

Biography Edgar Morin

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Abstract

Edgar Morin, French humanist deceased the 29th of June. The present article gives an overview of his life, works, especially his main work "The Method" and influence.

Edgar Nahoum, known as Edgar Morin (1921-2026), although he is generally known as a sociologist and philosopher of complexity, was before all a French, 'humanologist', like he called himself (Morin & Adler, p. 27), a transdisciplinary and undisciplined thinker refusing academism, a bridge maker between science and philosophy. During his life he developed his theory of complexity mainly in his major work "The Method" (partially translated in English: Morin, 1992). Throughout his life and work he interconnected and confronted knowledge and analysed the human complex. Morin sees the world as an inextricable whole in which humans, because their knowledge is limited, only have a blurred vision of reality which they take for reality. An interdisciplinary and cross-referenced approach is therefore necessary to understand and act, knowing ultimately the consequences of actions are unknown, to limit the consequences of our actions. Unstated, he advocates a new vision of henology, the philosophical account of the one, the unification of being (the individual microcosm) with the one (the gradual ordering of the universe). For Morin, the 'unitas multiplex' constitutes the one and the unity of pluralism. Considered as the whole it is one and homogenous, for its constituents it is diverse en heterogeneous. Antagonisms are considered complementary and thus part of the whole.

His approach to sociology can be named an anthropology sociology, a sociology of the event and the present. A bio-anthropology based on the continuous link between biology, sociology and human psychology, open to phenomena such as crisis, order, disorder, organisation, antagonism and mutation, committed to knowledge and humanity. A search for a new dynamic paradigm encompassing complexity to replace the current scientific paradigm which separates and disjoins. Throughout his work he aimed to develop a method of knowledge in order to enable humans to face the challenges of our times through understanding their complexity. He introduced the idea of a policy of man, which endeavours to re-situate humans at the centre of politics in the planetary era and the different crises provoked by it whereas education, as envisioned by Morin, has to play a central role.

Biography

Although he reached the age of 104 years, Edgar Morin's very birth, in Paris on the 8th of July 1921, was miraculous. Suffering from a heart disease, his mother was advised not to have any children. David-Salomon Nahoum, called Edgar by his parents, was still born, the umbilical cord around his neck, after a failed abortion. It took half an hour of slapping before he gave his first cry. (Morin, 2019a; Morin, 2022). His parents were laicised Sephardi Jews from Thessalonica (Lapierre; Morin, 2022). Eventually his mother, who meant everything to him, died when Edgar Morin was 10 years old leaving him with a feeling of absolute loneliness (Morin, 2019a; Morin, 2022).

After his secondary education, Morin advocates for the socialist frontist party which wanted to combat Stalinism as well as Nazism. In imitation of Karl Marx, at university, he enrolls for philosophy, history, geography, law and political sciences allowing him to get a, mainly auto didactical, multidisciplinary education. Eventually, he will obtain, in 1942, a master degree, both in law and history-geography. At the beginning of the second world war, at the age of 19, he took refuge in Toulouse and became secretary to the refugee student's association. It is there that he encounters the writers Clara Malraux and Jean Cassou as well as the historian Jean-Pierre Vernant. When the Germans enter the southern zone, Morin, already member of the communist party, moves to Lyon. There he was recruited by André Ulmann to join the 'Mouvement de résistance des prisonniers de guerre et déportés' (resistance movement of war prisoners and deported), which later on merged with François Mitterrand's resistance movement. Joining the resistance freed him "[...] of a certain culpability, imaginary or real [...]" (Morin, 2019a, my translation) of being Jewish and orphaned. He there learned the difference between living and surviving. "Living, is to be able, when necessary, to risk one's life." (Morin, 2022, my translation). (Morin, 2019a; Morin, 2022). It is at this time he adopted the pseudonym 'Morin' like a lot of members of the resistance did.

After the war, in 1946, he starts his writing career when the writer and publisher Robert Antelme promises to publish Morin's experiences as attaché to the general staff of the 1st French Army in devastated and destroyed occupied Germany. His first book 'L'an zéro de l'Allemagne' (The German Year Zero) is published in 1946. Thereafter he writes an interdisciplinary book: 'L'homme et la mort' (Man and death) which will be decisive for his career. In 1951, year in which the book appeared, Morin joins the French National Centre for Scientific Research (CNRS) allowing him to write at his leisure. (Morin, 2022). Which he did, resulting in an abundant oeuvre of tens of books covering divers themes, going from sociological and political analyses to philosophy and cinema.

An untiring worker, Morin, together with Roland Barthes, Jean Duvignaud and Collette Audry, creates the magazine 'Arguments' in 1956. The founding principles of the magazine are self-critique and self-revision, aiming to continuously refuse the self-evident, in order to accede to knowledge in an interdisciplinary approach. Having neglected to respect the initial project the magazine is self-dissolved in 1962, the result of an exemplary self-critique. (Delorme, p. 7). The 'Centre for the study of mass communications', now 'Centre Edgar Morin', of which he will be co-director from 1973 till 1989, sees the light in 1960. In 1969 he is invited to the Salk Institute for Biological Studies in California where he encounters Jacques Monod, stay which he relates in 'Journal de Californie' (Journal from California), which appears in 1970. It is there he became interested in information theory, cybernetics and systems theory, which contributed to the development of his complexity theory (Morin, 2013, pp. 142-144). That same year he is appointed research director at the CNRS and creates, together with John Hunt, Cornelius Castoriadis, Claude Lefort and Jacques Monod, the 'Centre International d'Etudes en Bio-anthropologiques et d'Antropologie Fondamentale' (International Centre of Bio-anthropological Studies and Fundamental Anthropology) (Delorme, p.12).

Edgar Morin early on was socially engaged. Because of the Stalinist turn taken by the USSR after the second world war, he took his distances from the communist party as of 1949. Eventually he was expelled in 1951 after having written an article for 'France Observateur' which was considered a "[...] journal of the intelligence services [...]" (Morin, 2022, my translation). In the French-Algerian war he took a consensual position. In 1955 he was member of the Committee Against the War in Algeria defending the Algerian people and advocating negotiations. In 1968 he closely followed the student revolt, writing a series of articles for 'Le Monde' entitled 'La révolution sans visage' (The revolution Without a face) and resulting in a co-authored book 'Mai 1968: la brèche' (May 1968: the Breach). (Delorme, p. 2). Highly involved in complexity theory, in 1997 Morin founded the 'Association pour la Pensée Complexe' (Association for complex thought) which promotes the development of complex thinking methods. He was the UNESCO chair of complex thought and in this capacity organised several congresses to promote complex thought in several areas, such as the challenges of a globalised world in the 21st century. His central interest in proposing another way of thinking and knowing led him to become interested in teaching and education, since educational institutes transmit reductive and fragmented thinking. Until his dead he participated actively in the International Ethical, Political and Scientific Collegium founded in 2002 in which philosophers, statesmen, political leaders and scientists from all continents participate and which endeavours to find intelligent answers to current issues. In 2012 Morin founded, with Stéphane Hessel, the Roosevelt Collective. Dissolved in 2021 it strived for democracy, financial and economic reforms and another model of social and ecological development. Together with numerous other

intellectuals, lawyers and politicians he launched a moral tribunal concerning crimes against nature and the future of humanity in the margin of Rio+20 (the 2012 United Nation Conference on Sustainable Development). As of 2013 Morin supported a European civic initiative Stop ecocide in Europe and in 2016 the anticapitalistic movement 'Nuit debout' (Standing Night).

Morin was married four times: in 1946 he married Violette Challaubeau with whom he will have two daughters ; in 1970 the Canadian actress, model and writer Johanne Harelle ; his third wife, whom he married in 1982, was Edwige Lannegrace from whom he was widowed in 2008 and to whom he dedicated 'Edwige, l'inséparable' (Edwige, the Inseparable) ; finally in 2012 he married professor of sociology Sabah Abouessalam with whom he wrote several books.

Not only did Edgar Morin receive a plethora of honorary doctorates from universities all over the world he also received several distinctions: the Medal of the house of representatives of the Italian republic (International scientific committee of the Piu Manzu foundation) ; from the Association of European journalists the Media price (culture) ; the Spanish Official Order of Civil Merit; the Moroccan honour of Commander of the Order of Intellectual Merit ; the Golden Aristotle Medal by the UNESCO ; the Gran Cruz decoration of the Order of Saint James of the Sword in Portugal. In his homeland France he was awarded Commander of the Order of Arts and Letters, Grand Officer of the National Order of Merit and Knight Grand Cross of the Legion of Honour.

The Method

Edgar Morin's oeuvre consists of more than a hundred books which he wrote or to which he contributed (see bibliography). To him the most important work was 'The Method' of which he said: " [...] for me it is a necessary work to reform knowledge and thinking, in order to tackle the complexities of individual, social, political and planetary life [...]" (Morin, 2022, my translation). 'The Method' was written from 1977 till 2004 and consists of 6 volumes totalling 2.500 pages. The starting point is Pascal's statement that it is impossible to understand the whole without understanding the part, and impossible to understand the part without understanding the whole. With this work, Morin proposes a series of principles to think about and know reality in a complex way, away from procedures that mutilate, reduce and fragment it.

Volume 1: The Nature of Nature (Morin, 2014a)

The first volume of 'The Method' questions the prevalent scientific approach starting from the physical world, the physis or our universe, which is source of creation and organisation, not only material but also life and humanity (Morin & Tager, p. 168).

Morin's basic statement is that the mainstream scientific thinking, materialism or determinism, excludes the observer/subject and disorder and proceeds by simplification and disjunction. There is need for a new paradigm which takes into consideration, amongst others, antagonisms and uncertainty. The basic notion to understand the processes of auto-organisation and auto-production, or complexity, is the recursive loop. It transcends the linear cause-effect conception since effects retroact on causes and themselves produce what is being produced. For there to be organisation, interactions, haphazard encounters are needed which require disorder. Disorder, which encompasses agitations, dispersions, turbulences, collisions, irregularities, instabilities, accidents, risk, noises and mistakes in every domain of nature and society, starts from entropy, when entropy increases, disorder increases. Disorder is generative as well as degenerative. There is disorder in order and there are orders in disorders. There cannot be order without disorder. Order on the contrary comprises regularities, stabilities, constants, repetitions, invariances and determinations or classic determinism. It emerges from the boundary conditions specific to the formation of our universe, from randomness and restricts the field of possibilities in developing local and conditional necessities and probabilities. Order is not absolute nor universal but relative, relational and interdependent. The dialogic of order and disorder produces organisation. Organisation is the marvel of the physical world, examples are atoms, molecules, stars, life and society. It however is not reversed disorganisation, since once generated organisation and its order can resist a large number of disorders. The organisational principle arises in and from catastrophe, i.e. change of form like the origin of our universe. Organisation is the disposition of relations between components or individuals producing a complex unity or system with emergent qualities out of random encounters. These interactions are reciprocal actions. They modify the behaviour or nature of elements, bodies, objects, phenomena present or influenced. For there to be interactions, elements, beings or material objects, which can meet as well as meeting conditions, such as turmoil, turbulence or counter-flow, are required. Interactions obey determinations and/or constraints which depend on the nature of the meeting elements, objects or beings. This translates into the tetra logic loop which links order, disorder and organisation through interactions. Interactions, which define order and organisation, cannot be conceived without disorder. Therefore, different terms of the tetra logic loop cannot be separated, they are at the same time complementary, competing and antagonist.

Interactions can become interrelations, these refer to the kind of and forms of links between elements or individuals, between elements and individuals and the whole. There is no sui generis organisational principle. They for example come about through fixed and rigid dependencies, active or organisational interrelations, regulatory interactions, informational communications. Interrelations can range from associations when the constituting elements conserve much of their individuality to combinations when the whole is more unified. Interrelations with some stability or regularity become organisational and produce a system.

A system is an organised object which can only be explained by its components, together with its organisational and systemic nature, which transform the characteristics of its components. It is a complex unit with qualities which are unknown at the level of its components, a whole which through organisation - the solidarity and solidity of the interrelations - obtains a certain duration despite random perturbations. A system therefore is an emergent whole, which has properties or qualities arising from the organisation of diverse elements or constituents associated in a whole. It is a whole because the whole is emergent and emergence is the characteristic of the whole. Emergence cannot be deduced from the qualities or properties of the elements and cannot be reduced to their constituents, because it links quality, properties, production, novelty and inclusiveness. It is an irreducible event which cannot be decomposed nor deduced. Emergence does not concern epiphenomena nor superstructures it is about superior qualities which are prompted by organisational complexity. Because emergence is extremely linked to the whole which in turn is extremely linked to organisation itself it cannot be rendered superficial. It can retroact on the constituents bestowing them with qualities of the whole generating another type of system, a global state with new or emergent qualities, with a new nature. Examples are matter at the atomic level, life emanating from vital organisation, meaning emerging from discourse, humanity arising from the hyper complex brain. Emergence is a logical jump.

Volume 2: The Life of Life (Morin, 1985)

In this volume Morin researches the living organisation in order to try and understand how the origin of living complexity emerges from the physical universe and through a continuing dynamic process, eventually leading to the emergence of human being. Knowledge being the most uncertain object of knowledge, a new 'method' is required which links the researched object with the knowing subject, in turn rooted in its culture, society and history, all possible sources of errors and illusions. The autonomy of living beings - cells, multicellular beings and societies - emerges from their continuous activity of auto-production and auto-organisation. Living beings unceasingly have to nourish themselves

with external energy, matter and information in order to regenerate. This means they are dependent, through and according to their existential need of other lives, on the ecological community which they are part of. They nurture their existence and nurture their ecological community with life and death. Although they are dependent, they also are autonomous since they have to follow their proper law. They auto-produce through physical interactions and encounters and thereafter eco-organise reproduction cycles. Auto-organisation is dependent on the eco-organisation it is part of. Eco-organisation is co-organising, cooperative and co-programming the phenomena of auto-organisation from order, disorder and the unknown. The eco-system produces organised complexity, which feeds the auto-organisations, which produce organised complexity which feeds the eco-system. The more a being becomes autonomous, the more complex it becomes, the more this complexity depends on the eco-organising complexities which feed it. As such they are free and autonomous but also dependent, hence they have dependent autonomy.

Because of the multiple and complex inter- and reactions in the environment where action takes place, once triggered (egoist) action often escapes the control of the actor and brings about unexpected effects and sometimes even contrary ones to those expected. Action does not only depend on the actor's intentions but also on the conditions of the environment in which it takes place, therefore the long-term effects of an action are unpredictable. This means the maximum level of efficiency of an action is situated at the start of its development. "The ecology of action is an invitation to steer away from manicheist pseudo-ethics, where good and evil are the fundamental principles, both equal and antagonist. It allows us to conceive the huge risks associated with action (Arendt, 1961)." (Morin, 1985, my translation).

Generativity differentiates living auto-organisations from artificial machines since, contrary to those, they can auto-generate, auto-regenerate and auto-repair¹. It is based on the organisational program of genetic inheritance, which is virtual, potential, past and future, The genetic program transfers life and the possibility to live-by-oneself which is actualised in the phenotype (the observable characteristics of an organism). Contrary to the organisational program of genetic inheritance, the phenotype is present, actual, immediate in existence. The phenotype being the result of the interactions between genes and the environment is the sphere of organisational autonomy and of the emergence of being and individual existence. Physical generativity, beings organising themselves, always is spontaneous. There is no such thing as an informational program to control or program it. Therefore, the phenotype is not only the expression of the genotype but also entails influences from environmental constraints and stimuli. The dependence on the genes produces organisational autonomy with regards to the environment. The dependence on

¹ Von Neumann's self-reproducing automata can only auto-generate.

the environment not only feeds the organisational autonomy but also ensures the existential autonomy of beings from the genes, i.e. individual existence. The smallest individual beings, cells, are computing devices which become generative by transforming information into programmes and strategies which govern phenomenal actions and performances. Those are necessary for the existence of the generative device; they participate in the regeneration of the generator.

Volume 3: The Knowledge of Knowledge (Morin, 2014b)

Volume 3 examines the character and cognitive possibilities of the human brain and mind and how knowledge is conceived, since to be able to make choices, one needs knowledge. Epistemologically we are in need of an alternative for the crisis we are facing concerning the principles and structures of knowledge. We seem to be in the prehistory of mind and are in need of conscious complexity.

Cells being computing devices transforming information into strategies governing actions, computing is defined as being general problem solving with a cognitive dimension and can be transposed from computers to all living beings. In a situation of uncertainty information settles an uncertainty or solves an alternative for an observer or a recipient. Information replaces uncertainty by certainty. The information is coded in patterns, in organised forms with signs and/or symbols whereby memory is used based on needs and necessities. The use of memory is not limited to inscription and extraction, it also concerns duplication, modification and erasure. Morin calls the principles, rules and instructions which govern and control calculations, perceptive operations and reasoning software. Computing is at the same time organising, producing, behavioural and cognitive. Since it allows survival and reproduction it is egocentric, however it is not closed (e.g. bacteria communicate through DNA which could be thought of as extremely individual). It is computation which produces and maintains the identity of being, however it is not transcendent nor absolute but individual and generic. The *computo*, in which all cognitive operations are brought together, (re)generates through auto-organisation, which it (re)generates whilst simultaneously exerting its cognitive action on the external world. "Living, as a process, is a process of cognition." (Maturana, in *The Method*, p. 47). All knowledge is subjective, i.e. a fundamental act of placing oneself at the centre of the world.

In this volume Morin introduces the notion of 'dialogic', to cover a concept, which was already present in the previous volumes, which "[...] can be defined as the complex association (complementary/rival/antagonist instances, *together necessary* for the existence, the functioning and development of an organised phenomenon." (Morin, 2014b, p. 98, my translation, italics in the text). These instances or entities feed and complete each other but also resist and fight each other giving rise to uncertainty. It is uncertainty

which fosters the development of intelligence. Contrary to Hegelian dialectics which are dissolved at a superior level, antagonisms for Morin persist and are constituent of complex phenomena. He also introduces the 'holographic principle' which is the key principle of poly-cellular, vegetal and animal organisms. A hologram is an image where each point includes all the information on the depicted object. As such the whole is some way included in the singular parts which are included in the whole. Therefore, the parts are virtual micro wholes. They can be singular or original whilst possessing the general and generic characteristics of the whole although they can have relative autonomy. The parts can establish communication between them and generate organising exchanges. Potentially the parts are able to regenerate the whole. For organisms, each cell contains the genetic code of the whole being, whilst remaining singular because it is controlled by the organisation of the whole, which is produced by the interaction of the cells. Only a small part of the genetic code is expressed in each cell however the virtual whole remains present and could be actualised such as in cloning from one cell.

Volume 4: The Ideas (Morin, 2014c)

This volume, the continuation of the previous one, treats the noosphere and noology or the life of ideas, embedding knowledge in biological and cultural life. It researches knowledge from the collective and societal point and how it gives rise to paradigmology.

The term 'noosphere', which was coined by Teilhard de Chardin in a 1922 essay titled 'Hominization', is defined by Morin as the life of ideas, minds, gods and other entities produced and fuelled by human minds within their culture. These entities are endowed with dependent autonomy since they depend on the minds and culture which fuels them. They acquire an own life and a dominating power on humans. The noosphere is subjected to the continuous dialogic of order, disorder and organisation therefore they are born, develop, transform and die. "[...] The noosphere is articulated in the anthroposocial world following a trinitary complex: psychosphere, sociosphere, noosphere." (Morin, 2014c, p. 180, my translation). The representations, dreams, myths and convictions of individual minds and brains are part of the psychosphere which needs the sociosphere for their concretisation. The interactions of minds/brains give rise to culture in which language, knowledge, logical and paradigmatical rules will allow the psychosphere to become part of reality. Both psycho- and sociosphere condition, eco-organise, bind and free the noosphere which in turn conditions, eco-organises, binds and frees mind/brain and culture. This trinity forms the anthropo-sphere which is immersed in and embraced by the biosphere. When humans take their ideas for reality, they tend to believe the noosphere is the world itself. Their subjectivity, their ideas about the world, the fact that they place themselves at the centre of the world becomes the world. Because the noosphere triggers human inquiry it

generates knowledge and makes contact with the unknown, the inexpressible, mystery, It is a transforming and transfiguring duplication of reality which is superimposed on reality and appears to conflate with it. It embraces humans whilst being part of them. Since the noosphere is dependent on human minds and culture, it emerges autonomously in and from this dependence. When a deviant tendency is victorious in an open dialogic situation, it can impose a new normalisation and thus become a new paradigm.

A paradigm, for each discourse uttered thereunder, contains the fundamental concepts or the main categories of comprehensibility. The kind of logical relations of attraction and repulsion which exist between these categories such as conjunction, disjunction, implication, ... hide the paradigm, which determines what is necessary and what is true. Semantically a paradigm determines comprehensibility and gives meaning. Logically it entails the main logical operations. From an ideo-logically point of view it is the first principle of association, elimination and selection and determines the conditions of the organisation of ideas. Paradigms orient, prescribe and control the organisation of the systems of ideas which fall under it and individual reasoning. They are characterised by the fact they cannot be falsified although the scientific theories they contain can be ; they have axiomatic authority and as such are the base for the axioms which will retroactively legitimise them ; they exclude not only non-conform data, formulations and ideas but also problems they do not recognise ; they are blind because they exclude ; they generate evidence through self-concealing ; they cogenerate a feeling of reality ; they are fool proof since they are invisible except for those adhering to them ; there is incomprehension and antimony between different paradigms ; they are recursively linked to the discourses and systems they generate ; they determine a mindscape through their theories and ideologies ; and they cannot be contested, attacked or destroyed directly because they are invisible and fool proof.

Volume 5: The Humanity of Humanity (Morin, 2014d)

The before last volume investigates the human identity, which implies seeking to understand what the human being is and conceiving a complex conception of the human to regenerate humanism. Its vocation is to link knowledge about man which is dispersed between the sciences and the humanities. Its main message is that diversity should not mask the fundamental unity of humanity nor the other way around because what unites us separates us. The human complexity is thought as the trinity of the biological, subjective and social identities.

Elaborating on the dialogic mind/brain and culture of the previous volume, Morin introduces the trinity of brain-mind-culture. Within a culture, mind emerges from the human brain with and through language. Language opens us to the world but also separates us from it.

Once mind has emerged it retroacts on the functioning of the brain and on culture because of the size of our brain which allows for new forms of autonomy, strategy, intelligence and behaviour. The different forms of intelligence present in the animal world are developed in new domains and new forms of intelligence are created. Those will be used in transforming and producing activities (praxis) as well as in the production of artefacts (tekhnê) or contemplative and speculative knowledge (theôria). In the mind intelligence, thought, conscience, individual, language, culture and society are associated. This is an innovation in the evolution of humanisation and ground-breaking in human evolution. It is no longer genetic reorganisation which ensures innovation but mind's capabilities and ingenuity. What is common to all humans is "[...] an individuality and an intelligence of a new kind, a cerebral quality which allows for the apparition of mind which allows for the appearance of consciousness." (Morin, 2014d, p. 63, my translation).

The basis for human complexity is the human trinity: individual - society - species. Individuals are the result of the reproductive process of the human species which is produced by individuals. Interactions between individuals produce society which retroacts on them through its culture and allows them to become human. They generate and regenerate each other and each of the terms is a means and a goal. Their relation is dialogic and thus can become antagonistic. Every human behaviour, mental activity, praxis is partly genetic, partly brain activity, partly mental, partly subjective, partly cultural and partly social. The human common identity is not only generic because it is (re)generating and hereditary, the human unity is also manifest at the cerebral level, in our ability to speak, in our stance towards death, in our cultural and sociological attainments. Although these manifestations of humanity are extremely diverse, humanity is a multiple unity.

From a societal perspective, although the nation state allowed for economic and social development, the destiny of individuals became individualistic. Individualism has led to the loss of solidarity, to loneliness. Dialogically, the nation state and capitalism tend to emancipate/empower and subdue/exploit. Nation states have become more interdependent in a planetary economic mega-engine which is powered by a quadrimotor. Since the 20th century the alliance of science, technology, industry and capitalism (or profit) drives the making of history. However, history destroys as much as it assimilates. Dialogically, each development comes with disorganisation and degradation of what was before. The development of the western world came with subjugation and colonialization, techno-economic progress with global warming. Systemic processes are hereby accelerated and amplified through positive feedback. Their development can no longer be regulated and leads to catastrophe or unpredictable transformations. A recall of the ecology of action of the 2nd volume. This planetary mega-engine nevertheless has no central apparatus. What counts, what is considered as progress, is what is quantifiable, the

management of developed societies, technological innovation and the rationality of the market. Morin called for a global commons, including water and information, and the integration of nations in a planetary community, for a metamorphosis. Already in 2001 Morin wondered whether humanity would be able to inhibit barbarity, whether we will be able to really civilise humans.

Volume 6: Ethic (Morin, 2014e)

In continuation of the previous volume, this last volume of 'The Method' emphasises a metamorphosis is needed. An awakening and activation of generative and regenerative powers which become creative powers with a focus on solidarity.

The main concept introduced to achieve such a transformation is 'relinking', 'reliance' in French. The term was coined by the Belgian emeritus professor sociology, from the Université Libre de Bruxelles, Marcel Bolle De Bal to activate the word 'relier' (to link) (Bolle De Bal). To link is passive, connecting is participating whereas relinking is active. Every view on ethics has to note that a moral act is an individual act of relinking, whether it be with another, with a community, with a society or ultimately with the human species. The more complex a society is the less constraints there are for individuals and groups, weakening the social links. At the extreme, complexity dissolves in disorder. A high level of complexity can only be protected through the interiorisation of solidarity by all members of society. However, societies are not able to impose their ethical norms to all their members and individuals have to overcome their egoisms to behave ethically. In a very complex society this becomes an acute problem because traditional solidarity has broken up due to individualism. Solidarity, complexity and freedom are linked but need to be relinked. A complex society cannot maintain its cohesion only through 'just laws' but also needs its citizens to be responsible, solidary, intelligent, aware and taking initiative. It needs them to have auto-ethics. The ecology of action has to be taken into consideration because there always is uncertainty in the relation intention-action and the conditions of the environment, in which they take place, are also influencing the effects of an action. Relinking is ethics and ethics is relinking.

In what follows the main topics of Morin's other works are treated:

Complex Thinking

Complexity puts humans before a problem, whilst they want simple answers or to render complexity intelligible, complex thinking tells them that in understanding there is also elusiveness. Reality as humans know it is a human construct, the result of translation/reconstruction through and in our perceptions, language, theories or

philosophies, cultures and societies producing myths, gods and ideologies we consider more real than reality. Complex reality however cannot logically be deduced, because it is emergent it can only be ascertained. (Morin, 2017). This presents humankind with an epistemological difficulty which can only be resolved by rehabilitating the intelligence of complexity in our cultures, in our teachings to overcome the current fragmented and scattered knowledge. Complex thinking links data, information and knowledge; knowledge and action; the epistemic and the pragmatic. "Complexus means 'that which is woven together'. Complex thought is a kind of thought that unites distinction with conjunction. [...] Thinking in terms of complexity is clearly not a mode of thought that replaces certainty with uncertainty, separation with inseparability, and logic with all kinds of special exceptions. On the contrary, it involves a constant toing and froing between certainty and uncertainty, between the elementary and the global, between the separable and the inseparable. The aim is not to abandon the principles of classical science order, separability and logic but to absorb them into a broader and richer scheme of things. The aim is not to set a vacuous all-purpose holism against systematic reductionism, but to attach the concreteness of the parts to the totality. Linkage must be made between the principles of order and disorder, separation and connection, autonomy and dependence, which are at one and the same time complementary, concurrent and antagonistic. In short, complex." (Morin, 2019b, my translation).

Education

Writing "The Method", Morin realised that education formed a major problem in thinking about complexity and therefore the development of complex thinking and knowledge, which led him to propose a reform of education.

Although the purpose of education is knowledge, education does not teach what knowledge is. The cultural, intellectual and cerebral nature of knowledge ought to be taught in order to be critical for errors of thought and illusions. In a complex world it is essential to "[...] develop the natural aptitude of the human mind to place all information within a context and an entity." (Morin, 1999, p. 1) to overcome the current fragmentation of learning. Part of the curriculum should be the human condition. Humans are physical, biological, psychological, cultural, social and historical beings with a complex, but nevertheless shared identity. On a planetary scale, because of the complex planetary crisis of the 20th century, it should be shown "[...] how all human beings now face the same life and death problems and share the same faith." (Morin, 1999, p. 2). The history of the interdependent planetary era, which started in the 16th century, should be thought including its "[...] ravages of oppression and domination in the past and the present [...]" (Morin, 1999, p. 2). The developments in quantum mechanics, thermodynamics, cosmology, evolution theory and

history have reintroduced uncertainty in our lives. Strategic principles to deal with chance, the unexpected and uncertainty, including ways to adapt our strategies in function of new information should be taught so as to expect the unexpected and to be able to confront it. Although understanding is essential in order not to be trapped in misunderstanding, it is not part of schooling. The sources, modalities and effects of misunderstanding should be studied to be able to understand the causes of racism, xenophobia and discrimination rather than treating the symptoms as is currently the case. Ethics cannot be taught with moral lessons; it is the internalisation of the knowledge that humans are part of the trinitary complex: individual - society - species. Antropo-ethics requires society to control individuals and individuals to control society or democracy allowing for "[...] individual autonomy, community participation and awareness of belonging to the same species." (Morin, 1999, p. 2-3).

"These [...] facets of essential knowledge, should be covered, without exclusivity or exclusion, in education for the future in all societies in every culture, according to the means and rules appropriate to those societies and cultures." (Morin, 1999, p. 1). According to Morin we are living in a new era of civilizational barbarism that is leading our planet to a planetary crisis, therefore we have to conceive a new reality, life history and humanity. For such a new future, our educational system must be rethought and bet on the forces which enhance life in its different manifestations.

The Human Condition and The Planetary Era

To understand the human condition the trinity individual - society - species is central. The three notions are not only inseparable but recursively productive of one another. It is necessary to acknowledge the human unity, the unity in humans of nature and culture. Morin introduces a cosmo-anthropology where the individual is separated from the species and society but at the same time not separable from the species and society. Although separated from our biological antecedents, from the animal world, we cannot be separated from the process which led from unicellular life to us, nor from the physical history of the universe (Morin, 2017, p. 39). Since reality as we know it is a human construct, the only true human reality consists of the ephemeral reality of suffering, pleasure, birth, life and death (Morin, 2017, p. 43). However, our subjectivity throws us between egocentrism and group membership, between excluding everybody except oneself and including oneself in a group with others. 'I' needs to be linked to 'us', reason and passion to be dialectised (Morin, 2017, pp. 108-109).

From an epistemological perspective this requires the relinking of natural sciences and the humanities. Ontologically, fragmented knowledge, supposes reality, especially human reality, is separable. The philosophical, ethical and political idea that the mission of science

is to allow humanity to become 'master and possessor of nature', which now is the central conviction of western civilisation and which has been and still is the motor of globalisation, has led science, technology and economy to propel the spaceship earth. "The techno-economic unification of the planet and the proliferation of communications have triggered not a conscience of common human destinies, but, on the contrary, particularistic relapse on ethnical and/or religious identities; not to a grand unification, but to a proliferation of political and cultural dislocations and disruptions degenerating in conflicts." (Morin, 2017, p. 156, my translation). The result is a chain of catastrophes, not only the continuous deterioration of the biosphere but also the planetary dominance of the financial world on economies and nation states whereas profit becomes the only purpose of humankind. "[...] A crisis of humanity which fails to become humanity." (Morin, 2017, p. 158, my translation). (Morin, 2017).

A thorough intellectual and moral makeover is required, an anthropo-political project. A project conscious that every political overhaul requires a makeover of civilisation, of life, of thinking, of spirituality. The most urgent mission is to solidarize our planet.

Other Works

Morin treated several subjects which were spoken off at the time he wrote about it, always applying his method of complex thinking because all phenomena are part of the complex world. Such as studying in the 1960's, when these studies were still in their infancy, on site cultural practices and transformations due to changing practices such as agricultural modernisation and the introduction of household appliances. Or the sociological exploration of the origin and dissemination of a rumour. Those sociological experiments of participative observation were rendered in 'Commune en France: la métamorphose de Plouzévet' (Municipality in France: The Metamorphosis of Plouzévet) or 'La rumeur d'Orléans' (The Orleans Rumour).

Before the fall of the Berlin wall and the treaty of Maastricht, 'Penser l'Europe' (Thinking Europe) is a historical and cultural investigation of what constitutes a European identity. Morin considers the main criteria required to allow the European complex 'meta-state', as a construct of several nation states, to avoid the entailed risks, uncertainties and opportunities. The new European identity is to be found in its awareness of its strengths and weaknesses. Paradoxically Europe in the planetary age has become provincial and meta-national (European Parliament).

The complexity of the Jewish condition is treated in 'Le monde modern et la condition juive' (Modern World and the Jewish condition).

In several works he advanced his political ideas. From the principles of multidimensional politics in 'Introduction à une politique de l'homme' (Introduction to a Policy of Man), over the imperialist and totalitarian nature of a USSR dominated by the party in 'De la nature d'URSS. Complexe totalitaire et nouvel empire' (On the Nature of the USSR. Totalitarian Complex and New Empire) to ideas for a new way of doing politics in for example 'Ma gauche' (My Left) or 'Le chemin de l'espérance' (The Path of Hope).

Edgar Morin has also published several books reflecting on his personal journey such as 'Autocritique' (Self-criticism) in which he frees himself of the communist dogmatism, 'Vidal et les siens' (Vidal and his People) about his father or about his love for his wife which deceased in 'Edwige, l'inséparable' (Edwige the Inseparable) or else his life narrative in 'Mon Paris, ma mémoire' (My Paris, my Memory). Furthermore, several diaries were set in print amongst which his 1960's American journey in 'Journal de Californie' (Diary from California) or 'Pleurer, aimer, rire, comprendre' (To Cry, to Love, to Laugh, to Understand).

Morin's Influence

Edgar Morin's thinking mainly had an influence in Europe, French speaking Africa and Latin America. The plurality and complexity of the latter fascinated him as of the 1960's when he worked for two years for the intergovernmental Latin-American faculty of social sciences. Countless conferences have been organised around the world about Morin's view on complexity, much of them he either attended or chaired. Several research centres have been named after him: the MMREM (Multiversity Mundo Real Edgar Morin) in Mexico being a knowledge centre and educational project based on Morin's thinking, philosophy and educational proposal, the Pensamiento Complejo Edgar Morin at the Ricardo Palma University in Peru and the former Centre d'Etudes Transdisciplinaires, Sociologie, Anthropologie et Histoire (CETSAH - centre for Interdisciplinary, sociological, anthropological and historical studies) in Paris has been renamed Edgar Morin Centre.

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