Title of entry: Jean-Baptiste Chevalier de Lamarck
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Synonyms: Evolution theory, Lamarckisme, *Philosophie Zoologique*, Theory of the descent, Transmutations theory.

Definition: The French naturalist Jean-Baptiste Lamarck is one of the most representative figures of modern biology in the nineteenth century. Botanist and zoologist, he was a great systematic taxonomist establishing the current division of the animal kingdom in invertebrates and vertebrates. He also defined the term biology with its modern sense as a set of vital processes. And he was, above all, the first to use the idea of evolution to explain the history of life. His well-known book *Philosophie zoologique* gathers his way of thinking about evolution. He is, together with Charles Darwin and Gregor Mendel, one of the key elements to understand the formulation and subsequent development of the theory of evolution.

Introduction

Nature is for mankind a collection of surprising beings and occurrences. Discovering which objects comprise it, observing its phenomena and determining its laws are endless—perhaps interminable—tasks. The desire for knowledge arises in the minds of men trapped by necessity, curiosity and vanity. Under this scenario, scientists have applied two master formulas to represent it. First is the fixism model, representing a closed, timeless system. A snapshot of beings who eternally are born, grow, reproduce and die. Then there is the contemporary theory of evolution with its changing and perishable world. The application of one scheme or the other depends on the significance attributed to fossil remains. Leonardo da Vinci and Bernard Palissy, for example, both understood their value as living matter. However, until 1600, there was complicity to consider them as artefacts unconnected to life. Afterwards, naturalists started to abandon speculation by experimentally testing their organic condition. In the following century, another twist on the theme occurred when extinction was accepted as a phenomenon of life. As a result, species known from their remains were recognised to have inhabited

Earth in the past. This theory of lost species divides the natural system into two existential categories: geological time and biological time. The universal and the particular.

The botanist Carl Linnaeus promoted the temporal idea. In *Disquisitio de sexu plantarum* (1760), his explanation of organic diversity as a biological process is a pre-evolutionary theory scientific approach. Linnaeus considers hybridisation as a phenomenon capable of producing new plants, and in this way, they diversify over time. Creation is limited to the origin. Nature then acts alone. His hybridisation model is a restrictive, regulated application of the fixism theory. God is the creator, but the act has lost its supernatural condition, becoming an actualist, reproductive process.

Around the same time, the celebrated naturalist Count Buffon proposes a more ambitious, complex and refined version of this fickle nature. According to his *Les époques de la nature* (1778), Earth's history consists of seven stages. The first and second stages are abiotic and form the conditions necessary for life, which bursts through during the third stage. The first animals are aquatic. They would also be the first victims, the first species to be lost when the environment changes. The fourth stage is the era of the plants. In the fifth, a green carpet awaits the arrival of the gigantic animals known from their fossilised remains. It is also the time of uncivilised humans. The current continental division occurs during the sixth stage, and in the last, man takes possession of the Earth. The big question: How does life emerge from inanimate matter? In the theory of organic molecules—a fantastic hypothesis—organisms are formed through the aggregation of indestructible living particles, formed by the heat that acts on the malleable material. After species become extinct, the molecules are released to organise themselves in different ways into other species. Buffon develops a materialist concept of life but without a biological nexus, far from any notion of common descent. The idea of organising nature through a phylological law appears in other texts of his well-known *Histoire naturelle*, suggesting

its possible interpretation as an evolutionary event. The first step towards evolution had been taken. It consisted of replacing creation with a self-sufficient world. It was under this context that Lamarck, from 1800, would reveal his transmutationist ideology and propose a different way to think about nature as a demystified entity, reduced to physical processes and composed of species with a common origin. Lamarck changed the analytical scene by converting organic function into the true reference of living beings. The science of biology was born.

Main text

The Chevailer de Lamarck

Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck, was born on Saturday, the first of August 1744, in Bazentin, a small town in northern France. He was the eleventh child of Philippe de Monet, a knight of Saint-Louis and commander of the Château de Dinan. It was noble family with military roots whose prominence had been in slow decline for the last 300 years. Too many brothers and a diminished heritage led Lamarck to a seminary run by Jesuit fathers in the city of Amiens. It was the start of his ecclesiastical career, during which he earned the nickname the *petit abbé*. After his father's death, at the age of sixteen, Lamarck replaces the *Bible* with the sabre. Looking to enlist in the *Beaujolais* regiment, which was waging war on the northern border, he was admitted as a volunteer. In July 1761, he participates in the Battle of Villinghausen, a well-known episode of the Seven Years War, in which the French troops suffer a bitter defeat. Lamarck, however, is appointed an officer for his heroism, though he would leave

the army as abruptly as he joined it. After the war, in 1763, the regiment is stationed in Toulon, then in Monaco, where he suffers a serious injury. He spent over a year convalescing in Paris: a time to read and meditate, to learn botany and meteorology and to understand that he could progress in life without losing it. He left the army and entered medical school. Hard times. He worked to survive, combining his studies with his job as a banker. But Lamarck was not born to be a doctor. After four years, botany replaced medicine. In 1778, he writes *Flore Françoise*: an effective methodological treatise to recognise the name of plants using easy dichotomous rules. The work was a success, earning the favour of the powerful Count Buffon who had it printed with the stamp of the royal printing house. Between 1781 and 1782, Lamarck travels throughout the territories of Germany, Austria, Hungary and Holland, accompanying the count's son as his tutor—a task that earned him an appointment as a royal botanist. Upon his return, he would manage the botanical section of the famous *Encyclopédie méthodique*. In 1788, thanks to the Marquis de Billarderie, manager of the Jardin des Plantes–the King's Garden, he is appointed as curator of the Royal Cabinet's herbariums. He was in charge of fixing and organising them, which earned him a salary of 1,000 francs. In 1793, he becomes chair of the invertebrate department at the French National Museum of Natural History. No professor wanted the post. His knowledge of "white-blooded" animals, as they were called at the time, was scarce. They were a group forgotten by nearly everyone. Land, aquatic and underground animals. Walkers, flyers, swimmers, jumpers and crawlers. Thousands of species: some 135,000 were known at the time compared to the around 10,000 known of the other groups. Lamarck knew how to order the chaos. He separated crustaceans from insects, defined arachnids, distinguished annelids among the worms, differentiated the echinoderms from the polyps, and, fundamentally, had the intelligence, intuition and success to call them animals without vertebrae. The animal kingdom was

divided into two universally accepted groups: vertebrates and invertebrates, as he explains it in his book *Système des Animaux sans vertèbres* (1801). Professor Lamarck remained faithful to the museum until his death on the 18 of December 1829. He even turned down a position as chair of Zoology at the Faculty of Sciences. Nearly 30 years in which life and work were intertwined. Three decades also represented by works such as *Hydrogéologie, Recherches sur l'organisation des corps vivans*, *Histoire naturelle des animaux sans vertèbres*, *Sistème analytique des connaissances positives de l'homme* and, particularly, *Philosophie zoologique*. Lamarck is a man of revolution. He wrote books for a magnanimous and victorious people. He wants to be useful to his fellow man, to his brothers and to his peers, as evident in the printed dedication of *Recherches sur les causes des principaux faits physiques*. A committed citizen, he was not in tune with the Napoleonic era. Neither the empire nor the restoration fit him well. Many scientific institutions welcomed him with open arms. He trained, in part, at the Institute of France, the Parisian Philosophical Society, the French Royal Academy of Sciences, the Moscow Society of Naturalists, the Royal Academy of Sciences of Munich, the Berlin Friends of Nature Society, the Strasbourg Society of Agriculture and the Agricultural Society of Lyon, among others. The twilight of his life was sad and difficult. He fell upon hard times. He buried three wives and several of his eight children. To scrape by, he sold his library, his herbarium and all of his collections. He died blind and poor. His body was buried in a mass grave in the Parisian cemetery of Montparnasse. Life did not do him justice. History also does not, conceding him a secondary role in the cast of the historical blockbuster entitled *Evolution*. However, it was Lamarck who courageously used the evolutionary idea to explain the history of terrestrial life (Simpson, 1953). What were the terms of the proposal?

A new philosophy on life

The philosopher Henri Bergson explained his interest in organic evolution at the Huxley Conference of 1911. Briefly, species are generated from other, simpler ones. A hypothesis confirmed by comparative anatomy, embryology and palaeontology since the time of Lamarck and Darwin. In his testimony, we recognise two foundational arguments of the evolutionary theory. First is the general nature of the phenomenon to generate new species by modifying existing ones. It is a descriptive argument, the 'what is happening', from which the different theories develop their own explanations for how and why it happens. Second is the empirical condition of the theory based on data contributed by different disciplines. These two arguments form the general ideological framework of the theory, as outlined by Lamarck and maintained by successive evolutionary models. In Yves Delage's view (1895), before Lamarck, it was unthinkable to attribute a natural cause to the origin of species. Or more precisely, the impossible was not to think of life in physical, chemical or biological terms. It was to close the circle, to explain the genesis of living beings by their genealogy, relating them to each other and to the environment. The impossible was to define a sequence of continuous biological information from the past to the present through reproduction. Lamarck's wisdom is epistemological: it consists of giving nature a new status, renewing the classical concept of the *scala naturae* or the great chain of beings—a scheme, since Plato and Aristotle, that related organic forms by their morphological proximity to comprise a rectilinear sequence of increasing complexity and perfection up to the human race. Living beings represented a unique, unilateral, one-dimensional and unidirectional natural group. For Lamarck, nature represents a well-organised group, but one not related to the *scala naturae*. In 1800, he publically rejects the concept and abandons the uniformity. He does not interpret it as a

regular, linear series but rather a sequence limited to the organisational system of classes and major taxonomic families, a common trunk from which species emerged as lateral branches. It is a new tree-like symbolism of the natural order, initially bifurcating into the animal and plant kingdoms that later develop through continuous phyletic series. Nature is composed of living beings grouped into species whose persistence is relative. They are only temporarily invariable. The individual is the essence of the whole, the circumstance that defines and maintains it.

In 1802, during the opening of the zoology course at the natural history museum, Lamarck explained that he had long accepted the principle of species invariability. It was an error that he would not repeat. Reformulating the concept of species was a consequence of observing nature from an evolutionary perspective. Now, a species would be a collection of similar individuals over a long period of time with the exception of small, accidental differences. Then, after an implausible amount of time for human existence had passed, environmental conditions gradually change and individuals adjust their topology to accommodate their new needs. They acquire another conformation that is inherited by their descendants. The group now constitutes a different, equally perishable species. A subgroup could also become accidentally separated from the collective and experience different environmental conditions elsewhere. Lamarck hypothesises that it would develop new habits to survive and thus form another species, thereby incorporating a mode of speciation by geographical isolation into the evolutionary process. A future look to evolutionary biology of the twentieth century. Species, therefore, are not a product of Linnaean time but rather of the environment, and adaptation would be the evolutionary causation—a necessary condition for the survival of individuals. In this context, the phenomenon of extinction is meaningless since there is no existential interruption in individuals, just a continuous adaptive conversion. Indeed, fossils do not identify lost

species but rather only show what they were like before the change in form. They are expired pieces of a process of non-selective substitution, because there is not intraspecific neither interspecific competition.

Lamarck, in his outline of his biological theory on the origin and the development of life, emphasises organic instability as a quality of nature. But if the hypothesis, in general, culminates with the idea of an independent nature that is capable of achieving such achievements on its own, the underlying message is a sea of doubts about the truth of nature as it was then known. The remedy for such ignorance would be an innovative research programme. A naturalist would have to be ambitious and not just spend time and effort on describing and classifying. To identify an object is not enough to know it. It is necessary to discover how nature forms and renews its output. The priority would be to analyse the set of relationships that allows a living organism to be express as an anatomical–functional model. The idea is to know its organisation by studying what phenomena occurred during reproduction and development, and to relate the effects of environmental conditions and lifestyle on the body. This is the biological significance of Lamarck's *Philosophie zoologique*. A work on the principles of animal life written in order to determine what life is and what conditions are necessary for it to manifest itself. The general conclusion is that, to survive, an individual undergoes adaptive transformations in response to the environment. Adaptation, phyletic continuity and chronological variation are the foundational pillars of the Lamarckian evolutionary archetype. The formula has since then travelled through time generating an intense, controversial and unending debate on the origin and transient nature of species. Because it is one thing to be an evolutionist but another to explain the how and the why of evolution (Simpson, 1951). Thus, far from falling into oblivion, Lamarckian thought is today considered an asset of the evolutionary theory because his transformist vision of nature,

imbued with knowledge, comprises a bouquet of possibilities not previously considered. It is not so much for his well-known hypothesis on the inheritance of acquired characteristics itself but its understanding that habits can guide future evolution.

In the fifty years that passed from the first appearance of *Philosophie zoologique* to the first edition of the *Origin of Species*, Lamarck's transmutationist ideology certainly circulated the academic circles. He had supporters and detractors. Charles Darwin himself acknowledges that he had reached similar conclusions, as he relays in a letter dated 11 January 1844 to the botanist Joseph Hooker. His testimony underlines a consensus with Lamarck to define life as a process of adaptive substitution. The difference essentially lies in the proposed mechanism, in the adaptive model and in the determination of whether the cause is teleological or random. However, historians often underestimate the figure and the ideology of Lamarck by using a categorical argument: evolution only makes sense in light of Darwinism. Is this true? To address this question, we analyse the role of Lamarckian ideology within the scientific community prior to the publication of the *Origin of Species*.

The transmutation of species doctrine

From 1800 on, Lamarck explains his *theory of the descent*, as it was also known, to his zoology classes. It is immortalised in his book *Philosophie zoologique* (1809), although it emerged earlier in treaties such as *Système des animaux sans vertèbres* (1801) and *Recherches sur l'organisation des corps vivans* (1802). The building of his transformist idea of nature continues in *Histoire naturelle des animaux sans vertèbres* (1815–1822). In 1830, *Philosophie zoologique* is reissued, but it would be another forty years before a new edition is published in 1873 by Charles Martins, director of the Botanical Garden of Montpellier. By then, Lamarck had already passed away. In Britain,

the Lamarck's *Philosophie* was available relatively quickly. In the October 1811 issue, *The Monthly Magazine* communicated to readers the possibility of buying the book. That same year, the literary journal *The Monthly Review* published an extensive review explaining its content -continued in 1813. A brief informative note published in *The New Annual Register*, 1812, recalled the naturalistic interest of the work and the convenience of translating it to English. However, it was not translated until 1914. Previously, the journal *The American Naturalist* in its 1888 issue included the translation to English of the seventh chapter of the first volume. No doubt. The limited editorial projection of the book impaired its dissemination. So, what scientific impact did his theory have?

In 1813, renowned Swiss botanist Augustin Pyrame de Candolle showed his opposition to the theory of the *non-permanence of species* in his book *Théorie élémentaire de la botanique*. His rejection has a taxonomic sense, defending the constancy of species as a basic systematic condition. In his mind, nature is permanently ordered and only those characteristics that do not change the identify of a group are modifiable. The slow and gradual change of species proposed by the theory of transmutation was an unacceptable idea that violated the general principles, and to attribute the morphology of beings to their habits was an absurd hypothesis. Another case. The year is 1817. For the German philosopher Friedrich Hegel, as he expresses in *Enzyklopaedie derphilosophischen Wissenschaften im Grundrisse*, the unique vision of a changeable nature was but one of those nebulous, sensitive and ineffable representations that the human intellect should reject. To attribute a material origin to life and to conspire a fickle, inconstant, uncertain, incoherent world was simply an outlandish notion. That same year, in the prologue of the third English edition of Georges Cuvier's *Essay on the Theory of the Earth*, the Scottish geologist Robert Jameson expresses a different view. Jameson identifies two sides: the palaeontologist Cuvier leading the anti-transformist camp and Lamarck carrying the

evolutionist banner by interpreting nature as an unstable group of living beings subjected to the modifying action of the environment.

The Reverend John Fleming, a famous Scottish botanist, geologist and zoologist, knew of and rejected the theory of transmutation, as evident in his *The Philosophy of Zoology* (1822). True, the geological strata contain remnants of extinct plants and animals that, to some extent, differ from current species, with those most similar being found in the most recent deposits. This stratigraphic sequence was the relatedness argument used to support the common descent of modern flora and fauna by environmental causes. Fleming arbitrarily rejected the idea. Life simply has limits and the transmutation of species was one. 'It never happened', he declares, foreshadowing the arduous task proponents of the theory would have to face to prove it. He was right, at least in pointing out the difficulty of the task. He wrote no names, but the Lamarckian connection is discernible in both the modus operandi and the reference to the first volume of *Histoire naturelle des animaux sans vertèbres*. More testimonies. In 1826, the *Edinburgh New Philosophical Journal* published "Observation on the nature and importance of geology" by Professor Robert Edmond Grant, historically known for his professorial relationship with Darwin. The question of the origin of living beings was one of his concerns. His favourite response was the unequivocal theory of 'Mr Lamarck'. The organic world originated from simple animals, such as infusorians, by spontaneous generation. The others gradually had evolved, driven by external circumstances—a hypothesis supported by the *doctrine of petrification*.

In *Éléments de géologie*, published in 1831, the Belgian geologist Jean-Baptiste d'Omalius explains that the most plausible hypothesis to justify the concatenation of species occurred during the world's geological history, the reproductive substitution of ones for others caused by external circumstances. Even Charles Lyell was surprised to

find that his colleague had opted for the Lamarckian system of transmutation. A year later, Lyell made his position clear in the second volume of *Principles of Geology* in which he uses the term *evolution* to refer to the Lamarckian concept of a chronologically modifiable nature that is linked to a space—an ideology that he rejected until the 1860s. The volume faithfully reflects the contents of *Philosophie zoologique*. It is, in fact, its first attestation in the English language. In Lyell's rebuttal, there is a hesitant tone against a hypothesis that had internal logic and consistency and that might not have been wrong. It was Lamarck who revealed the theory of evolution to him in anticipation of Darwin.

In 1833, parish priest William Kirby, a prestigious English entomologist who was considered the founding father of the discipline, published the seventh volume of the *Bridgewater Treatises*, a famous collection on natural theology. It was entitled *On the Power, Wisdom and Goodness of God as manifested in the creation of animals and in their history habits and instincts*. Kirby had clear ideas. Addressing the theme of God and nature, he would not forget Laplace and Lamarck, two of the most eminent philosophers of the century. A physicist and a zoologist who ignored God by attributing Creation to secondary causes. Lamarck's great error was his steadfast materialism leading to an irrational, inanimate nature, composed of laws and parts that do not go beyond their sensations. Nature transformed into a *genealogical tree* based on a microscopic organism indifferent to reason. Kirby knows the biological significance of the theory. Heat, electricity and physical attraction penetrate inorganic matter, producing excitability and life—cellular tissue. Components that will give rise to primitive beings capable of reproducing by splitting and budding. Then, life made a virtue of necessity. The stimulus to feed formed the mouth; the digestive capacity fostered the stomach and intestines. And so on, moving towards the complexity and diversity of living beings. He believes that nothing new could be added to Lyell's works to demonstrate the stability of nature. In

another volume of the *Bridgewater Treatises* entitled *Geology and mineralogy* (1836), the Reverend William Buckland, renowned geologist and palaeontologist, reveals his view of Lamarck as an anti-creationist enemy. He does not hesitate to inform the reader of the ideological danger of a doctrine that excludes the Creator by explaining the origin of species through development and transmutation.

More arguments. The influential British philosopher William Whewell, in the third volume of his *History of the inductive sciences* (1837), explains that the controversy between supporters and opponents of the *doctrine of the transmutation of species* was one of the most outstanding issues of the scientific debate. Geologists and palaeontologists had shown that different groups of animals and plants inhabited the Earth successively. It was a scientific fact. The dilemma was to accept the doctrine of transmutation—species of a geological age transforming into other forms due to natural causes—or to acknowledge the miracle of successive creation of species after the extinction of previous ones. The philosopher picked the latter option. Whewell maintained his opinion in the revised edition of 1847. When writing the third volume of *Cours de philosophie positive* (1838), Auguste Comte did not forget the Lamarckian transformist discussion. The theory was a philosophical problem against the method—against the natural method and the immutable hierarchical order. The relationship between the environment and morphological variation were indisputable principles but, poorly applied, they formed a clever and false hypothesis. A theory far from reality of a nature whose living beings are perpetuated by obeying the law of repeating the characters that identify the group.

In the first volumes of the British periodical *The Oracle of Reason* (1842 and 1843), William Chilton, co-founder and editor, published the article “Theory of regular gradation”. A world without God was possible thanks to Lamarck. And the best way to learn more about his theory was to read *Principles of Geology*. In 1844, *Vestiges of the*

Natural History of Creation by Robert Chambers was published. He ignored Lamarck's name for years, only including a laughable note from the sixth edition (1847) on. Why? In the preface to the tenth edition (1853), Chambers recognises that he knows the Lamarckian hypothesis, which he considered inappropriate to explain the existence of living species. To understand Chambers' disregard, it is necessary to read the thorough and extensive review published in 1845 by the *North British Review* on the occasion of the fourth edition of the *Vestiges*. An anonymous columnist raises the injustice of forgetting to include the *system of progressive development* of the skilled and esteemed Professor Lamarck that, conceptually identical to the *Vestiges*, was superior because it establishes intelligible causes to justify the hypothesis of successive changes that transform species.

In the mid-1840s, owing to the French botanist Frédéric Gérard, a follower of Lamarck, the master's approach took identity as the *théorie de l'évolution des formes organiques* (1845). Gérard used the Lamarckian model to explain Earth's history. The fossil record indicated what had happened in nature from the origins to the present. The *theory of evolution* was a possible biological law that was simple, direct and comprehensible. In contrast, the geologists Alonzo Gray and C. B. Adams were not in favour of the widely known theory of transmutation. They believed in the miracles. As evident in their book, *Elements of Geology* (1852), they have no doubt about the direct intervention of the Creator. However, it is from a position that does not prevent them from discussing the transformist option, which allows them to recall Lamarck's theory as an explanation of a correlative natural order from the simple to the complex through the progressive increase of anatomical structures.

Other evidence. At the academic meeting held on the 20 of April 1855 at the Royal Institution, Professor Thomas Huxley took to the floor to discuss some of the zoological

arguments on the hypothesis of the progressive development of animal life. He wondered what was the significance of extinct species. The answer was essential. Living beings differed in every era, and the chronological substitution of species was something accepted by all. An undeniable fact. For Huxley, the issue under debate was not what happened but to explain how changes happened. The law regulating the phenomenon remained to be determined. He had to wait four years to know that natural selection was the answer. Huxley explains it in his article "The Darwinian Hypothesis" for *The Times* (26 December 1859). In his exposition, the figure of "the famous naturalist" Lamarck appears, one of those privileged rare minds able to reject miracles. Minds willing to refuse the creationist dogma. Lamarck correctly interpreted the process but was wrong to establish evolutionary law as organic modification induced by the environment and inherited by offspring.

The end. In 1859, oblivious to the *Origin*, the French botanist Dominique Alexandre Godron recognised the merit of Lamarck as a leader of the transmutationist movement. In his treatise *De l'espèce et des races*, he advocates that his compatriot deserved to be considered head of the naturalist school, in defence of the theory of the mutability of species through the action of external agents and reproduction. The Swiss naturalist Louis Agassiz, a self-confessed anti-Darwinist, also recalled Lamarck's role. In his book *An essay on classification* (1859), Lamarck, along with his *Philosophie zoologique*, is emphasised as a defender of species variability. An approach in which the structural complexity of animals is defined by a succession of organisational degrees arranged according to continuous series.

Conclusion

The reputed French biologist Jean Rostand writes in *Esquisse d'une histoire de la biologie* (1945) that *Philosophie zoologique* was a failure that soon fell into indifference. Rostand was wrong. It was not so. The Lamarckian hypothesis did not leave his contemporaries indifferent. The theory was known, discussed and integrated into the naturalist discourse as an alternative to the conservative creationist model. In Great Britain, Lamarck's ideas provoked a major debate. A relevant occurrence as some of the scientists involved—Lyell, Huxley, etc.—were part of the scientific group in which Darwin conceived of natural selection. Huxley's testimony, in particular, presents Lamarck as responsible for the debate on the chronological substitution of species. For its part, *Principles of Geology* was a fundamental element for the dissemination of the Lamarckian ideology, for both its detailed analysis and its widespread circulation. Huxley was right to assert that in England, thanks to Lyell, they did not forget Lamarck. For decades, *Philosophie zoologique* was the evolutionist reference. Until the publication of the *Origin of Species*, no other treatise existed on the subject. It is the first one. It created the school. It established a new concept of nature by applying another method of investigation. It laid the foundations of the transformist, transmutationist, evolutionary model—the adjective does not matter. It was, as the Darwinist Ernst Haeckel writes in his *History of Creation*, the first rational exposition on the *genealogical doctrine* that reached the final consequences. And it was by the Chevalier de Lamarck. In short, *Philosophie zoologique* changed the perspective of nature, leading to the beginning of modern biology. It was not a coincidence. The author explains it in the preamble. His goal was to write a monograph on living bodies entitled *Biology*. In the end, he presented his research on the characters, organisation, development, diversity and abilities of the animal kingdom using the classic format of philosophy. A dull title for a clear, innovative and revolutionary idea: the origin of living beings through evolution.

Cross-References: Charles Darwin, Darwin On The Origin Of Life, Evolutionary History.

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