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The Question of Evolution



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The Question of Evolution of the Human Body

The topic of the creation of Adam and Eve and the transmission of original sin naturally raises the question of how this doctrine is compatible with contemporary scientific understandings of the evolution of the human being, and with evolution in general. As you know, this is a huge topic. Here I would like to consider the fundamental principles that we have to keep in mind in considering the question of evolution with regard to man.

We have seen in the previous lecture series that the soul of man is created directly by God from nothing, and infused into the embryo, the product of conception, in every act of generation. This is not the case with brute animals. Their souls emerge from the potency of matter as soon as the matter is rightly disposed by the union of the egg and sperm. The human soul, however, cannot simply “emerge” from the potency of the matter at the moment of conception, because the human soul is spiritual. A spiritual soul, because it transcends matter and has spiritual being, cannot be made out of anything material, and can only come into existence through an immediate act of God creating the soul out of nothing.

If we keep this in mind, it is clear that the human soul itself cannot be the product of any evolution, precisely because it must be created directly by God out of nothing. No brute animal soul could ever evolve into a spiritual soul. There is an unbridgeable difference of levels between a brute animal soul and a human soul, which can be seen in the immortality of the latter, as well as an immediate act of creation on the part of God. Nevertheless, many theologians, such as Teilhard de Chardin S.J. (1881-1955),¹

¹ The works of Teilhard de Chardin were censored by his Jesuit superiors during his lifetime, and their posthumous publication was the occasion for an official Vatican *monitum* (warning) in 1962: “Several works of Fr. Pierre Teilhard de Chardin, some of which were posthumously published, are being edited and are gaining a good deal of success. Prescinding from a judgment about those points that concern the positive sciences, it is sufficiently clear that the above-mentioned works abound in such ambiguities and indeed even serious errors, as to offend Catholic doctrine. For this reason, the most eminent and most revered Fathers of the Holy Office exhort all Ordinaries as well as the superiors of Religious institutes, rectors of seminaries and presidents of universities, effectively to protect the minds, particularly of the youth, against the dangers presented by the works of Fr. Teilhard de Chardin and of his followers. Given at Rome, from the palace of the Holy Office, on the thirtieth day of June, 1962.” It should be noted that the scientific aspects of Teilhard’s work (which is left to the scientific community) are not being criticized here, but rather their philosophical and theological aspects and implications. This warning still retains its force, as can be seen from a communiqué of the Press Office of the Holy See, appearing in the English edition of *L’Osservatore Romano*, July 20, 1981, against rumors to the contrary.

have supported the idea of a complete evolution of man from the primates.²

The Magisterium of the Church has dealt with the question of evolution most authoritatively in the encyclical *Humani generis* (1950) of Pius XII. This encyclical condemns the idea of a complete evolution of man (body and soul) from the primates. A Catholic cannot consider this as a hypothesis, since the human soul is created directly by God. However, Pius XII affirms that a Catholic scientist enjoys a certain freedom to investigate the hypothesis which suggests that the *body* of the first man was taken from pre-existing life, such as that of some ancestral primate. Nevertheless, he must affirm that all other human beings take their descent from that first couple (monogenism), thus ruling out the hypothesis of the existence of other parallel evolutionary lines that also resulted in human beings unrelated to Adam and Eve (polygenism):

For these reasons the Teaching Authority of the Church does not forbid that, in conformity with the present state of human sciences and sacred theology, research and discussions, on the part of men experienced in both fields, take place with regard to the doctrine of evolution, in as far as it inquires into the origin of the human body as coming from pre-existent and living matter - for the Catholic faith obliges us to hold that souls are immediately created by God. However, this must be done in such a way that the reasons for both opinions, that is, those favorable and those unfavorable to evolution, be weighed and judged with the necessary seriousness, moderation and measure, and provided that all are prepared to submit to the judgment of the Church, to whom Christ has given the mission of interpreting authentically the Sacred Scriptures and of defending the dogmas of faith. Some however, rashly transgress this liberty of discussion, when they act as if the origin of the human body from pre-existing and living matter were already completely certain and proved by the facts which have been discovered up to now and by reasoning on those facts, and as if there were nothing in the sources of divine revelation which demands the greatest moderation and caution in this question.

When there is a question of another conjectural opinion, namely, of *polygenism* so-called, then the sons of the

² Fr. Teilhard could think this way since he did not properly recognize the spirituality or subsistence of the human soul. For him, matter as such has the property of knowledge, according to the level of the complexity of the organization of matter. Thus the complexity of the body of a man necessarily produces a higher knowledge, without the necessity to affirm the immateriality and subsistence of the soul. As a consequence, he did not rightly understand the philosophical basis of the doctrine that affirms that every human soul is created directly by God. Even though he affirmed the creation of the soul, the word “creation” seems to have another meaning in his writings, and does not necessarily mean creation from nothing.

Church in no way enjoy such freedom. For the faithful in Christ cannot accept this view, which holds that either after Adam there existed men on this earth, who did not receive their origin by natural generation from him, the first parent of all; or that Adam signifies some kind of multitude of first parents; for it is by no means apparent how such an opinion can be reconciled with what the sources of revealed truth and the acts of the Magisterium of the Church teaches about original sin, which proceeds from a sin truly committed by one Adam, and which is transmitted to all by generation, and exists in each one as his own.³

In summary: Pius XII affirms: (1) *The human soul is not a product of evolution*, since it is created directly by God. This is revealed by God and is thus part of the Catholic faith, and can also be known through reason, as philosophy demonstrates.

(2) The problem of the evolution of the *body* of man can be examined and discussed *with great moderation and caution*.

(3) *The hypothesis of polygenism cannot be admitted*. All men—that is, all rational animals endowed by God with a spiritual soul—descend through generation from a single original couple so endowed: Adam and Eve. When we speak here about human beings, we are using a philosophical rather than an empirical definition. A human being is distinguished from brute animals, and thus from other higher primates, by being endowed with a rational and spiritual soul, created by God out of nothing.

Evolution of the Human Body

The philosophical problem of the evolution of the *body* of man can be formulated as follows: Where does it come from? And if we cannot know with certainty, what is the best hypothesis?

As we have seen, the Bible says that God took the dust (or clay) of the earth and breathed into it the breath of life, which represents the creation of the soul (Gen 2:7). Now, this “dust of the earth” (or “slime”) indicates that *God made use of some pre-existing matter*. In addition, the text would seem to imply that this matter was inanimate. That is certainly the most literal interpretation of “dust.”⁴ But we must be very cautious in making a literal interpretation of these texts in the first chapters of Genesis. Pius XII in *Humani generis* affirmed that they “pertain to history in a true sense,”⁵ but nevertheless they comprise a very special

³ Pius XII, encyclical *Humani generis* 36 (Denzinger 2328).

⁴ There are also many other Biblical texts that make reference to this “dust” of the earth, or “ashes” or “clay,” from which our body was taken: Gen 3:19, 18:27; Eccl 10:9, 17:31; Wis 2:3; Job 34:14; Ps 102:14; 2 Cor 4:7.

⁵ See *Humani generis*, 38-39: “The first eleven chapters of Genesis, although properly speaking not conforming to the historical method used by the best Greek and Latin writers or by competent authors of our time, do nevertheless pertain to history in a true sense, which however must be further studied and determined by exegetes; the same chapters... in simple and metaphorical language adapted to the mental-

genre of history that is highly symbolic, making use not of scientific terminology, but rather of the metaphorical (or mythic) language of their time and culture.⁶ Thus Gen 2:7 does not completely resolve the issue.

Is it possible to think that a primate was evolving in the direction of the human body, and at a certain point of this evolution—at some halfway point—God infused a human rational soul into the body that was halfway between ape and man, while permitting him to continue to evolve into the man we know today? Pius XII permitted the examination and discussion of this hypothesis, and subsequent Popes have not altered this policy.

Seen from the *philosophical point of view*, how should we evaluate this hypothesis? I would say that the hypothesis according to which the body of man could have been the product of a *purely natural Darwinian evolution* from the primates, should be rejected. The body of Adam had to be the result of some kind of direct intervention of God, which alone could transform a pre-existing body (of whatever type) into a *body fittingly disposed for receiving the rational human soul*. Such an intervention necessarily transcends the realm of empirical observation.

The most important principle underlying this debate is that the body of a thing is for the sake of its form. Thus an essential difference in the substantial form cannot be indifferent with regard to the configuration of the body. It is absurd to think that the same body could be animated by two essentially distinct kinds of souls—rational and irrational. Given that the soul is the form of the body, an essential difference in the soul necessarily has fundamental consequences with regard to the disposition of the body and to the perfection and disposition of its organs. We have seen that it is supremely fitting that the external senses of

ity of a people but little cultured, both state the principal truths which are fundamental for our salvation, and also give a popular description of the origin of the human race and the chosen people. If, however, the ancient sacred writers have taken anything from popular narrations (and this may be conceded), it must never be forgotten that they did so with the help of divine inspiration, through which they were rendered immune from any error in selecting and evaluating those documents.

“Therefore, whatever of the popular narrations have been inserted into the Sacred Scriptures must in no way be considered on a par with myths or other such things, which are more the product of an extravagant imagination than of that striving for truth and simplicity which in the Sacred Books, also of the Old Testament, is so apparent that our ancient sacred writers must be admitted to be clearly superior to the ancient profane writers.”

⁶ See also John Paul II, who admits a certain use of the word “myth” with regard to the first chapters of Genesis, but which respects their profound content of truth, expressed through an archaic language: “In this case, in fact, the term ‘myth’ does not refer to fictitious-fabulous content, but simply to an archaic way of expressing a deeper content. Without any difficulty, we discover that content under the stratum of the ancient narrative, truly marvelous in the quality and condensation of the truths contained there (General Audience of Nov 7, 1979, in *Man and Woman He Created Them*, 8:2, p. 157).

man, and especially his internal senses, be developed in a maximal way, without particular emphasis on any one single sense. The bodies of the animals—including that of the monkey and other primates—are *always specialized and adapted to certain particular circumstances*.

Therefore, even Neo-Darwinian evolutionists admit that man cannot have developed directly from the monkey (or any currently existing primate), because the monkey is too specialized and highly adapted to its particular environment: too much would have had to be undone before progress could begin towards becoming man. They think that the ancestor of man would also have been an ancestor of the monkey and of all the other primates that we know today: it would have had to have been a more *generic* primate that had not yet become specialized.⁷

In addition, there is an enormous, discontinuous, and abrupt difference between the soul of a monkey and the soul of a man. They are essentially distinct. The soul of man cannot be the product of evolution, since it is created by God. But according to the hypothesis of the evolution of the body, this evolution would have been continuous and gradual, and always accidental in every step of the evolutionary process. *How can this presumed continuous and accidental change of the body be compatible with the radical and essential change of the soul which is the very form of the body?*

The idea of an evolution of the body of man might be more reasonable if the soul were not the form of the body. But it *is* the form of the body, and it cannot be understood how the body could evolve without a corresponding “evolution” in its form: the soul (which does not evolve since it is created directly by God, and which transcends matter, on which this supposed evolution would depend).

Moreover, the body with its essential disposition of organs is part of the essence of man, as both St. Thomas and Aristotle affirmed (against Plato). The essence of a physical thing includes the form (or soul) and some determined kind of matter. Every corporeal essence therefore determines a body essentially distinct from the bodies of other species. Thus the body of man cannot be the result of continuous accidental changes to the body of some primate. It must be the *result of a radical, discontinuous change, in the same way that the soul of man is radically different from that of the monkey*.

For this reason I propose that the particular form of the body of man is the result of some kind of divine intervention introducing a discontinuous change with respect to the primates. Such an intervention of God, of course, necessarily eludes the observation of the empirical sciences.

⁷ However, this undetermined ancestor does not fit the Darwinian scheme of things, because every animal would evolve according to some special need of the species, to which they would be most fittingly adapted. Specialization seems to be a sine qua non of Darwinian evolution.

Nor is it necessary to specify in what it consisted, or what particular pre-existing matter God made use of, for He is omnipotent and free, and could have used whatever He pleased, although it is not unreasonable to suppose that He might take what was naturally most similar to the human body. Indeed, it is certainly fitting for God to have made use of secondary causes and pre-existing structures as much as possible in pre-fashioning the body of man to make it rightly disposed to receive the human soul, created out of nothing.

Some General Considerations for the Evaluation of Darwinian (or neo-Darwinian) Macroevolution

Light will be shed on the question of the evolution of the human body by considering the question of Darwinian evolution in general. The purpose of our examination is not to show that all forms of evolution are impossible, but rather that the marvelous order of the biological world cannot be the result of chance events, but mutely proclaims the existence of Intelligent Design. The marvelous order of living things requires a Designer who planned that order.

Critique of Darwinism

Microevolution and Macroevolution

The first distinction we have to make with regard to evolution is between two different scenarios: (1) evolution within the bounds of a species, and (2) evolution over and beyond the bounds of any species, by which species are gradually transformed so as to form new species. The first more modest type of evolution is referred to as **microevolution**, whereas the second more radical type is spoken of as **macroevolution**. Microevolution results in *new races* within a given species. Macroevolution, on the other hand, would give rise to *new species*.

Darwin carefully observed *microevolution*, and extrapolating from it, postulated the universal existence of *macroevolution*. However, an undisputed case of macroevolution has never been observed or clearly demonstrated.

Microevolution can be observed continually in nature. Although it is especially evident in the artificial breeding of animals and plants, it can also be seen to occur in any isolated population that is put in a special environment. In such a case we find changes in the gene pool as a result of adaptation to the new environment. However, such adaptations are still within the limits of the species, and furthermore, such adaptations show not an enlargement of the pool, but rather a reduction, as the selective breeding tends to eliminate unwanted traits. A race produced by artificial breeding shows an artificial reduction of the gene pool. And when allowed to intermix again, the domesticated forms revert back to what they were before. The same would seem to apply to races produced by natural selection.

Thus it appears that microevolution and macroevolution are not truly parallel, for the former involves a reduction of the gene pool, whereas the latter requires a true and lasting enlargement.⁸ How does that come about?

Microevolution is a fact of common sense experience, and it poses no philosophical difficulties with respect to Aristotelian and Thomistic principles. Variations within a species due to adaptation to a special environment, breeding, or even certain mutations, are only accidental changes. And these accidental changes could be caused by chance or by design (as in the case of breeding). In other words, in microevolution we find accidental causes producing accidental changes. Such accidental changes remain within the limits of the essence of the species. The essential finality of the species and its various organs remains unchanged.

The philosophical and scientific problems concerning the theory of *Darwinian* evolution all concern the hypothesis of *macroevolution through chance and natural selection alone*, which affirms the transformation of one simple species into another, and again into another, etc., in a continual process of transformation, from the first one-celled organisms up to man, *without positing the guidance of the divine Intelligence*. These philosophical problems all vanish if one admits the plan of a designing intelligence.

We can summarize the Darwinian theory of macroevolution in two propositions: (a) All living organisms—past, present, and future—are derived from one or more simple one-celled creatures which themselves were formed by chance. (b) New species derive from others through a

⁸ See Maciej Giertych, of the Polish Academy of Sciences, from the Foreword to Gerard Keane, *Creation Rediscovered: Evolution and the Importance of the Origins Debate* (Rockford, Ill.: TAN Books, 1999), p. x: “My primary objection as a geneticist was to the claim that the formation of races, or microevolution, as it is often referred to, is a small scale example of macroevolution—the origin of species. Race formation is, of course, very well documented. All it requires is isolation of a part of a population. After a few generations, due to natural selection and genetic drift, the isolated population will irreversibly lose some genes, and thus, as long as the isolation continues, in some features it will be different from the population it arose from. In fact, we do this ourselves all the time when breeding, substituting natural with artificial selection and creating artificial barriers to generative mixing outside the domesticated conditions.

The important thing to remember here is that a race is genetically impoverished relative to the whole population. It has fewer alleles (forms of genes). Some of them are arranged into special, interesting rare combinations. This is particularly achieved by guided recombination of selected forms in breeding work. But these selected forms are less variable. Thus what is referred to as micro-evolution represents natural or artificial reduction of the gene pool. You will not get evolution that way. Evolution means construction of new genes. It means increase in the amount of genetic information, and not reduction of it.

The evolutionary value of new races or selected forms should be demonstrable by natural selection. However, if allowed to mix with the general breeding population, new races will disappear. The genes in select combinations will disperse again; the domesticated forms will go wild. Thus there is no evidence for Evolution here.”

natural selection of chance variations, by which those variations most fit to survive and reproduce are favored and come to predominate. In the twentieth century, the Darwinist hypothesis has been modified so as to place crucial importance on chance *mutations* as the mechanism for producing variations, which can then be selected through survival of the fittest. This updated position is called “Neo-Darwinism.”

The position we will defend here is that species are open to evolution within their limits (microevolution), but they cannot naturally pass out of those limits so as to become the founders of new and distinct (and higher!) species, without some kind of intervention or guidance of a divine Intelligence, which, nevertheless, will necessarily escape the observation of empirical science. Chance mutations alone cannot serve as the mechanism for explaining the origin of all the great richness of the forms of life. The zoo, or the farm, thus proclaims the glory of God.

Philosophical Problems with Macroevolution

1. Darwinian macroevolution would imply that nature passes continually from the lesser to the greater, by chance and natural selection alone.

Darwinist macroevolution supposes that the passage from a lower order of nature to a higher one does not require any higher cause. Thus the lower level would not need to be elevated by some agent already in act on a higher level. The lower level simply ascends to a higher level all by itself, through the freak workings of chance, aided by natural selection. In other words, the Darwinian theory of evolution supposes that *potency can pass into act without being moved by an agent already in act*. The potency would thus simply transform itself into act, pulling itself up by its own bootstraps.

However, the matter is even graver. Darwinian evolutionary theory supposes that potency ascends to act in virtue of an *error* or *defect* in the normal functioning of the DNA, through the production of a favorable mutation (which is a kind of monstrosity). Not only is there no higher agent: the passage upward takes place through happy malfunctions and freak errors! Instead of the priority of act with regard to potency, Darwinian evolution implicitly affirms a total priority of potency with regard to act, a priority of chance with respect to finality, and a priority of error with respect to order. A higher order comes about through error alone.

It can be seen, therefore, that Darwinian macroevolution violates the first principles of sound reason. It is self-evident that *nothing can give or communicate what it does not have*.⁹ Pure chance does not possess order in any way. How can it be the sole source of the production of the stupendous order that we see in the world of life?

⁹ See *ST I*, q. 91, a. 2.

2. Macroevolution teaches that the variety of “species” is caused by errors. This is like saying that music is caused by noise.

At times an artificial thing can be the product of a “happy accident,” in which promising possibilities are revealed to a *sharp mind*. Nevertheless, no one would suppose that all technological advances occur in this way alone. The theory of macroevolution, however, says that *all* the variety and order in life, without any exception, is the product of *errors that serve as happy accidents*. And to make things worse, radical ¹⁰Darwinian evolutionary theory asserts that this occurs *without an Intelligence to recognize the happy accident or error, and to develop its potentialities!* Although happy errors occur in scientific discoveries and technological advances, they can *never* conceivably be of any use without the presence of the intelligence of the scientist to identify them and exploit them. It is irrational to say that *the whole order* of the world of life is the systematic result of *chance errors*, without the need of a Mind to plan and take advantage of them. This would be like saying that a work of Beethoven is the result not only of chance, but of mindless *errors* in the transcription of a work of Mozart.¹¹

The common sense of man rebels against this idea, because our experience shows that it is almost infinitely easier to destroy than to build, to err than to ascertain, to remove or disturb a delicate order than to create it. That is why these chance errors are almost always negative (or indifferent) in themselves. And this relationship between the ease of destroying order and the difficulty of constructing it, augments geometrically with the degree of the complexity of the order. The more sophisticated and marvelous the order, the more this law applies. If it is difficult for our mind to place a sophisticated and highly finalized order in things, how much more so for the blind forces of chance and casual error!

3. Biological systems manifest finality and purpose, which point to design.

The theory of macroevolution based on chance and the survival of the fittest *denies finality in all of living nature*, not only in exceptional cases, but in all living beings. Nothing is for an end; nothing is the result of a divine art implanted in creatures in order to move them to their ends

¹⁰ I use the adjective to describe anti-theistic Darwinian evolutionary theory.

¹¹ See Jacques Monod, *Chance and Necessity* (New York: Alfred A. Knopf, 1971) p. 116: “One may say that the same source of fortuitous perturbations, of ‘noise,’ which in a nonliving (i.e., nonreplicative) system would lead little by little to the disintegration of all structure, is the progenitor of evolution in the biosphere and accounts for its unrestricted liberty of creation, thanks to the replicative structure of DNA: that registry of chance, that tone-deaf conservatory where the noise is preserved along with the music.”

according to an intrinsic principle.¹² Instead, everything is the result of chance, mixed with a blind necessity of matter. This goes against the obvious: that the eye is *for seeing*; instincts exist so that animals do what is fitting, and avoid what is dangerous; etc.¹³

The Nobel laureate biologist Jacques Monod, an anti-theist, himself observes that the existence of finality is undeniable in the world of life. In fact, he classifies finality (“teleonomy”) as one of the three fundamental characteristics of life. However, his thesis is that finality is a secondary and “accidental” property,¹⁴ produced by chance. But *to place chance as the cause of the finality* that can be observed, is the same as denying finality. It is contradictory to speak of a finality produced only by chance. Finality always involves the ordering of one thing to another, from a means to an end. And the act of ordering always involves intellectual activity. Without an act of ordering there is no finality, but only a happy accident that appears finalized, without really being so. The laws of nature governing the biosphere require an intelligent legislator who has ordered means to ends!

4. Art imitates the order of nature. However, all art presupposes an intelligent designer. Therefore, the order of nature presupposes a far more intelligent Designer.

It is truth of common sense that art and technology imitate the marvelous design found in nature, especially in the world of life. Radical Darwinism, however, completely breaks this parallel between art and nature in its rejection of finality. Nevertheless, the recent discoveries in microbiology only serve to increase the evidence of a “divine art” implanted in things. In fact, evolutionary theorists cannot reject this parallelism—evident to common sense—between human technology and living organisms. Microbiologists compare the cell and its functions to extremely sophisticated machines,¹⁵ much more perfect than the machines we make. They recognize the parallel, but reject the obvious conclusion, which is the inference of Design. For example, the neo-Darwinist Bruce Alberts says:

The whole cell is similar to an industrial plant that contains a network of assembly lines, each one of which is

¹² St. Thomas, in his commentary on Aristotle’s *Physics*, bk. 2, ch. 8, writes: “And thus it is evident that nature is nothing other than a *certain kind of art, i.e. the divine art, implanted in things*, through which the things move themselves to a determinate end. It is as if a shipbuilder were able to give power to the wood such that it could move itself to take on the form of a boat” (*In II Physic.*, lect. 14, n. 268). What a marvelous conception of nature!

¹³ In his *Physics*, book II, chapter 8, Aristotle rejects the evolutionist hypothesis based on chance in order to defend the finality of nature, which is a primary evidence.

¹⁴ Monod, *Chance and Necessity*, p. 24.

¹⁵ See Michael Behe, in *Science and Evidence for Design in the Universe*, pp. 135-36.

composed of great machines of proteins... But why do we call them... *machines*? Precisely because, just as machines invented by man work efficiently in the macroscopic world, these mechanisms contain movable parts that are highly coordinated.¹⁶

Moreover, the DNA code functions like a linguistic text for transmitting all the structural information of the organism. Monod says that in order to explain the presence of a specific sequence of proteins, it is absolutely essential that there be a “code.” Dawkins, an aggressive anti-theistic neo-Darwinist, explains that “the code of genes—like in a machine—has a marvelous resemblance to computer programming.”¹⁷ Monod explains that “this code, universal in the biosphere, seems to be chemically arbitrary, inasmuch as the transfer of information could just as well take place according to some other convention. . . . The highly mechanical and even ‘technological’ aspect of the translation process merits attention.”¹⁸ That is to say, DNA is a real conventional language, and uses a “technological” process of translation! But Monod maintains that this language is the result of pure chance! What a paradox! Technology, and even more, conventional language, always bear witness to the presence of an intelligence.

It is like deciphering hieroglyphs (an immense labor) and then thinking that they are the product of chance and not of intelligent Egyptians! This parallelism is obviously a very strong argument for the existence of an intelligent design which lies at the origin of living species and their finalized structures. Given the resemblance between living organisms and the products of technology and language, it is absurd to think that in art and technology everything is ordered towards an end through the work of an intelligence, and in the realm of nature—which is even more marvelous—everything is only the result of chance and of the necessity of matter.

5. Evolution is incapable of explaining the admirable beauty in the world of life.

Just as macroevolution cannot explain the admirable order of the world of life, neither can it explain its admirable beauty. Pure chance alone, mixed with a blind necessity of matter, does not create beauty in our common experience, precisely because chance does not generate order, without which beauty cannot exist.

Moreover, the mechanism of natural selection, which is *purely functional*, would be bound to produce ugly things, as a factory does. In common experience, pure functionality is never a source of beauty. Art is rather the

product of an intelligence that has a certain amount of leisure that frees it from pure functionality. The beauty of the world of nature on all its levels is one of the most profound arguments for the existence of God as Intelligent Designer of nature.¹⁹

An interesting testimony in this regard is the found in the diary of Charles Darwin. He recounts that in his youth he had a very sensitive appreciation for the beauty of art and literature, as well as a religious sensibility. Towards the end of his life he lamented that he had lost both of these gifts, seemingly as a result of his scientific work. This reached the point that he found even Shakespeare nauseating. It should not surprise us that the obstinate denial of the evidential power of beauty to bear witness to divine design would eventually result in the painful loss of the sense of beauty itself.

Problems with Darwinian Macroevolution from a Scientific Perspective

There are also a number of problems with Darwinian macroevolution from a scientific perspective. The most important of these concern the fossil record and the question of the immense mathematical improbability of each supposed stage of macroevolution.

1. The problem of the existence of a multitude of species which are clearly defined and genetically closed.

A very strong argument against Darwinism is the presence in the world today of species which are clearly limited and genetically closed. Darwin’s theory would lead us to expect, on the contrary, a gradual and fluid gradation of intermediate forms between species, like a spectrum.²⁰

Up until the present there has been no clear and undisputed proof of the formation of a new species that has originated through natural or artificial selection.²¹ On the contrary, the experience of artificial selection of plants and animals shows that species have a certain flexibility *but within fixed limits*. Beyond those limits, they lose the capacity to reproduce. For example, the mule, which is a cross between a horse and donkey, is sterile.

19 See the excellent book by Thomas Dubay, *The Evidential Power of Beauty: Science and Theology Meet* (San Francisco: Ignatius Press, 1999).

20 See Douglas Dewar, *More Difficulties of the Evolution Theory* (London, 1938), p. 10: “There is no getting away from the fact that, so far, breeding experiments afford evidence most unfavourable to the theory of evolution. Contrary to the expectations of evolutionists they demonstrate the great stability of species.”

21 See, for example, Mann, C., “Lynn Margulis: Science’s Unruly Earth Mother,” *Science* 252 (1991), 378-81; Michael Behe, *Darwin’s Black Box* (New York: Simon & Schuster, 1996), p. 26; Salet, *Hasard et certitude. Le transformisme devant la biologie actuelle* (Paris, 1972), p. xiii; Douglas Dewar, *More Difficulties of the Evolution Theory*, p. 11.

16 B. Alberts, “The Cell as a Collection of Protein Machines: Preparing the Next Generation of Molecular Biologists”, *Cell* 92 (Febr 1998) 291. Alberts is a former President of the National Academy of Sciences in the United States.

17 R. Dawkins, *River out of Eden* (New York: Basic Books, 1995), p. 10.

18 Monod, *Chance and Necessity* pp. 108-109.

2. Problem of the fossil record (a): The fossils do not show continuous change between species

According to macroevolution, paleontology ought to demonstrate a complete continuity between species, showing the intermediate steps through which a species passed in its gradual transformation to form a new species. However, the fossil record, just like current observation of the world of plants and animals, shows us the presence of stable forms that last for great epochs of time, and does not show to us the intermediate links. Hence they are called “missing” links, precisely because they are indeed missing.

Darwin himself admitted that paleontology, as known in his time, did not corroborate his theory, but rather constituted the major objection to it.²² Darwinists today (called “neo-Darwinists”), admit openly that paleontology does not show the gradual and continuous evolution of species through intermediate links, but rather that evolution seems to come about in unexplained brief “bursts” of extreme creative activity, followed by long periods of stability. For example, the well-known evolutionist Stephen Gould admits that gradual change between species (phyletic change) is never visible in the fossil record.²³

3. Problem of the fossil record (b): The fossils show the tremendous stability of species

Monod observes:

When one considers the scope of this gigantic lottery and the speed with which nature draws the numbers, one may well feel that the amazing and indeed paradoxical thing, hard to explain, is not evolution but rather the stability of the “forms” that make up the biosphere. We know that the anatomical outlines of the main phyla of the animal kingdom were differentiated by the close of the Cambrian period: in other words, five hundred million years ago. It is known, besides, that certain species have remained virtually stationary for hundreds of millions of years.²⁴

In fact, the stability of species poses a great problem for the theory of macroevolution, according to which radical transformations ought to annul the stability of species. On the contrary, the rejection of macroevolution (while affirming microevolution) perfectly explains this phenomenon. The species has flexibility *within certain limits*, and these limits cause the stability of species.

4. The problem of positive mutations

The impossibility of such mutations is even more evident when one considers the mechanisms that DNA has to preserve its identity and to eliminate mutations, which are almost always detrimental or lethal. Errors in the

genetic system almost always end up causing the carrier to be infertile.

In fact, the evolutionists have no idea how mutations really can cause new biochemical functions, such as new organs or instincts. The geneticist John Endler says: “Although much is known about mutation, it is still largely a ‘black box’ relative to evolution. Novel biochemical functions seem to be rare in evolution, and the basis for their origin is virtually unknown.”²⁵

It is clear that mutations can explain the disappearance of organs or indifferent and accidental modifications of preexisting organs (change in color, etc.). However, the problem with evolution is that the theory says that all the organs that exist in the realm of life are products of mutations. Georges Salet, in an important book, *Chance and Certainty*, asks: “But if the Darwinist mechanism offers a good explanation for the modifications and disappearance of organs, can it explain their appearance? This needs to be examined. In fact, the evolution which we can observe is *indifferent or regressive, never progressive*; never have we observed the appearance of the slightest new organ in a species.”²⁶

Salet says that a choice must be made between two alternatives which cannot both be true: either deny the regressive (or indifferent) character of mutations, or deny the existence of a progressive macroevolution in the world, which would be based on hypothetical positive mutations that give rise to new organs and systems, etc.

In fact, the regressive or indifferent character of mutations seems to be undeniable, and therefore progressive macroevolution seems to be impossible. Even Darwinists acknowledge the extremely conservative tendency of DNA and the stability of species.²⁷

25 Endler, J.A., and McLellan, T. “The process of Evolution: Toward a Newer Synthesis”, *Annual Review of Ecology and Systematics* 19 (1988): 397, cited in Michael Behe, *Darwin’s Black Box*, p. 29.

26 Georges Salet, *Hasard et certitude. Le transformisme devant la biologie actuelle* (Paris, 1972), p. ix.

27 See Monod, *Chance and Necessity*, pp. 121-122: “When one considers the scope of this gigantic lottery and the speed with which nature draws the numbers, one may well feel that the amazing and indeed paradoxical thing, hard to explain, is not evolution but rather the stability of the “forms” that make up the biosphere. We know that the anatomical outlines of the main phyla of the animal kingdom were differentiated by the close of the Cambrian period: in other words, five hundred million years ago. It is known, besides, that certain species have remained virtually stationary for hundreds of millions of years... Lastly, one may estimate that the present-day cell, characterized by its invariant basic chemical organization (starting with the structure of the genetic code and the complicated mechanism of translation) has been in existence for from two to three billion years... The extraordinary stability of certain species, the billions of years spanned by evolution, the invariance of the cell’s basic chemical scheme—these obviously can be explained only by the extreme coherence of the teleonomic system which in evolution has acted as both guide and brake, and has retained, amplified, and integrated only a tiny fraction of the myriad opportunities offered it by nature’s roulette.”

22 Charles Darwin, *The Origin of Species* (London, 1971), p. 239.

23 See S. Gould, with Niles Eldredge, “Punctuated Equilibria,” *Paleobiology* 3 (1977), 115, cited in Huston Smith, *Beyond the Post-Modern Mind*, 1989, p. 174.

24 Monod, *Chance and Necessity*, pp. 121-22; see Salet, *Hasard et certitude*, p. xiv.

5. The problem of the development of sophisticated organs in which there are many essential elements.

Macroevolution cannot explain the development of sophisticated organs in animals, such as the eye. Such organs have an *extraordinarily high degree of complexity*, such that if all the components of the organ are not perfectly disposed and ordered, the organ cannot function in any way, and would have no value for natural selection. The *beginnings of an eye or an ear*, or even 95% of it, caused by an extraordinary mutation, would have absolutely no survival value for the organism! Thus it is impossible to see how such organs could have come about through chance and natural selection. The same can be said of most biological systems, it seems, such as the transportation of proteins in a cell, the system of movement of bacteria, the production of antibodies, etc. We will return to this crucial objection below.

6. The marvelous instincts of animals

Similarly, the marvelous instincts of animals could not have been gradually acquired by mutation. This can especially be seen in the formation of nests, the webs of spiders, the migrations of birds, the ants, etc., who demonstrate such admirable precision.²⁸ These instincts have survival value only if they are *perfectly calculated and fine-tuned*. No one has attempted, as far as I know, to explain a mechanism for the precision of the evolutionary development of these most amazing features of the animal world.

7. Problem of mathematical calculations of probability

Mathematically, the probability of simple genes changing by chance into more complex ones is so small that there is not enough time in the whole history of the universe to realize such a change. Thus a mathematician calculated that of all the possible paths, it seems that evolution has *selectively followed the shortest one* (and not that of chance). Otherwise the possibility of the emergence of man would be absolutely zero after only three billion years of life on the earth.²⁹ In other words, chance is completely useless for explaining the evolution of species that exist today.

Perhaps this mathematical argument is the most decisive one from the scientific point of view. Georges Salet writes: “Only the numbers can put an end to the dispute, from 1859, between Darwinists and anti-Darwinists.” Salet and other mathematicians apply the method of calculating the probabilities with regard to the mechanism of the genetic mutation to show that it is *mathematically impossible*. If a Darwinist wants to maintain his theory today, he would have to refute these arguments in order to offer a calcula-

tion of possible and reasonable probabilities. Surprisingly, it seems that little work of this kind has been done by the Darwinists, which shows that this decisive difficulty has not been resolved.

The anti-theist Jacques Monod himself admits that the probability of the evolution of the first cell was “virtually zero” and that it probably only occurred once. He says:

Life appeared on earth: what, before the event, were the chances that this would occur? The present structure of the biosphere far from excludes the possibility that the decisive event occurred *only once*. Which would mean that its a priori probability was virtually zero. This idea is distasteful to most scientists. . . . The universe was not pregnant with life nor the biosphere with man. Our number came up in the Monte Carlo game.³⁰

However, the problem is that our number had no probability for coming up, since it was *statistically impossible*.

It is a fact of experience that there are things that are *statistically impossible*. For example, if someone were to say that the statue of the *Pieta* by Michelangelo was perhaps produced by natural forces operating by chance, through wind and erosion, etc., everyone would think he was crazy. He could respond that it could be possible, although extraordinarily improbable. However, as we all know, it is completely impossible on the practical level that such a thing as the *Pieta* should occur by chance. To propose chance as its cause would be absolutely unscientific!

8. Problem of the insufficiency of time necessary for the possibility of an evolution through chance

Another difficulty that emerges from the mathematical calculation of the probability of evolution is that there would not be sufficient time in the universe, by a long shot, to permit the realization of the chance combinations and mutations necessary to cause evolution.

Georges Salet writes:

I propose to demonstrate that the knowledge recently acquired on the function of DNA, its duplication and its accidents give us a certain basis for mathematical speculation, and that we must conclude that the duration of the geological periods would have to be multiplied by 10 followed by various hundreds or thousands of zeros, at least, to permit the appearance of a single new organ, however modest it may be.³¹

9. The complexity of the most primitive cell and the problem of the origin of life.

Monod admits that “the simplest living system known to us, the bacterial cell, a tiny piece of extremely complex and efficient machinery, attained its present state of perfection perhaps a billion years ago. Its overall chemical ground plan is the same as that of all other living beings. It employs the same genetic code and the same mechanism of translation as do, for example, human cells. Thus

28 See Douglas Dewar, *More Difficulties of the Evolution Theory*, pp. 97-100.

29 See Murray Eden, *Heresy in the halls of biology: Mathematicians question Darwinism*, «Scientific Research», Nov 1967, p. 64.

30 Monod, *Chance and Necessity*, pp. 144-145.

31 Salet, op. cit., p. x.

the simplest cells available to us for study have nothing ‘primitive’ about them. Selection . . . has left them with a teleonomic (i.e. purposeful) apparatus so powerful that no vestiges of truly primitive structures are discernible.”³²

Monod also explains the major difficulties for the explanation of the origin of life through chance:

The development of the metabolic system, which, as the primordial soup thinned, must have “learned” to mobilize chemical potential and to synthesize the cellular components, poses Herculean problems. So also does the emergence of the selectively permeable membrane without which there can be no viable cell. But the major problem is the origin of the genetic code and of its translation mechanism. Indeed, instead of a problem it ought rather to be called a riddle.

The code is meaningless unless translated. The modern cell’s translating machinery consists of at least fifty macromolecular components which are themselves coded in DNA: the code cannot be translated otherwise than by products of translation. It is the modern expression of *omne vivum ex ovo*. When and how did this circle become closed? It is exceedingly difficult to imagine.³³

Does Biology Show the Presence of an Intelligent Project?

The theory of Darwinist macroevolution presumes that the causes of life and of the distinction of species are chance and natural necessity, but not *intelligent design*, which was explicitly rejected as unnecessary. However, today a number of scientists are working on a method for isolating the presence of intentionality or of a “project.” Notable scientists in this field are Michael Behe, William Dembski, and Stephen Meyer.³⁴ Dembski proposes objective and mathematical criteria in order to say that something is the product of an intelligent project: it has to be contingent, complex, and very specific (like a sentence, for example).³⁵ Contingency shows that it is not the result of necessary laws. However, something that is contingent can be the product of chance (which is the normal supposition); and in order to show that something is not the result of chance, he adds the criteria of complexity and of specification.

For example, many scientists search for the presence of intelligent extraterrestrial life through radio signals. They think that if a signal is very complex and specific at the same time, it shows the presence of an ordering intelligence. For example, if it signals all the prime numbers between 1 and 101 in order, it would be reasonable to think

that this is not the product of chance, but of intelligence. In fact, this is the plot of a movie named *Contact*, which was used to promote the search for extraterrestrial intelligent life. In the film, the scientist who found this signal says: “This is not noise, it is *structure*.”

If we were to find a building like Chartres Cathedral on Mars, it would be absurd to think that it was the product of chance: of winds, tornados, earthquakes, volcanoes, etc. Everyone would say that it was evidence of intelligent life on that planet. When archaeologists find pieces of stone in the form of a pyramid, etc., they immediately think that it is the product of men and not of chance. How much more would they think this if they found something as complicated as a car or a Boeing 747.

However, the structure of the most primitive and simple cell is *much more complex*, specific, and improbable than the collection of prime numbers from 1 to 101, or Chartres Cathedral, or the primitive artifacts found by archaeologists, or a Boeing 747. In relation to the cell, it can truly be said that “this is not noise (chance); this is *structure!*”

In relation to the complexity and specification of DNA, Bill Gates said: “DNA is like the program of a computer, but much, much more advanced than any software program that we have created!”³⁶

A very improbable event can happen every now and then. You may actually win the lottery. However, the improbability increases astronomically as the complexity of the thing increases.³⁷ For example, a *very specific chain* of things that are very improbable in themselves, *does not happen naturally by chance*. If the same person wins the lottery ten times in a row, nobody would think it was by chance. Something is wrong. There must have been some manipulation. It couldn’t have happened naturally.³⁸ But this is precisely what happens in the most primitive cell. There is not only one single improbability, but an *extremely long chain* of incredible improbabilities all coordinated perfectly with each other, so that the whole functions only when all its complex components are already perfectly in their specific position. If one element is lacking, the cell cannot function. It is like a machine that needs all its parts working together in order to function.³⁹

In his book, *Darwin’s Black Box*, the microbiologist Michael Behe tries to show that the theory of Darwin cannot explain the evolution of “irreducibly complex” systems, in which there are various elements that must

32 Monod, *Chance and Necessity*, p. 142.

33 *Ibid.*, p. 143.

34 See the collection of papers by these three authors presented at a Conference at the Wethersfield Institute in 1999: *Science and Evidence for Design in the Universe* (San Francisco: Ignatius Press, 2000).

35 See Dembski’s essay, “The Third Mode of Explanation: Detecting Evidence of Intelligent Design in the Sciences,” in *Science and Evidence for Design in the Universe*, pp. 17-51.

36 Bill Gates, *The Road Ahead* (Boulder, CO.: Penguin Blue Books, 1996), p. 228.

37 See Cairns-Smith, *The Life Puzzle* (Edinburgh: Oliver and Boyd, 1971), p. 95, cited in Stephen Meyer, “Evidence for Design in Physics and Biology,” in *Science and Evidence for Design in the Universe*, p. 73.

38 See Christian de Duve, “The Beginnings of Life on Earth,” *American Scientist* 83 (1995): 437; cited in Stephen Meyer, p. 77.

39 See Bruce Alberts, “The Cell as a Collection of Protein Machines,” *Cell* 92 (February 8, 1998), 291, cited in Stephen Meyer, p. 67.

be perfectly in order before the system can function in any way. Without every element perfectly configured, the system would not be favored by natural selection at all. The value of survival only begins when all the elements are present and the system begins to function.

Darwin knew perfectly well that this was the weakest point of his theory. In his book, *The Origin of Species*, Darwin says: “If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.”⁴⁰ Nevertheless, Darwin thought that he could explain the origin of the eye through a series of small modifications. However, today we know that the eye, like all vital systems, has an enormous complexity, much more than Darwin could have imagined.⁴¹

The basic and most innovative idea of Michael Behe’s book, *Darwin’s Black Box*, is that irreducibly complex systems like the flagellum of a bacterium, or the eye, or blood coagulation, or the transportation of proteins within the cell, are precisely those which demonstrate the inability of Darwin’s theory to explain the possibility of macro-evolution. These systems do not support Darwin’s theory not because they are so complex, but because the parts are so highly specified. If only one feature is imperfect, the system will not work. Even in a system as simple as a mousetrap, if one part is missing, or is too short, or is in the wrong place, or is stuck, the machine will not work, and it will not catch a mouse, which would make it very unfitting. This does not fit at all with the Darwinian idea of evolution in small increments. A partially complete system fails; it is good for nothing. As Behe states: “Design is evident when a number of separate, interacting components are ordered in such a way as to accomplish a function beyond the individual components. The greater the specificity of the interacting components required to produce the function, the greater is our confidence in the conclusion of design.”⁴²

Can scientists really be certain of this conclusion of design? Behe writes:

Imagine a room in which a body lies crushed, flat as a pancake. A dozen detectives crawl around, examining the floor with magnifying glasses for any clue to the identity of the perpetrator. In the middle of the room, next to the body, stands a large, gray elephant. The detectives carefully avoid bumping into the pachyderm’s legs as they crawl, and never even glance at it. Over time the detectives get frustrated with their lack of progress but resolutely press on, looking even more closely at the floor. You see, textbooks say detectives must “get their man,” so they never consider elephants.

40 *Origin of Species* (NY Univ Press, 1988), p. 154.

41 See Behe, *Darwin’s Black Box*, p. 173: “Darwin never imagined the exquisitely profound complexity that exists even at the most basic levels of life”.

42 *Ibid.*, p. 194.

There is an elephant in the roomful of scientists who are trying to explain the development of life. The elephant is labeled “intelligent design.” To a person who does not feel obliged to restrict his search to unintelligent causes, the straightforward conclusion is that many biochemical systems were designed. They were designed not by the laws of nature, not by chance and necessity; rather, they were *planned*. The designer knew what the systems would look like when they were completed, then took steps to bring the systems about. Life on earth at its most fundamental level, in its most critical components, is the product of intelligent activity.

The conclusion of intelligent design flows naturally from the data itself—not from sacred books or sectarian beliefs. Inferring that biochemical systems were designed by an intelligent agent is a humdrum process that requires no new principles of logic or science. It comes simply from the hard work that biochemistry has done over the past forty years, combined with consideration of the way in which we reach conclusions of design every day.⁴³

Michael Behe ends his book with the following thought:

Over the past four decades modern biochemistry has uncovered the secrets of the cell. The progress has been hard won. It has required tens of thousands of people to dedicate the better parts of their lives to the tedious work of the laboratory... The knowledge we now have of life at the molecular level has been stitched together from innumerable experiments in which proteins were purified, genes cloned... structures determined, sequences compared...

The result of these cumulative efforts to investigate the cell—to investigate life at the molecular level—is a loud, clear, piercing cry of “*design!*” The result is so unambiguous and so significant that it must be ranked as one of the greatest achievements in the history of science. The discovery rivals those of Newton and Einstein, Lavoisier, Schrödinger, Pasteur, and Darwin. The observation of the intelligent design of life is as momentous as the observation that the earth goes around the sun or that disease is caused by bacteria or that radiation is emitted in quanta. The magnitude of the victory, gained at such great cost through sustained effort over the course of decades, would be expected to send champagne corks flying in labs around the world. This triumph of science should evoke cries of “Eureka!” from ten thousand throats...

But no bottles have been uncorked, no hands slapped. Instead, a curious, embarrassed silence surrounds the stark complexity of the cell... Why does the scientific community not greedily embrace its startling discovery? ... The dilemma is that while one side of the elephant is labeled intelligent design, the other side might be labeled God.⁴⁴

Science thus confirms the poet’s intuition and the word of Revelation. Man is the product of a creative thought of God, expressed by Genesis 1:26 as God’s word through which man was created: “Let us make man in our image, after our likeness.”

43 *Ibid.*, pp. 192-93.

44 *Ibid.*, pp. 232-33.