot be resolved from within the dualistic system. In order to do so, it is necessary to go to a higher power system. Such a system does not yet exist, at least as the dominant mode of production, so it is necessary to locate some sage of it, to get on the side of non-dualism. Marx says: *'Dualisms cannot be dissolved at the level of thought, of philosophy alone. They must be filtered through the practical energy of man'*.

Man's practical energy is by syllogism nature's practical energy. Man does not subjugate nature at all, as people keep saying. It is nature that has produced man and through man transforms its matter, produces, memorises, learns, knows itself. That of knowledge is not a problem of thought, mind or something like that, but of living activity. So if there is no dichotomy between man and nature, why should there be one between man and man? It is another opposition that falls away. Unified knowledge goes hand in hand with classless society, so the current separateness between man and man will no longer make sense, let alone that between worker and capitalist or even between humanist and scientist. Human production/reproduction occurs through the transformation of matter and consumption of energy. Where is the place of the capitalist in a system of energy exchange? And what role can 'pure thought' philosophy ever play in such a context? Obviously the bourgeois regime will disappear sooner than the class struggle and the ideology of separateness. In this sense, the 'dictatorship of the proletariat' will have a lot of work to do. Revolution is a

physical fact, potential energy is accumulated until the conditions of the phase transition are produced, during which kinetic energy is unleashed. Philosophy is not up to a change of this magnitude.

Even dualisms are resolved through the practical application of energy by man. This is a powerful proposition that has roots far back, for example in Marx's student letter to his father, 1837, when he was 19 years old. We have already used it elsewhere, but it is worth glossing it for the part that interests us here.

'In the concrete expression of the living world of thought - as in law, in the state, in nature, in the whole of philosophy - the object itself must be silently spied on in its development, no arbitrary subdivisions must be introduced, the reason for the thing itself must unfold as something in itself conflicting and find its unity in itself... The error lay in believing that one thing could and should unfold separately from the other, and in my thus obtaining not an authentic form, but a filing cabinet, in which I then scattered sand.'

Here, the student realises that in the philosophy of law, as in all spheres of knowledge, the boxing in of categories kept separate prevents one from seeing the whole. He mentions the idealism of Kant and Fichte, youthful models now outdated and replaced by a vague materialism: the idea is a product of reality, it is not in Heaven but on Earth. He says he read Hegel a first time and points out that his 'grotesque rocky melody' did not appeal to him. He studies the science of nature (Schelling) and history, producing a manuscript, which has been lost, *'in which art and science, which had previously been completely separated, were united to a certain extent'*. He devoted himself to the positive sciences, i.e. non-speculative works (perhaps taking up the term of Saint-Simon, who used it for mathematics and the natural sciences). *'Out of the burning rage of having to take as my idol a conception invisible to me, I fell ill'*. What the invisible conception was, he does not make clear. Perhaps the philosophy of law? As a sick person, he reads *'from beginning to end Hegel together with most of his disciples'*. He quickly burns through stages with no outlet:

'In the discussions many conflicting opinions arose, and I bound myself more and more firmly to the actual philosophy of the world, from which I had thought of escaping: but all harmony had fallen silent, and I was seized by a real eagerness for irony, as was very easy to be after so many things denied. I could not rest until I had caught up and reached the point of the present scientific conception.'

So he had tried to escape the contemporary philosophy of the world at the same time that he was attracted to it. The unitary harmony he had arrived at had become muted so he had to get back on track. How? By mocking the new

philosophers and catching up with contemporary scientific thinking. It is a pity he does not tell us more about the scientific sources, but we find them in the bibliography of his works. What is clear, however, is the 'promise' that will later be fulfilled with *The German Ideology*, *The Holy Family* and *The Poverty of Philosophy*. Probably by '*current scientific conception*' Marx means something more comprehensive than that of his contemporaries. Knowing that he favoured dynamics instead of fixed, embedded categories, we venture that he meant the material history that led to the science of his time. Bacon, Galileo and Descartes were the ancestors of Saint-Simon and, forcing a bit, of Feuerbach. The science of 1837 was perhaps more in tune with Comte's philosophy than Hegel's. Marx positivist, then? But no, that is the stupid conclusion reached by some of today's leftists who criticise him as more scientist than philosopher, too little Hegelian (assuming, of course, that Marx was Hegelian, even a little). Comte had collaborated with Saint-Simon for seven years and his first essay on positivism was published in 1830, i.e. well before Marx wrote his letter to his father. Marx knew both Saint-Simon and Comte very well, but it turns out that he had studied the latter very late:

'Now, in my spare time, I also study Comte because the English and French make so much fuss about this gentleman. What is attractive in him is the encyclopaedic, the synthesis. But it is a poor thing compared to Hegel (although Comte as a mathematician and physicist by profession is superior to him in detail, but when it comes to the gist, Hegel infinitely surpasses him even in this). And to say that this shitty positivism appeared in 1832!' (Marx, letter to Engels, 7 July 1866).

Comte's philosophy could not have received more attention from Marx than this. But the static, dichotomous conception of knowledge always disturbed him. When in 1869 Thomas Huxley published a famous article entitled *Around the Physical Basis of Life*, containing a scathing judgement on positivism, Marx remarked: '*it contains almost nothing except the joke about Comtism*'. Yet it was a stance in favour of a materialistic conception of evolution against creationism. He evidently felt that '*the joke on comtism*' was more noteworthy. Huxley had written that comtist materialism was like Catholicism without Christianity, and of course the positivists were furious. Marx cared little that they were both materialists, that they both put the positive sciences at the basis of knowledge. He studied them with interest, noted that Comte theorised a 'social physics' and that Huxley placed physical processes at the basis of life, but could not accept that there was a philosophical-scientific level independent of social relations, as if science and philosophy were other worlds than the man-industry described in 1844.

Marx was not a philosopher but a scientist of revolution. Conceiving the world as a dynamic system of relations certainly meant overcoming positivist encyclopaedias; but describing the system of relations between man and nature

(i.e. between different aspects of nature) on a practical, non-philosophical material level also meant overcoming Hegel. Understanding the history of knowledge meant projecting it into the future mode of production. If it is true that *'the history of industry insofar as it is connected with the history of man has been relegated to a mere relation of utility'*, and that this relation must therefore be overthrown in order to rediscover the true history of man, it is also true that the same operation can and must be done with all philosophy. To go beyond this mode of production meant going beyond all Comte on the scientific level and all Hegel on the philosophical level. Nature is not the seat of man's spirit, nor is it a mere reservoir from which man can draw coal, grain, iron, oil, cotton, timber, etc. There is no nature, man and spirit as autonomous entities, there is nature acting and thinking through itself, i.e. through man. Hegel and Comte (and all idealism and all positivism) had been necessary steps, rungs of a ladder. Overcoming and denying what they represented meant breaking down another barrier, another dichotomy that prevented progress towards the unique and powerful science of man and nature. Engels read:

'The science of nature and philosophy have so far completely neglected the influence of man's activity on his thinking; they only know nature on the one hand, thinking on the other. But precisely the transformation of nature by man, not nature as such alone, is the essential and closest foundation of human thought. And in the way man learnt to transform nature, in his relationship with nature, his intelligence grew' (Dialectics of Nature).

There is a serious epistemological error in the usual man/nature dichotomy. This error, the structure of which is the source of all logical paradoxes, is also the victim of the current movement that is linked to revolutionary theory. One cannot confuse logical types, as Bertrand Russell called them. That is, one cannot speak of sets that belong to themselves. From the paradox of Epimenides (of the Cretan who says he is a liar) to that of the solipsist who claims to observe nature from the outside while being part of it, there has always been a flourishing of unresolvable propositions. Even vulgar Marxology churns them out: if in a given mode of production the dominant ideology can only be that of the ruling class, if we are therefore still dominated by bourgeois ideology, where does the theory of revolution based on the end of ideologies come from? Marx brilliantly solves the logical problem: it is society itself that generates its own antithesis (we extend: the party of revolution) with a real movement of transformation that abandons ideology. Communism is outside capitalism, even if it begins to manifest itself in it. Anyone who claims to change the world by staying within capitalism with all its logical categories is a failure from the start. Not by his inability, but by mathematical law. This also applies to those who pretend to separate what is united by putting its parts in a simple relationship, only then to speak of it as a hierarchical whole, with Man (capital letters!) at the head of the pyramid and Nature at his service:

'For a pedantic professor, man's relations with nature are from the beginning not practical relations, that is, relations based on action, but theoretical relations... Man stands in relation to the things of the external world as means for the satisfaction of his needs. But men do not begin at all 'to stand in this theoretical relation with things of the external world'. Men begin, like any animal, to eat, drink, etc., and thus not to 'stand' in a relationship, but to behave actively, to take possession of certain things of the external world through action and thus to satisfy their need. They thus begin with production... At a certain stage of evolution, when needs and the activities to satisfy them have multiplied and developed further, men will name whole classes of these things that experience has taught them to distinguish from the rest of the external world... What repeated verification has made experience... is already a necessary precondition for the existence of language' (Adolph Wagner's Handbook of Political Economy, italics in the original).

The last triumph of non-knowledge

Our historical current has had to struggle against obstacles of all kinds, but the hardest bone has certainly been that of the anti-scientific tradition of the late Italian bourgeoisie. And to think that this is the country where the bourgeoisie was born and with it modern science. Dante was still a boy when in Florence, Bologna, Venice and other cities, textiles were being worked with perfected machines that were already replacing men and causing riots. The deadly decadence of the world's oldest bourgeoisie manifests itself in the fierce defence of concepts that are being abandoned in the rest of the world. Not that there is a substantial difference, in the various parts of the world, between the ideas that serve to maintain class domination, but in Italy there is still a sclerotic repertoire that is less influential elsewhere. Benedetto Croce was one of the exponents of the academic pedantry of which Marx speaks. The world of the interaction between human action and knowledge in Croce is reversed. Whereas everywhere the spheres of production massively determine the discovery of underlying laws and thus the development of theory, in conservative philosophy the energetic exchange between man and nature is not taken into account: scientific knowledge is nothing compared to 'humanistic' knowledge, there is only a utilitarian relationship between the two, since the late humanist merely resorts to science as one would resort to a recipe book or instruction manual.

Industry thus becomes the Cinderella of the bourgeois 'system of thought'. This is a tremendous contradiction because industry is actually the mainstay of the capitalist system based on the exploitation of wage labour. It is significant how easily between the two world wars the anti-scientific conception of society became the official one, transmitted in schools, the sap of fascism, which in itself is completely a-ideological. The regime's schools emphasised the contradiction: fascism was (is) the 'dialectical realiser of reformist instances' and flaunted

industrial progressivism; it was supposed to sweep away the academic old age, as the futurists demanded, and instead consolidated it, incorporating the intellectuality of the time into its hierarchies under the leadership of Giovanni Gentile, heir to Benedetto Croce. Strictly speaking, fascism, given that on the historical scale it came after democracy, should have been the reformist bridge to the new society, the representative of an '18 Brumaio' against which the Old Mole would have hurled himself in all his might. But his populist premises were short-lived. The flaccid Italian bourgeoisie reduced the fascist movement to a freak show, thus giving rise to the specular phenomenon of whining and mercenary anti-fascism (which was joined by the heirs of Gramsci, in turn the heirs of Croce and Gentile. Cf. Christian Riechers).

We live in a world that is a remnant of the past despite the great influence of industry on society. We live in a world in which general knowledge about the phenomena of nature is objectively increasing, we investigate the structure of matter by splitting atoms, finding new particles, revealing the molecular basis of life, etc. We do indeed accumulate an enormous amount of knowledge, but its quality is low because the criterion of dualism between observer-man and observed-nature still prevails in our approach to nature, despite the fact that modern physics itself has shown us that this dualism is utter nonsense. We live in a world that sees an enormous increase in knowledge relating to material and design work because everything around us is the result of design, of conscious working, of scientific predictions with respect to the result, but strangely we do not realise that all this is not reflected in an equally effective capacity for social design, indeed, from this point of view we are at the level of the Darwinian jungle. The 'world of thought' continues undaunted in its affabulation around 'concepts' and in relegating immense scientific knowledge to the Crocian recipe book.

The survival of philosophy understood as questionable thought, as an immaterial secretion of some over-endowed brain, pins knowledge each in its own sphere, prevents unification and reinforces both the individual separations and the maximum separation that is that between the 'humanistic' sphere and that of the 'positive sciences'. Reality takes revenge on every epistemological error even if the social consequences are not immediately apparent: if philosophy has done without industry and industry has done without philosophy, it is certain that capitalism cannot do without industry, while it can do very well without philosophy. One has never heard of a philosopher from the height of the bourgeois era who had the need to know what a factory really was. Yet the factory is the heart of their system. Let the reader take the time to read the powerful Industry entry written by Diderot in the *Encyclopédie*, the manifesto of the bourgeois revolution, to compare with today and see for himself what degree of degeneration this dying society has reached. The current revolution has not only rendered superfluous the function - and therefore the existence - of Capital and the capitalist, but also that of the theoretical system generated by them.

In Italy, there is an association called 'Fabbrica filosofica' that claims to be interdisciplinary and aimed at the world of work. One would at least expect a simple interaction between philosophy and the factory, but here is what they write on their website presentation:

'To study, design, experiment the effects of philosophical knowledge on working realities and work culture. To support and collaborate in experimentations, projects, educational, training and didactic initiatives based on the application of philosophical methodologies, methods and paradigms. Promote the encounter and 'good contamination' between philosophical knowledge and other humanistic and scientific disciplines. To promote the diffusion and dissemination of applied philosophy and philosophical counselling on the national and European territory. To stimulate cooperation and confrontation between philosophers, counsellors, scholars, Italian and foreign professionals through the organisation of congresses, seminars, study days. To collaborate and network with organisations, companies, public and private institutions whose aims and ethical and cultural guidelines it shares'.

As we can see, in the philosophers' conception it is philosophy that enlightens the rest of the world, that offers tiramisu (counsellor does not mean advisor or counsellor) and spin-offs on the "work culture" (an Aristotelian press? a Kantian assembly line? a Hegelian milling machine? a Crocian lathe?). The reversal from reality continues to be total. It is not the world of human activity, of material production, that influences philosophical thought but, on the contrary, it is philosophical thought that from above the heavens would like to infuse knowledge, philosophy applied (what could it be?) to the Earth. On the one hand there is the Word, on the other hand there is the real philosophy of production, this one tied hand in glove with the factory: the philosophy of profit and money. After all, beyond the more or less successful advertising formulas, consultancy is paid for, the philosophy of the 'humanistic factory' is circulated as a commodity.

Our materialistic classificatory ladder is simpler than the ideological one: at the base there is nature; within it, and not in separate relation to it, there is man, understood as a species together with the other species of the animal and plant world; in this unique whole, the various components of nature relate to each other, react to each other, transform and change. It is in this whole that the industry of man develops, which produces language, which produces information, further development of industry, dynamics of social forms, etc. If the industry of the chipped stone comes before language and rationalisation, classification, memory, knowledge, what sense does it make, at the end of the cycle, in the age of computers, networks and the bionic social brain, to overthrow the order and put thought first, in place of nature and industry?

Part Two

Logical positivism and other currents

Was it plausible that in today's capitalist society, with the attained development of the social productive force and the need for massive recourse to scientific discoveries, the separateness of knowledge would persist to the horizon? The answer is evidently: no. The old unitary world conception could only become modern unitary world conception, both in the revolutionary and in the bourgeois sense. Leaving aside the areas that we can very roughly trace back to the New Age phenomenon, with its metaphysical holism, which we will not deal with here, the Third Culture was preceded by another current that aimed at the unification of knowledge under the banner of science, and which took its cue from so-called logical positivism (or neo-positivism). Since, however, we have set out to follow the emergence of atypical phenomena from material drives rather than the evolution of philosophy as such, we will only touch on the subject insofar as it is useful to the general discourse. As we can see, a simple introduction to the subject has already required us to bring up three very different modern phenomena that relate to the unification of knowledge: the Third Culture movement, the spread of what we might call neo-paganism, and the philosophical current of neo-positivism. They are not the only ones, and unification not only concerns a 'proposal' for branches of knowledge, but also a 'verification' that is to be drawn from numerous facts, such as the Gaia Hypothesis that seeks to explain our planet as a single living being; or, in the field of physics, the research oriented towards a Grand Unification Theory (GUT) and a Theory of Everything (union of the three fundamental forces within matter and the union between these and gravitation).

We will briefly mention the neo-positivist movement in order to note the difference between the European-style philosophical approach and the American-style empirical-pragmatist approach. This movement has a date of birth, 1928, although in that year it was simply sanctioned as a variant within the vast positivist current, which was no longer considered up to the new scientific discoveries. In 1928, precisely, a number of philosophers, mathematicians, psychologists, sociologists, physicists and logicians came together in what became known as the Vienna Circle. The aim of the sodality was the unification of all human knowledge by means of the positive sciences (we have seen that this expression was coined by Saint-Simon, taken up by Marx and consolidated by Comte) so that a 'scientific world view' would spread. The circle considered that traditional philosophy was largely based on metaphysics, since it expressed mostly concepts without empirical meaning. It did not criticise its reliance on emotionally grounded propositions, but the simulation of non-existent theoretical content.

The circle was successful and soon spread to Germany and other countries, co-ordinating around an official journal, *Erkenntnis* (knowledge, cognition), and strove towards the ambitious project of an International encyclopaedia of unified science. The work programme of the current was avowedly anti-metaphysical. It inherited from 19th-century positivism the pre-eminent role of the positive sciences (natural, exact, experimental, etc.) in the dynamics of knowledge formation, and at the same time criticised their limitations, due, according to the members of the Circle, to a lack of logic, the lack of systematic recourse to the primary function of mathematics, and the inability to outline a scientific methodology based on the structures that science itself had given itself. Neo-positivism, which was banned in the Third Reich (its main exponent was killed in an assassination attempt) spread abroad but died out fairly soon, mainly due to some implicit contradictions. Wanting to demonstrate the epistemological failure of previous philosophy, it behaved no more and no less like a philosophy. And basing everything on logic helps explain many things but not logic itself. Moreover, the mathematical logic of those days was being replaced by the fuzzy logic of chaotic and complex systems, that of phase transitions, catastrophes, feedbacks producing non-linear effects.

With neo-positivism, philosophy therefore turns in on itself, and dies for good. It is not that philosophers or schools of philosophy have disappeared, but today, and we will see this in more detail later, even those who call themselves philosophers are forced to give up philosophy and talk about science. While scientists discuss their subject matter by referring to a theory of knowledge, that used to be philosophy.

Scientists in the second half of the 19th century were beginning to make discoveries that required far more complex explanations than what had hitherto been considered satisfactory. Einstein's theory of relativity shocked the world of science and knowledge, but it has its roots in the observations of Mach, Poincaré and others, the same ones who, consciously or unconsciously, were the pillars of positivist scientism. Field theory, non-Euclidean geometry, quantum mechanics, etc. posed problems that seemed philosophical until one understood them and became for that very reason a new quest for empirical knowledge. This is true throughout human history, but in the last one hundred and fifty years there has been an impressive qualitative leap. And more so in the last half-century. It was simply not possible for the structure of human knowledge to remain as it once was. However caged by an economic-social form that curbs any further development, it retaliates by producing its own spokesmen. And it finds them not among academics, but among those who are looked down upon by academics.

Take the so-called information sciences. They are unifying in themselves but could not have been developed without a body of knowledge that was itself unifying. The need for information science arose from very different contexts,

starting with the need for a transmitted signal to reach its destination without being cancelled out by interference. The theory was born to improve communications via electrical signals, but it soon proved to be universal in scope. Even when we talk to someone, we unconsciously implement the contents of said theory, and the same applies to every data transmission, every encoding or decoding, even the amount of information an observer receives when looking at a Raphael painting. In the world of communication, computation and data processing in general, this universal theory becomes one of the keys to social life, the controlling element of the collective brain. Just understanding what is happening should make us aware of what it means to leave the world in the hands of Capital and its representatives. Good for us that the bourgeoisie is Darwinian, allowing itself to evolve/involve, without a plan, influenced by factors entirely 'external' to it, incapable of planning control, just as it is incapable of planning the economy.

The paradox is extreme: as the unification of knowledge looms and men begin to become so aware of it that they want to overcome the dichotomy between the prevailing 'two cultures', the 'third culture' is born. People who, on paper, would like only one, end up with three, of which the additional one they made with their own hands.

Genesis of the Third Culture

In 1959, Charles Percy Snow, an English chemist who also dabbled in writing novels, published a provocative pamphlet entitled *The Two Cultures*. Provocative, because he accused the literati of monopolising 'culture' to the detriment of scientists, who of course were forced to respond in kind by ignoring literature. The heavens opened: he was accused of being, as a man of letters, a parvenu of the lowest order, and as a scientist, an individual who reduced the richness of human life to formulas and measures, who made an apologia for exaggerated consumerism and machismo, without taking into account the brutalisation of mankind, and things like that. We would not care about a diatribe on these levels if it did not arise from the bourgeois system's tremendous contradiction of dualisms, separations, specialisations, functional to the law of profit.

In fact, 'debate' on such issues is absurd and pointless. The profound reality is not changed simply by someone discussing it, it takes a revolution to overthrow such a powerful fact as the technical and social division of labour. But it is important that the party of revolution (today in the historical sense, certainly not the formal one) arms itself in this respect as well. We have in the preceding pages followed a path that shows us that the dichotomy between 'humanism' and 'positive sciences' is an epistemological and not an ontological problem, inherent to the social sphere and not to the intrinsic characters of the two spheres of knowledge. There is no reason for this separateness outside the

social form in which it is produced because of the ideology that dominates it. The proof lies in the fact that when it is really necessary for the world of production and profit to arrive at certain results, the recomposition of knowledge reappears as if by magic. In the years around the time Snow wrote his pamphlet, the scientific world was now obliged to take interdisciplinary paths, scientific publications were coming out of the specialist ghetto, even if, under the pretext of popularisation, they resorted more to sensationalism and wonder than to theory. The various spheres of art were not exempt, and the mass phenomenon of science fiction exploded, where fiction was in any case based on real or supposed scientific foundations.

The world war had forced the massive recourse to groups of experts gathered around a problem to solve it, one need only recall the American atomic team of the Manhattan project at Los Alamos, the British decryption group of the Ultra project, the Russian and American groups that developed linear programming. After the war, think tanks (literally: reservoirs of thought) continued to be used, which became all-encompassing compared to the still specialised think tanks of the wartime period. Immediately after the war, for example, the Rand Corporation (Research And Development) was founded, which today brings together 1,700 experts from all disciplines. More recently, a multidisciplinary (hence not only interdisciplinary) scientific community was born in the United States, the Santa Fe Institute, which has set itself the goal of studying phenomena concerning 'complex adaptive systems, physical, informational, biological, economic and social'; for us almost a paradigm of the push towards the unification of knowledge, which we often cite together with the book that illustrates its history (Waldrop).

In a capitalist regime, it is evident that the so-called third culture will flank the other two (or more) without replacing them at all. But the questions it raises, at least in those who ask themselves from the point of view of the future society, are fundamental. Why has the unitary conception of the universe given way to a fragmentation, progressive to the point of dichotomy, between 'cultures'? Why does the need, however isolated, for a return to the unitary conception emerge in spite of everything? Is it only a question of practical scientific results to be achieved or is there something more? In a complex world, specialisation is indispensable, as is to some extent the technical division of labour. After all, it is clear that humans are different from one another and tend to use their skills in the fields where they perform best. Differences are in themselves an advantage for the species: as individuals communicate, they exchange differences, increasing their own and the species' knowledge. This does not invalidate the principle that in the future society any division of labour between humans will tend to be overcome. The black beast for revolutionaries is the social division of labour. It will necessarily disappear from future society, since it is a defining characteristic of class-divided societies, especially the latter we are currently experiencing. But it is there now, and it is fundamental to

bourgeois preservation. The need for the current mode of production to perpetuate the social division of labour is reflected in the impossibility of having a unified vision of the universe, in the impossibility of going beyond the 'reservoir of ideas'. Interdisciplinary or even multidisciplinary, but always an island in the sea of separateness between knowledge.

The stimulus for a 'third culture' therefore arose in the intellectual environment of Europe, where the 'two cultures' were (are) a heavy reality; but it is not at all strange that the pragmatic step towards social manifestations was taken in the United States. There, in the 1950s and 1960s, syncretic communities were born and developed, characterised by a more or less naive, more or less theorised rejection of the American way of life. The birth of beat, hipster, underground 'culture' was a mirror-image phenomenon with respect to the formation of containers of thought, a definition that is significant in itself. European thought would not let itself be canned like Campbell's tomato soup, it hovered too high above the factories. American capitalism was (is) less sophisticated than European capitalism. Something similarly less sophisticated had to develop in reaction to a super-exploitative and, moreover, reactionary society in the most boorish way, of which racism and McCarthyism were only two of the variants. This 'something' was compared by some Americans to the European Dadaist movement of forty years earlier. The comparison is not apt, but it is useful to record it, if only because both movements were a reaction to prevailing conformism.

The beat movement aroused disproportionate reactions with sadistic overkill, as a result of which poets, writers, musicians were persecuted by all means, resorting extensively to forced hospitalisation, electroshock treatments and drugs. Yet the movement was completely harmless, absolutely apolitical and not even very well known. It merely echoed some of the themes of the pre-war hipsters, who were a metropolitan (in cowboy country) way of rejecting conformity by practising black-white communion to the sound of a jazz now uprooted from its Afro-European origins. Nothing like this could have been born in Europe, where, if anything, the trend was copied, especially when, later on, hippy pacifism, the New Age area and, in other ways, the interesting situationist syncretic phenomenon were grafted on.

As Norman Mailer had noted, hipsters were members of living communities surrounded by atomic death, strangled by conformism, forced to divorce themselves from society, and therefore considered subversive. The reactionaries had renamed them beatniks after the launch of the Russian Sputnik in 1957, to emphasise that to them they were just dirty communists. Of course, beatniks didn't even think about communism, at least the 'official' kind, they were more attracted to jazz and infatuations such as Zen Buddhism, but in fact they were amoral and hated all religion as a vehicle for social violence. Their highest aspiration was to get out of this society by being cool, which in this case

does not mean 'cool' but 'awake', 'present'. As Allen Ginsberg wrote, they 'spread Supercommunist posters in Union Square' while shouting the sirens of atomic complexes to silence them. Supercommunists (capitalised) because they declared themselves beyond what was believed to be communism. They declared themselves to be poets in hatred of science (Jack Kerouac), but spoke and wrote of nothing else, producing the most distressing, precise, dreadful description of capitalism. Ginsberg's anthology Hydrogen Juke Box contains a poem, Scream, in which, visually, the Capital Machine shreds men. When it was read in public, the publisher was arrested and the author denounced. According to the 'wild' hipster Gregory Corso, they were not poets like the others, who spoke only of poetry and themselves. They were bards who talked about everything. That is why they had no place in the world but in prison they did.

This was, broadly speaking, the distant American background of the Third Culture. Some fifty years separate us from that era, in the meantime there has been the Vietnam War, the pacifist wave with tens of thousands of deserters and, using a term dear to Marx, the total subsumption of art to Capital. Not that it was any different before the war, say, but 'in the age of the technical reproducibility of art', it was inevitable that an art factory was born, in America, of course.

Andy Warhol was born in 1928. In the early 1950s, he had begun to produce images for industry, packaging, covers, advertising. Industrial graphics were being reproduced in thousands; so why, he said to himself, not apply serial production to so-called art as well? After all, Dürer and Rembrandt had also done it with etching. Warhol began to use screen printing to produce multiple works, no longer as a commercial artist but as a fine artist, which meant producing the same things as a famous painter instead of a craftsman. Since he was selling anyway, the success allowed him to make screen printing frames with the faster photographic technique instead of the manual one. By the end of the 1950s he had already exhibited in shows at major gallery owners in the States. In the 1960s, he explored other expressive techniques, even improving on that of sponsoring himself, for instance by using Coca Cola as a metaphor for democracy, or by filming a sleeping person for five hours with a fixed camera. Thus, in addition to being a painter, he became a sculptor, filmmaker, photographer, screenwriter, actor, director, producer and manager of his own art industry and, of course, capitalist. A Raphael of our time. And it is pointless to turn our noses up at the fact that at least Raphael knew how to paint. As Marx says, every age has the Raphael it can express (German Ideology), and after all, even the young Urbino produced Madonnas in series. In fact, Warhol managed to be one of the symbols of the era. He opened his workshop, filled it with artists and associates in various capacities and called it The Factory. It was not the antithesis of beat spontaneity, it was its rationalised and industrialised complement.

In Andy Warhol's universal factory there were numerous figures in the late 1960s who were dedicated to various artistic manifestations. Among others was a certain John Brockman, we do not know which discipline. It seems that he organised events and designed settings for large parties. We see him in a photo taken at the Factory premises with the host and Bob Dylan. In 1969 he wrote a book that was a total flop. He went into crisis and disappeared from public life for four years. It seemed as if his connection with books at that point would bog down, but it did not. Just as the art factory had taken hold, so the science communication factory took hold.

As a matter of course, the structure of our brain would not allow us to make a preference between the artistic and the scientific phenomenon. The division between 'cultures' is, physiologically speaking, nonsense, a social product. Our brain recognises signal conformations that it detects from the environment, and processes them by means of partly innate, partly acquired tools. As far as so-called art is concerned, it is obvious that the processing will be simpler in the face of a naturalistic figurative style and more complex in the face of an abstract work, with all the intermediate gradations that man has produced in his history. The accumulation, in our memory, of knowledge and, above all, of relations within the various branches of knowledge, modifies the capacity for observation, elaboration, synthesis, so that acquired knowledge modifies potential knowledge. Magnetic resonance imaging on the brains of volunteers has shown that the neurons in the dedicated areas are activated (regardless of whether one observes figurative or abstract art, works of art or science) depending on the state in which the subject's store of knowledge is. Mirror neurons are even activated indifferently with respect to the content of the object observed, and only when the subject identifies with the process of producing the object itself. In the latter case, an empathy is created between the artist or scientist and the subject enjoying the work of art or science. If our 'cultural' background was not ravaged by bourgeois ideology, we could enjoy looking at Raphael's Stanza della Segnatura and reading Galileo's *Dialogo sopra i due massimi sistemi del mondo* (Dialogue on the Two Chief World Systems) in the same way. For an ancient Greek it was like this: he could not conceive of beauty without the valuable content from which it sprang.

Commercial phenomenon?

Charles Percy Snow was obviously not listened to; indeed, his pamphlet was first attacked and then ignored. In the 1962 edition, he predicted that the separation of cultures could not last: the humanists, the literati, would at least be the spokesmen for science. It would not have been the unification of knowledge, but it would have been better than nothing. As can be imagined, nothing moved, at least on this level. Everyone quietly continued to do their jobs as the capitalist social division of labour dictated. Instead, something began to change on the scientific side. The increase in the complexity of knowledge, and

especially the interactions between disciplines, led to a considerable growth in the need for information and the consequent multiplication of scientific journals. This overabundance of information ended up making things worse in a field where there were already struggles between currents, careerism, impostures, etc. (a subject that would be interesting to explore separately on the subject of knowledge enslaved to an ideology). What was interesting and in some ways extraordinary was the invasion of science into the field of literature. No longer in the form of fiction more or less related to various disciplines, as had been the case with science fiction, but as quality popularisation.

Until then, the popularisation of science had been monopolised by journalists, more rarely specialised writers, who 'explained the achievements of science to the people'. With the appearance of disciplines that covered more fields, such as the study of chaotic phenomena, complexity, computer systems, fuzzy logic, neuroscience, cognitive processes, etc., the scientists who dealt with them could hardly write and publish summaries of their research in newspapers and magazines. So one way for scientists to share and disseminate the results of their research was to write books of their own.

Capitalism spoils and debases everything it touches and therefore will not see the resurgence of Renaissance man, not even as a caricature; however, being sensitive to the language of money, it tends to optimise profit even in the field of saleable knowledge. The old revolutionary synthesis of knowledge in every field is no longer possible, but what happens today is that the need for knowledge that is no longer broken down, discretised, therefore moves the interest of capital willing to invest in that sphere. And the diffusion on a social level inevitably involves the collective brain of the species. Capitalism shows us this phenomenon in the form of an extension of the star system, i.e. by employing paid bats like film stars who spread science, construct buildings, entertain masses in front of the TV on the most disparate topics: distant galaxies, buried civilisations or exotic quantum particles. But nevertheless, the social body has in fact evolved. It doesn't matter if in the style of the 'new barbarians' who delve into nothing and achieve important results only as a summation of innumerable nobodies.

Science fiction is a genre that has united literature and science. This union allows the writer, and above all the reader if he so wishes, to sketch out a social analysis. In the years of its greatest diffusion, the authors, almost all American, to produce a great deal made use of an expedient, admittedly unintentional and very unconscious: they took all the categories of this society, moved them into the future, into other worlds, sometimes into the past, and transformed, amplified, camouflaged them. A classic is Fredric Brown's *Absurd Universe*. Written in 1949, it tells of a character who is projected into one of an infinite number of parallel universes, in which the setting, protagonists and adventures are a faithful replica of the absurdities contained in the science fiction of the

time, including the iconography of the covers, with discreet space dames terrorised by horrifying monsters. Pretending to get rid of the everyday realism taken as a model, these craftsmen of the typewriter were in effect producing a parody of bourgeois society, sometimes going so far as to be deeply critical. We reviewed Philip Dick in our magazine for precisely such interesting aspects. The over-celebrated 2001: A Space Odyssey, Stanley Kubrik's film, tells of the man who, from the condition of a ridiculous 'naked ape' despite his powerful space hardware, is reborn to a new life after an encounter with the mystical monolith of knowledge. Another famous author, Robert Heinlein, oscillating between a reactionary militarism and a libertarian individualism, described, also in that era, the social determinism that led to catastrophe (The Year of the Diagram), the military collectivism that denied the individual and defeated alien-insects (Infantry of Space), the revolutionary organisations based on communist cells that fought against the Entity, an impersonal dominion (The Moon is a Harsh Teacher). Later - and the quote is famous - he wrote the apologia of the 'complete' man:

'A human being must be able to change a nappy, plan an invasion, slaughter a pig, pilot a ship, design a building, write a sonnet, keep accounts, build a wall, reduce a fracture, comfort the dying, take orders, give orders, collaborate, act alone, solve equations, analyse a new problem, collect manure, program a computer, cook a tasty meal, fight efficiently, die valiantly. Specialisation is good for insects' (Lazarus Long, the Immortal, 1973).

We do not pretend to see in it an overcoming of the social division of labour, but we are certainly not simply facing the rough cowboy of the Frontier who has to fend for himself against nature and the Indians. Other authors, such as Theodore Sturgeon (The Dreaming Crystals, More Than Human), investigate around collective psychologies, even imagining an evolution of mutants, individual cells of a collective super-organism, which our species brings into action when in danger.

Most significant of all is perhaps Alfred van Vogt's novel Cruise to Infinity, begun in 1939 and published in 1950: an immense exploration ship, named after Darwin's ship, has a crew of thousands of specialists whose activities are characterised by an exaggerated technical and social division of labour. This super-specialisation, which is necessary for in-depth knowledge, causes not only damage due to the separation of knowledge itself, but also social effects, i.e. clashes between crew members, coalitions and war-like events. The problem is well known, and so the designers of this mini-world have included among the crew members a scientist of a particular type, the connectivist, who is able, precisely, to establish connections and thus bring the separate disciplines back to functioning as a whole. Otherwise, given the enormous dangers of the voyage, humanity-crew could not survive. From the connectivism evoked in this novel, a

branch of the cyberpunk literary current and a pedagogical current with its own theory of learning have emerged.

Entertainment literary production is now, among capitalist activities, one of the most commercial, governed by rules aimed solely (and obviously) at making as much profit as possible. The best-seller is packaged according to these rules and even the author, willingly or unwillingly, has to adapt if he wants to sell. It must be said that authors adapt easily and willingly. To achieve the same result in science, it was necessary to theorise about a complete man, a social brain, behaviour compatible with the desired result and, of course, a connectivist. John Brockman was the right connectivist. He came from the artistic experience of the 1950s and 1960s, he had experimented with the art factory, he would make the science factory, that is, another form of art.

With the advance of the Third Culture (in place before they discovered it and called it that), it was inevitable that order had to be put between disciplines, to make them saleable. Take for example (and not by chance) a philosopher, Daniel Dennett. His book *Consciousness, What Is It?* deals with cybernetics, information theory, artificial intelligence, bioengineering, psychiatry and psychology, neuroscience. A comprehensive treatment could only be published in a book. A book of philosophy? Certainly not. A book on science? Neither: it is unthinkable to write and publish a 600-page book for a 'catchment area' of a few dozen colleagues. Whoever produces a commodity must be able to sell it, and the social brain (for goodness' sake, still purely capitalistic) takes care of the task: the author goes to an agent who finds a publisher, who "advises" the author to rewrite the book, after which the proof reader quietly slaughters the text, the graphic designer studies the aesthetics of the cover, marketing calculates the potential circulation, media reviewers make it known, the supermarket puts the book on the shelves. The scientist's book enters an industrial process and comes out as a commodity. Often with excellent results: as soon as it came out, Dennett's book sold 50,000 copies. The assembly line of the book and its contents had produced a volume that 'fit' not for super-specialised insects but for a lot of readers with differentiated neurons that are part of the collective brain of the species. Goods that disseminate knowledge? It sounds ridiculous, but another paradoxical opposition falls away: let's take away the commodity and see that all this capitalist crap is today's degenerate counterpart to the effect obtained by Galileo and his followers when they decided to write the *Dialogue Concerning the Two Chief World Systems* in the vernacular instead of Latin. Even if only 10,000 copies had been read and the other 40,000 had ended up figuring in American living rooms, the industry would have contributed to the formation of the social brain. What is actually 'behind' the assembly line just described?

Reality Club, Edge: window shopping

The aforementioned Brockman as a somewhat peculiar literary agent serves us as a paradigm. Before it occurs to him to dust off Snow's Third Culture, he has a story like that of many other stereotypical Americans. He comes up from nowhere, hangs out with the right people, for example in Andy Warhol's Factory, an environment that remains with him as an industry for the 'production of art', an expression that was once normal but is now an oxymoron. For several years he did not find the right vein, he published technical manuals, especially in digital format, which was not widespread at the time. He accumulates value, in the sense of potential money, in his data base: a large list of technicians and scientists known from his work as a publishing agent. He makes some money. He goes bankrupt and finds himself in dire straits. Like in a Frank Capra film, he lines up the three things he has left: the nest egg, the data base and his experience with Warhol's Factory. Possessing a roster of scientists and technicians instead of artists, his factory will be based on science. He rents an estate in Connecticut and begins to bring together the people on the long list. Which in the meantime becomes even longer. There is so much material to publish. Brockman starts acting as an agent and selling again. The meeting activity on the estate takes the name Reality Club.

At this point, it will be good to demonstrate, with a bit of healthy determinism, that the ingenious Brockman beating is in fact the classic instrument of facts concatenating towards results inscribed in the maturing of the social productive force, from industry to the dominant ideology's loss of bite against the changing reality. The idea of the Factory had come from an artist. Or did it? You could say it 'was in the air' and someone picked it up, as has always happened in the world of science. Even Brockman's new Factory was not linked to the concept of the Third Culture before another artist, James Lee Byars, came to mind. Evidently, artists are more sensitive to the atmosphere of change. Those who put these insights into practice must be credited with a certain degree of readiness. In 1971 Byars imagined an experiment in 'conceptual art'. He wanted to lock artists and scientists in a room so that, following a script, they would ask each other questions about their work. When he tried to summon the hundred or so people he had selected by telephone, the vast majority refused the invitation, some even in a bad way. The Great Synthesis of Human Knowledge failed before the 'conceptual' artist could even figure out how to realise it with the protagonists in the flesh. Brockman did not see any development potential then, but the flea in his ear remained. After the failure and recovery, a real possibility of working on a synthesis of knowledge had arisen at the Connecticut estate where technicians and scientists gathered. It was 1991. On its own, the Third Culture was emerging and Brockman took note of it by writing an article. Quite rightly, he did not claim copyright or claim that it was the work of 'someone'.

'After years,' he wrote, *"that fossilised culture [the First and Second Accumulated] has been substantially replaced by the Third Culture"*. A noble Florentine of the 14th-15th century would have been ashamed to read Dante or admire Leonardo without knowing the science of the time that was synthesised in Dante or Leonardo. Today, a politician can live in the crassest ignorance of art and science and no one is surprised, but knowledge has changed forever. In this last half-century, there has been a profound change from those that marked the transition between the Middle Ages and the Renaissance and between the Renaissance and the Industrial Revolution. Today, knowledge is an exquisitely collective fact. It forces the humans who convey it to interact and thus to theorise 'third', unifying disciplines, which, in reality, are the result of a change in the nature of material production.

Brockman says again, speaking of the Reality Club, that its customers (he does not mystify, he uses the appellation of commercial language) all together represent a process of 'de-creation'. From a cerebral image of the world filtered through 'creative' thought and opinions, we have now moved on to that of a universe that responds to simple, shared rules, which oblige those who study them to confront a mighty cognitive machine rather than evanescent ideas. But the ongoing process of de-creation also concerns, according to Brockman, the de-construction of the religious framework on which our mentality has been formed over the millennia. He saves philosophy because it is now forced to deal almost exclusively with the epistemology linked to the evolution of science, but criticises Marxists, historians, psychoanalysts and creationists, all of whom, according to him, are guilty of religious interpretation of the subject matter they deal with. Marxism would, in this view, be entirely self-referential, whereas the material world is constantly changing, producing itself and obliging men to take this into account in their theory of knowledge. Even if Brockman had studied German Ideology and understood the phrase about the 'real movement etc. etc.' he would still be a staunch anti-communist.

But meanwhile he is driven to represent this royal movement, which by the way brings him a lot of money. He is driven to gather hundreds of scientists, artists, and men of letters into an epistemological unicum that recalls, with the differences of epoch, the Raphaelite allegory we dealt with at the beginning. The unification of knowledge is, and even more so will be, a result of social development that abolishes (will abolish) the social division of labour. Shared knowledge breaks the damnation of 'progress' understood as the quantitative development of production and also of productive power. The 'renaissance man' will not return, but, with the disappearance of classes, as Marx jokingly notes, the man-everything will appear without the nagging of quantity over time (or productivity: q/t). Quality is never a function of time.

'As soon as work begins to be divided up, each man has a determined and exclusive sphere of activity which is imposed on him and

from which he cannot escape: he is hunter, fisherman, or shepherd, or critic, and must remain so if he does not want to lose the means to live; whereas in communist society, in which each individual has no exclusive sphere of activity but can perfect himself in any branch of activity he pleases, society regulates general production and precisely in this way makes it possible for me to do this today, that tomorrow, to hunt in the morning, fish in the afternoon, herd cattle in the evening, criticise after lunch, as I please; without becoming either a hunter, a fisherman, a shepherd, or a critic' (Marx and Engels, The German Ideology).

The oppositions subjective/objective, matter/spirit, thought/action, life/death, consciousness/unconsciousness, continuous/discrete, wave/particle, etc. are like the social division of labour: exclusive spheres of thought, in the literal sense that they exclude. Bourgeois science is unable to eliminate them altogether; on the contrary, it is always churning out new ones under the guise of insect specialisation. At the same time it is forced to bring forth not only theories of unification but unification itself. It is not surprising that this unification presents itself as a hybrid between an ancient community of wise men like the one grouped in the School of Athens (a little bit esoteric, a little bit universal) and a supermarket of scientific frontier topics, under the leadership of a globalised merchant: each new society can do nothing but use categories from the old one, taking them to their maximum consequences, and in the community-supermarket, this is put on display. The display counter of the Third Culture on the Net is represented by the Edge site. Of course, the oppositions remain. On the site, the militant pro-science spirit of those who run it and those who provide material for publication is evident, even though the mission would be, as we have seen, the unification of separate cultures. Edge's 'About Us' page appeals to anyone who tends towards the Great Cultural Unification, artists, scientists, writers, historians, in short, elements belonging to any field of knowledge, but in the book-manifesto entitled *The Third Culture*, things change quite a bit. In the meantime, only works by scientists are collected there. Moreover, in the introductions, one by Brockman and the other by some of the authors in the book, there is a direct and quite scathing attack on the humanists:

'American intellectuals are increasingly reactionary, often boasting that they ignore even the most important cultural achievements of our time. They dislike science and generally everything that is empirical and verifiable; they use their own jargon and invent disputes that only they can appreciate' (John Brockman).

*'Very few English intellectuals try to understand science; when the arguments are of the tenor of those in Stephen Hawking's book, *From the Big Bang to Black Holes*, they feel out of their depth. The bitterness they*

show in such cases can only be explained by the sense of hopelessness they feel at their ignorance' (Paul Davies).

'English intellectuals live in terror of losing their monopoly on culture. They went to the right schools, studied the classics and English literature, and got used to thinking of scientists as second-rate people... Now they are afraid: not understanding anything about science, their only defence is to argue that it does not matter' (Nicholas Humphrey).

'No one can any longer imagine how the world will change during their lifetime... Things are changing too fast, as never before. And it is evident that the pace of these changes is dictated by scientific development. So, those whose minds are not in a state of lethargy and who want to understand what is happening read books written by scientists' (Daniel Hillis).

'Listening to scholars in the humanities, I realised that they have difficulty in communicating the more abstruse concepts of their disciplines. I cannot follow their reasoning line by line, because their language is influenced by the doctrines of some philosopher of whom I understand absolutely nothing. Sometimes I get the impression that they take a certain complacency in being obscure; why this is so trendy I really cannot say' (Lee Smolin).

As you can see, the scientists have been blowing their horns with a certain arrogance. In their work, they embrace the drive for unification, devoting themselves with a certain consistency to overcoming material obstacles, but when they move on to the attempt to overcome social obstacles, i.e. those inherent to the social division of labour, they just cannot manage to respect their own statute and reduce the Third Culture to the old scientific compartment defending its own garden against that of the humanistic compartment. Indeed, it is clear from the quotations that Third Culture is simply the Second coming to the rescue to become the First. Yet a breath of revolution has swept over the Two Cultures producing a need for change, even if their representatives have so far failed to live up to it.

It is obvious that from the point of view of the technological society, relegating scientists to universities and laboratories while filling parliaments and thus governments with literati is not a good operation. It does not matter to us, indeed, since our horizon is the end of this society, it certainly contributes to it. But it is nonetheless significant that the asymmetry is being radicalised by material causes: Third Culture or not, the famous 'real movement' goes, on the one hand, towards the neutralisation of chatter without empirical content and, on the other, towards the frenzied exaltation of technology. Ironically, while the world of science shrieks against cultural marginalisation, it itself makes available

to its literary enemies the mass production of powerful information vehicles, television networks, computers, the Internet. All tools that certainly disseminate more opinions devoid of empirical content than knowledge of the world. More affabulation, but also more 'shitty' positivist scientism, other than science and technology.

What is happening?

The Third Culture therefore exists, manifests itself, takes hold. But what is it really if, as the quotes show, its militant army is not 'up to' the task it sets itself? It is 'pop' knowledge, consumed at the hypertechnological self-service we now keep in our pocket. It goes in a hurry and no one has time to delve any more. Culture' is no longer the content of a book, the memory handed down by a university caste, an individual transmission of knowledge: it is the technology we use. We all know that a child learns to use a computer from an early age, to surf the net and play games better than an adult. Technology is no longer the mechanical one relegated to factories, it is in the home, it permeates human life. The computer is not a steam engine, an electric motor or a television set, it is a prosthesis of the social brain. When it becomes the subject of discussion and study, everything has already happened. The Third Culture is our normal life. And as long as capitalism exists, it is capitalist life. If it is true that the production of the amygdala out of chipped flint evolved the hand, the brain and the areas dedicated to language, then it is also true that technology will make us make a similar leap in less than bio-evolutionary times. But this will have to be accompanied by a social revolution, because capitalism is an absolute brake on man's conquest of the new humanity.

For now, superstar science ends up on magazine covers, produces record-breaking television programmes, permeates the cinema with its special effects. In short, it is one of the ingredients of the market, an intangible commodity that sells well. It has invaded language, so much so that paper dictionaries are not updated in time; in a way, it has become language. As we saw in the last issue of this magazine, our species is in an ontological condition with respect to knowledge, in the sense that we are biologically made in a certain way and we know the world through our senses. Beyond a certain threshold, however, the acquired knowledge is organised and allows for an epistemological leap (cf. also Einstein and some schemes...). From this point of view, the two cultures criticised by Snow had all in all a *raison d'être* due to the revolutionary explosion of capitalism: the sciences pursued the aim of knowing nature, while art, literature and historiography represented the language with which to narrate the knowledge acquired in relation to human life. The problem was that the two levels did not speak to each other, but their existence was explicable, thus the dichotomy theoretically surmountable. Was it not the case that vast portions of the two spheres now overlapped, forcing men to devise

interdisciplinary processes, launch theories of the whole, seek the unification of knowledge?

We saw that instead of one 'culture' as a synthesis of the two existing ones, a third one was born. Quite an achievement, one might say. But it could not have been otherwise. Each of the two cultures performed a complementary function to the other. With the third culture this cannot be. Not only because it lacks the potential and capacity for 'dialogue' with the other two, but because it arises materialistically from different assumptions. It has outgrown the need to harmonise our ontological being with our epistemological being, and also the need to narrate its events. Our current had emphasised how theory came after praxis: man first 'does' and then thinks, theory comes last, even though, once it has been specified, it is indispensable for conscious praxis. It is the Third Culture that, as the offspring of science and technology, has produced the men it needs to theorise itself. There should no longer be any difficulty in tackling a process of autonomisation after we have understood how Capital, which in this society underlies everything, has autonomised itself. The Third Culture tends to eliminate the narrative representation of society based on science and technology: the scientist now narrates himself, writes bestsellers, goes on television, gives interviews, etc. His sarcasm towards the scholar has a well-founded basis, and the livour with which the latter responds is the mirror aspect of this. On the other hand, the man of letters has no escape: if he does not want to end up in a ghetto where even children will no longer take him into consideration, distracted as they are by computer gizmos of all kinds, he must descend to scientific ground. This does not mean setting out to produce science, but to speak the new language. Marx said: what would become of the Greek messenger Hermes with wings on his feet in the age of the telegraph? Today we could say: what can become of the philosopher, the man of letters, the historiographer, with their eulogies, in the age of the Internet and Wikipedia, when throngs of barbaric amateurs, adding up individual ignorances, produce collective knowledge that beats the profound barons in quantity and often in quality? (cf. Wikipedia, chaos and order and A spectre roams the net).

The great questions that inflamed the philosophers of yore: what is the soul, what is consciousness, what is mind, are today addressed by peering into brains while they are working, with nuclear magnetic resonance devices. Intelligence is downgraded to an interaction between particles and molecules, and if questions about it persist, the exponent of the Third Culture does not think of a philosophy of the ego but of how to simulate brain processes with the machines at his disposal. Scientists observed the brain, dissected its forms, measured its capacities; philosophers and men of letters sang its wonders with lucubrations about the individual who possessed it; today, Third Cultureists study how to reproduce one.

The theoretical and technical instrumentation available to the Third Culture evolves faster than any theory that can be born on the instrumentation itself. Pop science does not require academic credentials, it is content with success, because today only those who adapt to the evolving technology can succeed. The Third Culture is thus profoundly self-referential, much more so than the Two Cultures it would like to supplant. But, as its supporters say,

'Unlike in mainstream culture, the achievements of science are not about the envy of a caste of rancorous mandarins; its achievements change the lives of each of us and the planet on which we live' (Brockman).

'Science is simply more relevant in practice than new opinions footnoted on old opinions of others' (Kevin Kelly).

This is the point. The history of our species did not unfold under the sign of some culture but, on the contrary, produced culture as it unfolded. Today, culture as such counts no more and no less than it did in any other era, but each of us can buy for a few euros a computer infinitely more powerful than those available thirty years ago and get online with a click. After that, he can question the modern oracle about life, reality, consciousness, and hear answers that no man of any other age would have heard, even though philosophers had always asked the same questions. Today, then, people do not surf the Internet to search for data with which to emulate Aristotle but to participate in an artificial technological life, in a kind of mixture *'between the born and the produced'* (Kevin Kelly).

There is a huge difference from the past. Classical science rested on a relationship between theory and experiment, and there was no sense in whether it was necessary to start with theory or experiment. The results came from the combination of both, the former giving meaning to the facts, the latter providing verification of the theory. Now, with the computer, we can 'run' a simulation programme (of traffic, income distribution, predator/prey ratios in an ecosystem, etc.). There is neither theory nor experiment, but a reproduction of reality by means of data drawn from reality itself and the interaction between elements of the system. Is it science or literature? Is it theory/experiment or mere description of reality as in a painting? It is evidently a third 'thing', a virtual world parallel to the real one. There is a programme, downloadable from the Internet, with which one can simulate the life of organisms capable of mutating, evolving, adapting (cf. Tom Ray). The dinosaurs in Jurassic Park were computer simulations and their muscles were a reasonable representation conjured up from data on real skeletons. And the data were those collected by scientists studying fossils. This is no longer a simple union of scientific disciplines, here science has landed in Hollywood, i.e. in the world, albeit with quite different

cinematic results than the literary synthesis of which an Italo Calvino, for example, was a protagonist.

No one can know what developments will take place in such a situation. Scientific language is global and accessible to all. Ditto for the message it conveys. Certainly the dichotomy between the spheres of knowledge and between the specialised disciplines within them will not last much longer. It is not idle to point this out: Marx makes revolutions, the epochal changes that lead to a succession of modes of production, dependent on the fact that, at a certain degree of societal development, the superstructural apparatuses stifle any further development of the social productive force, and must therefore be destroyed. Some see in this proposition a quantitative concept of change (more production, etc.). They are wrong: a clear qualitative process towards overcoming capitalism is already before our eyes.

Recommended readings

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'Anyone considering the second law of thermodynamics is struck by a paradox: if physical systems tend towards disorder, how do we explain the order we see around us? Chaos gives way to ordered structures. Gradually more complex molecules, clouds of gas, stars, galaxies, planets, geological formations, oceans, self-catalytic metabolisms, life, intelligence, society. As time goes by, complexity and organisation increase. There is a logic that guides matter to spontaneously assume a certain organisation. Many of us think that this is a property not only of the entire universe, but also of mathematical systems known as 'complex adaptives'. Run on computers, these systems evolve from chaotic, undifferentiated states to organised, differentiated and interdependent states. Just as happens in natural evolution. Adaptive systems can be weak or strong. Weak ones give rise to very simple forms of self-organisation. Strong ones give rise to more complex forms, such as life. Let's face it: we still know very little about these topics. The true nature of organisation escapes us, we ignore why some systems are adaptive and others are not. We do know, however, that they must store information, that their parts must be able to exchange a certain amount of information, that above and below this amount, complexity falls away. [We know, however] that our current state is but a step in this process. Cybernetic intelligences are the next step in the evolution of adaptive complex systems' (Doyne Farmer, in The Third Culture).