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The history of matter and the principle of indeterminacy

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Abstract

The study aims to investigate the concept of matter from the Greek era to the contemporary era and the subsequent change in the concepts related to matter, including the shift from the principle of determinism in the modern era to the principle of indeterminacy in the contemporary era.

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1. *Introduction*

The development of matter, starting from the Greek era, witnessed a change in the concepts associated with it, which was called for in most cases by the need to understand nature, explore its depths, and adapt it to serve humanity. Mutual and consequent results in various fields, especially in the science of physics, and then the term physics was associated with matter as one thing for some thinkers and philosophers, while some of them went to distinguish them from each other, and matter remained closely linked to the principle of inevitability, but Heisenberg found that this principle It is not proven in the world of the atom (microphysics), and here we can ask the following questions: How did matter develop and what is the principle of indeterminacy?

2. *The historical development of matter*

2.1 *Historical development of the material*

Materialism is a type of monistic philosophy that espouses that matter is the basic constituent of nature, and that all things, including rational aspects such as consciousness, are products of material interactions.

The idealist philosophy considers both reason and consciousness to be realities of the first order, to which matter is subordinated, which in turn is a reality of the second order. But in materialistic philosophy it is the other way around. Here, mind and consciousness are a by-product or co-phenomenon of physical processes (the biochemistry of the brain and nervous system, for example) without which neither would exist. According to this philosophy, it is the material that creates and determines consciousness, and not the other way around.

Materialistic theories are generally divided into three groups. Simple materialism identifies the world with specific elements (such as the four elements—fire, air, water, and earth—invented by the pre-Socratic philosopher Empedocles

Metaphysical materialism examines the separate and isolated components of the world. Dialectical materialism adopts the Hegelian dialectic of materialism, and examines the relationship of the dynamic components of the world to each other.

Closely related to physicalism, materialism is the view that everything that exists is ultimately physical. Philosophical physics evolved from materialism with the discovery of physical sciences to merge with more developed concepts about physics so as not to merge with it unusual concepts, such as space-time, physical energies and forces, dark matter, and others. Hence, the term physicalism is preferred over materialism

by some, and others use the two terms as if they are one.

Philosophies opposed to materialism or physicalism include idealism, pluralism, dualism, and some other forms of monism.

Materialism belongs to the category of monistic ontology. It thus differs from ontological theories based on dualism and pluralism. Materialism opposes idealism, neutral monism, and animism in monistic explanations of real phenomena.

Despite the large number of philosophical schools and the nuances between many of them (Priest, Stephen, 1991), it is said that all philosophies fall under two main conflicting categories: idealism and materialism. The basic assumption of these two classifications concerns the nature of reality, and the essential difference between them is how they answer the primary questions: “What is reality made of?” and “What is the origin of reality?” For the idealists, spirit, mind, or the properties of the mind (ideas) are the basis, and matter is subordinate to them. For materialists, matter is the basis, and matter, spirit, or ideas is the subordinate that arises from the action of matter towards matter. (Novack, George, 1979)

Perhaps the best understanding of materialism lies in its opposition to the immaterial philosophies that have historically applied to reason, and René Descartes is famous for this. However, materialism itself tells us nothing about what we should do to classify material things. In practice, materialism is usually represented by one aspect of the physical.

Materialism is usually associated with reductionism, according to which things or phenomena, if they are real, must accept explanation on a level more reductive than their own.

Reductive materialism explicitly rejects this concept, yet it attempts to align the physical components of all things with real properties or phenomena that cannot be explained in the same way as simple physical components. Jerry Fodor makes an effective argument in favor of this view. For him, empirical laws and interpretations of special sciences such as psychology or geology disappear when viewed from the point of view of physics. Much influential literature has been written building on the relationships between these viewpoints.

Modern materialist philosophers broaden the definition of scientifically observable phenomena such as energy, forces, and the curvature of space. But philosophers like Mary Midgley find the concept of "matter" elusive and poorly defined. (Mary Midgley, 2003)

Materialism is directly opposed to dualism, phenomenology, idealism, vitalism, and dualistic monism.

Materialism can be linked, in some ways, to the Enlightenment's concept of determinism.

During the nineteenth century, Karl Marx and Friedrich Engels extended the concept of materialism to promulgate a materialist conception of history centered primarily on the realm of empirical human activity (including work), and the institutions created, recreated, or destroyed by that activity (see historical materialism) .

Later, Marxists such as Vladimir Lenin and Leon Trotsky developed the concept of dialectical materialism, which later defined the parameters and methodology of Marxist philosophy.

2.2 *Axial era history*

Materialism developed, perhaps independently, in many separate geographic regions of Eurasia during what Carl Jaspers calls the Axial Age (between 800-200 BC)

Materialism developed in ancient Indian philosophy around 600 BC, with the efforts of Ajita Kesakampali, Payasi, Kannada, and the proponents of the Charvaka school of philosophy. Kanada became one of the early proponents of atomism. The Naya-Vaisika school developed one of the first forms of the concept of atomism, but their arguments for God, and their assumption that consciousness is not material, impede their classification as materialists. Both atomistic Buddhism and the Jain school adhere to atomistic philosophy.

The Atomists of the ancient Greeks Cleocippus, Democritus, and Epicurus predate the later Medes. The Latin poem "On the Nature of Things" (99-55 BC) reflects the mechanical philosophy of Democritus and Epicurus. According to this view, all that exists is matter and emptiness, and all phenomena arise from various movements and assemblies of fundamental material particles called “atoms” (literally: indivisible). The poem offers mechanical explanations for phenomena such as erosion, evaporation, wind, and sound. The famous principle that a body can only be touched by a body appears for the first time in the works of Eucritus. But despite this, Democritus and Epicurus did not adhere to a unitary ontology, as each of them adopted an ontological separation of matter and space, that is, they considered space of another gender, which shows that the concept of materialism is greater than what this article describes.

2.3 *general era*

Wang Chung (27-100 AD) was a Chinese thinker at the beginning of the common era, and he is said to be a materialist philosopher.(Ramakrishna Bhattacharya,2012) Later, the Indian materialist philosopher Gyarrasi Bata (6th century) in his work Disturbing from All

Principles refuted the epistemology of the Nyaya Sutra. The materialistic philosophy of the Charvaka school seems to have died out some time after 1400. When Madhavshaya composed his Compendium of All Philosophies in the fourteenth century, he could find no texts to quote or refer to Charvaka or Lokayata. (Dominique Urvoy, 1996, pp. 38-46)

At the beginning of the twelfth century in Andalusia, the Arab philosopher Ibn Tufayl wrote dialogues about materialism in his philosophical novel Hayy ibn Yaqzan, vaguely foreshadowing the idea of historical materialism.

2-4 *Modern philosophy*

Thomas Hobbes (1588-1679) and Pierre Gassendi (1592-1665) represented materialistic philosophy in the face of attempts by René Descartes to present the natural sciences on dualistic grounds. They were followed by the materialist and atheist Jean Mesler (1664-1729), the French materialist Julien Overray, the German-French Baron de Holbach (1723-1789), Denis Diderot (1713-1784), and other French Enlightenment thinkers. In England, the philosopher John Stewart (1747-1882) insisted on seeing the material that he endowed with a moral dimension as having a great influence on the philosophy of William Wordsworth (1770-1850).

2.5 *Contemporary philosophy and continental philosophy*

Contemporary continental philosopher Gilles Deleuze attempted to support and reformulate classical materialist ideas.

Contemporary theorists, such as Manuel Delanda, who operate in accordance with this reinvigorated materialism, have been classified as neo-materialists in their belief. (Smith, Daniel & Protevi, John, 2015) The new materialism has now become an independent branch of knowledge, and it has courses taught in major universities, and many conferences are held for it, and books and studies are written about it. In his book Vibrant Matter, Jane Bennett played an active role in bringing the theories of unitary ontology and vitalism to the theoretical doctrine governed by theories of structural distance from language and communication. particular. (Dolphijn, Rick & Tuin, Iris van der, 2013) Academics such as Helen Fosters wondered if there was anything “new” about the so-called “new materialism.” Other earlier ontologists had advocated what might be called “the vitality of matter” for centuries. (Chen, Mel Y, 2012)

2.6 *Analytic philosophy*

Contemporary analytic philosophers—Daniel Dannett, Willard Van Orman Quine, Donald Davidson, and Jerry

Fodor—work within a broad framework of physics and scientific materialism, and have offered competing explanations for how best to align with reason, including functionalism, aberrant monism, identity theory, and others. (Marlis,Schweitzer& Joanne, Zerdy, 2014)

3. *Heisenberg and the uncertainty mark*

3.1 *Heisenberg and the question mark*

He described thus his "Heisenberg" law, which made it possible to control and specify the atomic system, namely, the law of (inevitability) of a statistical probabilistic nature based on the uncertainty relationship embodied in the impossibility of predicting the position and velocity of the electron in orbit at the same time, and in order to clarify this in depth we thought that our problem As follows: What is meant by the principle of inevitability? What is the extent of its legitimacy and certainty at the atomic level? Does this mean a complete demolition of the inevitability of classical physics? And if that is the case, then what are its implications for the rest of the sciences, including the humanities in particular, and the changing nature of their phenomena? Physics proceeded from the principles on which classical science was based, and as a consequence explained the movement of material bodies within the framework of absolute time and space, so absolute determinism was the first reference for this science on the microscopic level, but soon it was exposed to a real crisis on the microscopic level itself, so the principle of inevitability became the law Scientific certainty relied upon in determining the system of the atomic system. And if the previous theological interpretation has been overshadowed by nature, the position of man has changed during these last three centuries, and thus his view of the universe has changed, as the universe in the early seventeenth century, then, with Isaac Newton (1643-1727), is no longer just that explanation that attributes existence to an external source. Existence, rather, the Newtonian interpretation and the use of Newtonian mechanics became a successful use in the fields of nature, an attempt to interpret natural phenomena through experiments and observe them objectively, and understand them according to the laws that he reached based on the formulation of relations in a mathematical way, and for example (the law of gravity) that he reached (Isaac Newton), who is the first to draw the first step for this transformation, as he understood that the laws of gravity determine the movement of the moon around the earth and that they apply to various cosmic dimensions (Werner Heisenberg,1975a, p.12).It was recognized for the first time on what is happening at the level of the substance (the atom) through What was provided by the experiments conducted on the electrical

phenomenon, which were not known at the time, and thus the term description of nature steadily lost its meaning and became a mathematical description. Nature in the late seventeenth and early eighteenth centuries seemed to move according to laws based on a set of basic principles. But what are these principles of classical physics?

The absoluteness of time and space: time and space separated from each other are fundamental to classical physics, and therefore it was natural for the movement of objects to take place in space, and this place is considered a stable homogeneous medium that exists completely independent of the physical content. In this we find "Isaac Newton" saying: «Without looking at anything else external, the absolute place Absolute (space) in the subjective nature always remains similar and constant»(Maher Abdelkader Mohamed Ali, 1985a, p.139). And if space has three dimensions, then time has one dimension of successive boundaries. On this basis, it proceeds in a steady and homogeneous flow, and this homogeneity results in multiple characteristics such as its independence from the material physical content, its infinity, its continuity, and in this, “Isaac Newton” says: “Absolute time by itself and by its own nature flows evenly and without any relationship to anything external to it.” (Maher Abdelkader Mohamed Ali, 1985a, p.139) On this basis, the problem of measuring time becomes a problem of chronological order or temporal succession, that is, the previous and the subsequent, since the relationship of the chronological order can be reduced to a relationship that can be tested by repeating the occurrence of incidents of the same type. As long as the movement that is attributed to bodies takes place in absolute space and time, Isaac Newton considered that the material world is a group of particles or pieces of matter, and each of them is either static or moving through space. If it is in motion, it will continue to move at the same speed and in the same direction, unless “forces” intervene to change the state of rest or movement, and this is the first law.

Thus, the perpetual motion became in the normal state of the moving body, unless something intervened to change it, so the force is measured by the amount of change it causes in the speed of the body on which it works multiplied by the mass of the body, which is the second law.

Here, the direction of movement is taken into account, and accordingly, we assume that a change in velocity has occurred if a body changes the direction of its movement, even if it continues to move at the same speed. Thus, for every action there is an equal and opposite reaction in the direction. For example, but not limited to: the law of general gravitation, every two bodies attract with a force that

is directly proportional to the product of their masses, and inversely proportional to the square of the distance between them, which is the third law(James Jeans,1919, p.119). What is meant by contact?

The concept of communication in classical physics: Among the characteristics that characterize classical physics and help it determine the internal structure of the atom is the property of communication, as matter is connected to each other and this concept can be understood by knowing the nature of light in classical physics. Who realized that it is possible to explain the flow of light rays in straight lines by assuming that the light consists of small particles that are emitted at great speed from the light source, and that these particles must move according to the laws of motion in straight lines through the ether (which is just an assumption assumed by (Isaac Newton) Where it works to transfer the effect between the vast dimensions, while the positive theory, which was supported by the classical electromagnetic theory of energy, provided the advantage of communication, which was brought by (Huygens 1629-1695) a contemporary of Isaac Newton. On the one hand, and the speed of its reflection on the other hand, so the particle (Isaac Newton) believes that when light passes over any body, the shadow of that body appears, and this is because the transmission of light is in the form of discontinuous particles, while (Huygens) believes that the shadow phenomenon on which (Isaac Newton) relied) did not fully serve the particle theory, because some small bodies, despite the passage of light on them, "we do not find an effect of the shadow because the rays of light deviate and bend to meet again behind the body, and this is what is known as the phenomenon (inflection or deflection of light rays). In addition to this, other experiments were carried out that showed and even proved the typical nature of light based on the phenomenon of interference, which means that if two rays, one above the other, are traveling in the same direction, then one of them will erase the other, because the section of one of the two waves coincides with the slopes of the other, and thus one of them disappears and the other remains. (Al-Sayyed Nafadi,1983,p.139).

What the electromagnetic theory worked to show is that every continuously moving electric charge emits electromagnetic energy, the increase of which is directly proportional to the gradual fading of its movement, and with the release of energy and its distance from its source, it takes the form of an electromagnetic wave, and from it all radiations are waves or vibrational movements that spread in the form of electromagnetic waves that differ in length and shortness(Mahmoud Zidan, 1982, p.65).

This is what we notice in classical physics, which relies entirely on absolute determinism. What is meant by absolute determinism in classical physics? The principle of absolute inevitability and the principle of determination: one who contemplates the history of physics notes that classical physics was based on the belief in the existence of absolute inevitability to which all phenomena are subject, and this principle is in its essence a mental principle necessary for classical physics as its basis for analyzing and understanding phenomena on the basis that knowledge of data in advance makes us predict and expect Even if it is probable or approximate (Approximativement) what will happen in the future. For example, but not limited to, if we know the state of an object at a specific moment in time, we can accurately determine its state in all other moments of time by specifying its coordinates, and from there we can follow the changes of the studied body in an exact manner in space and time just by knowing its original state, especially its location and velocity, and this The so-called principle of assignment (Mahmoud Zidan, 1982, p.65). Based on the foregoing, we can predict the conditions of the world through the locations of objects and their speed, and follow them individually with the use of the mathematical approach, that is, the use of physical laws in the form of mathematical relationships. And in this we find La Place) saying: "If there was a superhuman mind that could observe the location and speed of every atom and solve all mathematical equations, the future would be like the past" (Maher Abdelkader Mohamed Ali, 1984b,p.109). This is despite the success achieved by classical mechanics in changing phenomena and predicting them, especially when it comes to nature at the level of human standards or at the level of the largest world in astronomy, but it faltered in reaching certainty in the field of the infinite world, and on this basis: If mechanics Classicism has achieved greater success with its principles and laws in interpreting and predicting phenomena at the level of the larger world, so was it able to achieve that success at the level of the infinitely small world? (The scientist of the atom and its components of electrons, neutrons and electrolytes)? As long as the electrons are particles of a wavy particle nature, can we determine their speed and position absolutely, as is the case in determining the movement of the body and its position in the order of the classical laws of physics? The principle of indeterminacy and the uncertainty relationship of (Heisenberg): Physicists have found themselves in contemporary history in the face of an integrated theory that interprets light in a particle interpretation as being composed of photons. | And in the light of the quantum theory formulated by

(Blanck in 1901), it is no longer but a ray of a continuous phenomenon, but rather it has become like matter that is studied in individual units, as Louis de Bruy explained the combination of the partial and wave theories in their simplest meanings, so he believed that there are particles accompanied by traveling waves with the molecule and control its movement. Without presenting the different opinions in this field, such as the opinion of Shrodniger and the opinion of Nieles Bohr (1885-1962), we say:

The salient issue at the heart of quantum theory is the famous principle (principe inderminacy) or the so-called (principle of indeterminacy) that came from the German naturalist and one of the founders of quantum mechanics (Werner Heisenberg 1901-1976). The year 1927 determined the mutual relationship in the movement of atoms through the principle of inevitability, which brought about a radical revolution in the course of natural philosophy. After classical physics believed, and was based mainly on the principle of absolute determinism, contemporary physics became subject to the principle of indeterminacy in the atomic field, as Heisenberg indicated that there is a specific amount of determination (indeter minacy) (which is the amount of doubt or suspicion) related to the path of the molecule and determining Its position and velocity at a given moment. With this, the step of moving from the causal interpretation of the smaller world to the statistical probabilistic interpretation of it was completed, and thus the single atomic incident became not transformed by a causal law, but rather subject to a probabilistic law. At that time, it was inferred by the idea: (If ... then ...) which classical physics defined with the idea (If ... then ... in a percentage (Maher Abdelkader Mohamed Ali, 1984b,p.166) Before presenting this theory (Heisenberg), it must be noted that the launch of the latter was based on the theory of (Niles Bohr), which states that the electron paths can be determined. In fact, the principle of indeterminacy is considered a basic law in the science of atomic nature when it was discovered in 1927 by (Heisenberg), who believes that “all the physical quantities that can be observed are subject to unpredictable fluctuations that make their value completely indeterminate” (Werner Heisenberg, 1993b ,p.11). This means that indeterminacy has deep implications. It means that the electron does not move in a well-defined path through space, so it is impossible to know the position and velocity of the atomic particle simultaneously. Hence:

“Whenever the location of the particle is accurately measured, this accuracy changes the amount of its movement and thus its speed.” (Mahmoud Amin Al-Alam,1998, p.182) Thus, we notice that the basis of measurements of atomic

nature lacks specificity, and for this reason it was called the principle of determination or indeterminacy (Indeterminism), as it depends in its basis on the amount of doubt or suspicion. Or what is called the paranoia principle.

Hence, we conclude that the principle of inevitability that Heisenberg came up with as a law to determine the various movements that it was a great (epistemological break) with the concepts of classical physics, as it was able to establish a relationship that enables us to control the atomic system, providing it with a probabilistic nature. This estrangement led to epistemological results, which can be summarized as follows:

3.2 *Denial of absolute determinism*

The principle of inevitability has stood as a strong barrier in the face of the principle of inevitability on which classical physics has been based for centuries, as it was believed that accurate and rigorous prediction became within the reach of human thought based on the fact that every cause has a cause, and as long as there is causation, then there is inevitability necessarily. But soon, this principle was subjected to severe blows that almost ruined its being, especially when Heisenberg concluded that the world of atoms does not allow us to say inevitability, and all we can say is probability and approximation (Salem Yafut,1986, p.74). Thus, the reality that human knowledge has not reached is also rational, that It is quantitative physics that rationalizes reality, and it is not reality that provides us with laws, but rather the knowing subject. Thus, then, we also find that (quanta) according to (Heisenberg) requires us first: realizing that every observation of the atomic incident leads to the intervention of a machine in the incident, that is, quantum physics "does not describe an objective state in the world of the future, but rather describes the appearance of this world as we knew it through certain subjective point of view or by certain empirical means. (Mahmoud Amin Al-Alam,1998, p.285)

On this basis, we find (Heisenberg) has raised the problem of objectivity and subjectivity in a new way in contemporary physics. It is a problem that was the subject of concern for philosophers and scientists in the seventeenth century, especially with Rene Descartes, because after classical physics used to see, for example but not limited to, that measuring tools do not affect the subject that we measure, the matter has now become different in the world of (microphysics), because measuring tools Clearly affecting the same issue. Thus, Heisenberg reconsidered the measurement tool for the observed phenomena and their impact on them. Therefore, we find someone like (Bohr) who says: "We do not need to assert that the self is the freedom to

choose, and it is the one that provides a place for the diversity of the calling phenomenon and the richness of human life"(Niels Bohr ,1961, p.190) The outside world is the determinant of it. The all-knowing self is the one that seeks to discover human knowledge, and accordingly a new issue was raised, represented in the need to go beyond the idea of the absoluteness of time and space in classical physics.

3.3 *Going beyond the absoluteness of time and space in contemporary physics*

Perhaps it was the descent into the world of the atom that was behind changing some ordinary concepts such as speed and distance, and from there some scientists also worked to change their concept of time and space that classical physics envisioned as two absolute frameworks that are not related or related to things, while These are connected and related to them, as it is possible to imagine a time and a place

devoid of things, and this is because classical physics is based on the reality of space, but the understanding of the reality imposed by quantum physics requires changing the horizon and changing the entire problem, given that the electron itself and the vibration that contemporary physics is talking about are not specific facts that are limited in time and space, but are All of them are the result of a statistic. They are quantitative facts, not qualitative ones, and every attempt to scrutinize one side of them inevitably leads to an increase in vagueness and indefiniteness on the other side, so speaking then is only about possibility and not certainty. And the same thing with regard to time, because if it is not possible to determine the location of the electron in space, then its state cannot be determined also in time. The electron has become imposing its own time and place (Salem Yafut,1986, pp.71-72), and accordingly, time and space in quantum physics become subordinate to physical objects, and not vice versa, on the basis that they represent a relationship or ratio, and not two special frameworks in which physical objects are included, and not vice versa as classical physics considered them (two first intuitions). simple). Thus, the new problematic of science viewed them as assembling and creating an abstract structure and construction, as they are more entangled and complex in the place and time in which we are accustomed to placing things in them, and we have adopted an explanation of their locations in them. In this regard, (Louis Dupree) goes that in the Einsteinian space and time "every observer deducts for himself and his occupant as he likes his own place and his own time" (Salem Yafut,1986, p.72) In addition to this conclusion reached by (Heisenberg), which is the need to abandon the electron perception As if it were a small material substance subject to

the same laws as the usual world and the necessity of conceiving it as something, which exists in a careful manner in different locations (Salem Yafut,1986, p.74). Thus, the existence of the electron also becomes a cognitive existence, not an ontological one, and in the light of what was mentioned above, this has become a major break with classical science, establishing relationships that enable us to control and specify the atomic system resulting from the transmission of the electron by controlling it probabilistically through uncertainty that results in the impossibility of measuring The location of the particle and its movement together is an accurate measurement, although some believe that science has stripped matter of its physical qualities, as it has stripped it of the realism that Cartesian rationalism said. Therefore, we find some who rejected this principle, especially among them advocates of positivism, and among them, for example, the famous French mathematician (Henri Poincaré), who considered the relationships of suspicion to be nothing but a diagnosis of the disease that soon disappears, and that science is inevitable by its nature, and inevitability in it is a temporary disease that will disappear with the future if it improves Our means and accuracy (Constantin Zurayk,1985, p.178), but this position as a minor observer does not see the structural separation that exists between cunning, physics and classical physics, a separation that led to the realization of the study of uncertainty relations and their logical mathematical results, as well as the study of the structure of modern contemporary physical theories. It had a clear impact on various other sciences, including the humanities. Thus, we come to the conclusion that the contemporary physical reality is different from the classical physical reality in which the movement of bodies was studied within an absolute time and spatial framework, and thus was the absolute prediction of the inevitability of accidents and phenomena. As for the contemporary physical reality, which requires the intervention of the knowledgeable self in the subject of knowledge, in addition to the interference of the accuracy of the electronic devices used, and objectivity in scientific knowledge, prediction is relative, and despite that, some scholars denied determinism as a restriction of experience and a destruction of causation, as how can we build a logical science based On chaos, in the sense that we do not know the reasons for its occurrence, which remain different from us. The inability of contemporary physics in the atomic field to predict the single result, or rather to track the movement and position of the single electron, was not accepted by the classical view on despite the exact laws discovered by quantum mechanics that are governed by mathematical relationships

that the human mind perceives more than it is based on an objective identification of things in time and space at the level of what sensory experience reveals to us, it is true that the principle of indeterminacy admits that it does not predict the exact behavior of individual electrons or photons, or any fundamental entity Another, but he can predict with great accuracy the exact behavior that large numbers of them must have. This is not due to a shortcoming in scientific laws or the acumen of the scientist himself, but rather due to the nature of the electron in itself, and therefore after it was absolute determinism in predicting natural phenomena, it turned into relative inevitability based on statistical probabilities, and from there the saying of inevitability came to mean a complete collapse of the absolute inevitability that he knew classic science. Saying the collapse of inevitability means non-predictability, and therefore non-knowledge, and inevitability does not mean non-predictability, but it is a relative prediction of a probabilistic nature, and therefore inevitability is a type of inevitability.

This is actually what contemporary physics has proven on the scientific scene with its theories whose success has been seen on several levels, whether in the biological sciences or the humanities. Examples of reflections of the principle of determinism in the field of human sciences: Human thought seeks to make possibility a necessity in various scientific fields, whether in the biological sciences or in the human sciences, including history, whose phenomena are complex due to its many relationships with various fields of human life (social, economic, political, psychological...etc), to see the difference of people in their confrontation of problems, where we find some of them who only feel the closest problems in terms of guaranteeing and continuity of life. They do not have any contribution to progress, and they do not know the past except through their memory or delusion, but this does not rise to become a catalyst for controlling the present or preparing the future, and therefore it does not contribute to making life. There is a second category that feels all the obstacles it encounters, and the restrictions and limits that surround it, but it did not believe in its ability and will to confront and overcome it. Hence, it is not a creative group in history as much as it denied its action in defining life, changing it and transforming its course, because progress and creativity Renewal and change of conditions only comes to the first ones who are determined to take adventure and daring, and there is a third group that believes in freedom and choice and seeks with all its powers to control the course of history, because historical creativity does not come through absolute submission to it, but rather requires a kind of liberation that

allows one to rule history (Constantin Zurayk,1985, p.190) What we conclude from all this is that every human action becomes a result of the conditions that existed in its time

the conditions that prevailed at the time. If we understand his origin and the stage that he represents, then we can comprehend his meaning, and we also cannot judge him or him except through these circumstances and conditions. Relative events and rulings that are valid at one time and not valid in another, and rise in one stage and disappear in another, and this is the biggest proof that there is no absolute inevitability in historical rulings. Based on the aforementioned, determinism maintains a place for itself in the human sciences, including history, in preparing freedom that limits determinism, but it does not negate it absolutely. This applies, for example, to material determinism, because it is necessary for a free, limited, predictable world to exist. One is to contemplate the free action and achieve it, as it applies to the imperative that is necessary for the person to be able to influence himself and thus express his freedom. The historian does not create history out of nothing but relies on documents and fabricates a number of methods in the stage of historical criticism, as it is not necessary for us to know the laws of events, although this is the goal of every scientific knowledge, but every organized knowledge that seeks truth undoubtedly enters the field of science. So he often finds himself compelled to go into Philosophical issues related to the logic of history and its destination. The historian, then, is bound by the ties of kinship with the scholar, the artist, and especially the philosopher. The historian makes us today, thanks to his organized efforts, stand on some facts and their reasons. We know today, for example, more than those who preceded us, the near and far causes of France's campaign against Algeria, and (Napoleon's) campaign against Egypt...etc. As for psychology, the proponents of the representational method emphasize external observation and internal observation together in order to investigate the conditions of a single phenomenon and encompass all its aspects by observing the outward behavior of others, and we discern from it the emotional states underlying it, for example in comparison to the emotional states that we experienced. It is as though we then project our emotional states onto others when we observe them. This approach stems from a postulate that is based on the fact that people enjoy one psychological structure, and therefore their actions and feelings must be the same. In this case, the same behavior has failed me, so here I combine what is called introspection with the objective method. In spite of all that, objectivity requires us to say that this method is effective when it is applied in a

milieu where we are certain that its members have been subjected to one social upbringing and one culture. But if you do not take into account these aspects, then the matter is different. If you watch, for example, and for the first moment an Italian speaks, you think that he is angry because he raises his hands and raises his voice. But the reality shows that this is the way the Italian person naturally speaks, and therefore it is not necessary that the single signals always be indicative of the same psychological state, and therefore we have to expect different and complex reactions, which justifies the effect of the principle of inevitability even on psychological phenomena, especially since we know that they are related Document various aspects of biological, social, historical and other life.

The same applies to sociology, where we note that the behavior and actions of one environment are not the same, as evidenced by the actions and reactions of one family towards one situation, which shows the truth about the effects of the principle of inevitability in the sociological field. In sum, despite what has been said about the principle of inevitability, its legitimacy is justified, because science is still in the process of discoveries, and human thought is also still passionate about the love of knowledge and its insistence on discovering more of the depths of the world. For this reason, we find that the difference between scientists is still at its strongest today, between a believer in a decisive and strict scientific determinism, and a supporter of the principle of indeterminism. The reflection of the principle of inevitability and its impact on various sciences, including the humanities, has become a scientific reality that cannot be ignored, because the contemporary scientific reality with the principle of inevitability has become a reality based on relative prediction based on probability.

4. *CONCLUSION*

The evolution of matter historically witnessed an evolution in the concepts associated with it and the transition from the tangible world that can be verified empirically according to fixed and absolute laws to the atomic world (atom) in which the same thing is not possible, and then physics achieved a qualitative leap in the world of matter by moving from a world governed by fixed laws To a world governed by possibility, or in similar terms, the transition from the principle of evitability to the principle of inevitability.

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