THE ANCIENT AND MEDIEVAL CONCEPTION OF NATURE

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According to the Aristotelian definition, which prevailed in ancient philosophy and science, a “natural” being (as opposed to an artifact) contains in itself the principles of its becoming and follows its own rules of change. This can be seen most clearly in living beings: their growth is the expression of their specific property, contrary to a tool or a mechanism which will move only if it is put into motion. Such a feature could also be predicated of the totality of things, “Nature” as a whole. The cosmos was not considered a mere ensemble of individuals; it had its own intrinsic universal dynamism, and could be thought of as a being in its own right, a sort of big animal possessing its own universal soul. Nature was therefore at the same time the Great Whole and the principle which animates this whole and its parts, a sort of vital force diffused among natural beings.

Christianity adopted this concept (Nature was sometimes personified, in the Middle Ages), but added the view that the world is a creation, and that this creation, moreover, continues to depend on its Creator. Hence a conflict arose between the two ideas of Nature and creation. As a matter of fact, the world, the ensemble of things that the Christians kept on designating as “natural”, had to be seen, on one hand, as a consistent nexus of beings, determined by an immanent causality. But, on the other hand, the Christians’ concern was to preserve the rights of God in his creatures, and these rights entail that he is not merely the builder of a machine which, once set up, would run in an inexorable and uncontrollable way. For the Christians, God can constantly interrupt or alter the way the artifact he has manufactured functions. In other words, theologians had to secure the permanent possibility of miracles. Their defense of divine omnipotence developed during the Middle Ages and implied a certain conception of natural laws that we will highlight.
This conception originates in St. Augustine’s arguments for making plausible, in answer to learned heathens’ criticisms, the Christian belief in a hell where bodies would suffer the torments of eternal fire.\(^1\) One objection claims that a body which is burned comes to a point of final destruction, so that the punishment cannot be endless. Augustine’s reply first puts such a physical truth into perspective. He invokes the case of some beings, like salamanders which according to a common belief, are not consumed in fire. Overall, Augustine’s strategy is to rely on facts reported by the pagan writers themselves (e.g. Plinus the Elder), facts which are unusual, extra-ordinary, and paradoxical, although they are also natural (unlike those supernatural events, recounted by the Revelation, as the Burning bush, that by definition unbelievers will not acknowledge). Straw, for example, can indifferently keep snow cold or ripen green fruits by retaining warmth. Charcoal, on one hand, is extremely brittle, on the other hand no moisture will ever rot it. Although fire is the great consumer of all things, it has made charcoal incorruptible. Water cools off most of the things, but it ‘wakes up’ the fire hidden in lime. Inversely, although oil is a fuel for fire, it does not act upon lime.

Through these examples, Augustine’s aim is to compel pagans to concede that many things, whose reason cannot be discovered, are still undoubtedly true, and that “it is possible for a thing to become different from what it was formerly known characteristically to be”.\(^2\) “These hostile critics of the faith who require explanations”, Augustine retorts, “what do they reply about those things that cannot be explained by man, but do exist, and seem contrary to the very laws of Nature?” Why do flames make the “salt of Agrigente” melt, while water makes it crackle? They have nothing to answer, except that such modifications occur because of the peculiar nature of this salt. But “this rather seems contrary to Nature, for Nature has given water, not fire, the power to dissolve salt, and has given fire, not water, the power to scorch it”.\(^3\) And, granted that such is indeed the nature of this salt, since God is the creator of this peculiar nature,

\(^1\) *City of God*, book XXI, chap. 2 ff.
\(^2\) Ibid., chap. 8.
\(^3\) Ibid., chap. 7.
which opposes Nature, why do the heathens refuse to accept that divine almightiness explain facts which are apparently impossible, like eternal combustion? “As therefore it was not impossible for God to create such natures as He pleased, so it is not impossible for Him to change these natures of His own creation into whatever He pleases, and thus spread abroad a multitude of those marvels which are called monsters, portents, prodigies, phenomena”.

Thus, Augustine’s reasoning for making miracles credible is clear. There are, within the boundaries of Nature itself, exceptions, prodigies, phenomena which belie the most common processes. Those wonders are not miracles, because they do not require God’s special intervention, they pertain to natural causes, although rare and unknown ones. However, like any other creature, these natural wonders have no other reason and origin than God’s will, as the creator of all things. Therefore, why could God not impede or radically modify Nature as he wants to, that is: perform miracles properly speaking, supernatural actions? Since the natural order in itself proves to be not perfectly uniform and necessary, it can a fortiori be disrupted at will by its Maker.

We can grasp here Augustine’s conception of Nature: the natural course of things (as established by God) is not, as it is for modern science, determined by inflexible laws, but is a set of “habits”, of regular behaviors, which tolerate exceptions on a strictly natural level. This view became commonplace during the Middle Ages. “Nature is nothing but a custom”: one will find the same reflection in the Rules of Theology of Alan of Lille, or in the Topographia hibernica of Gerald of Barri, or The Book of Marvels of Gervase of Tilbury. That means there is no absolute law; what we call so is a sequence of events, an association between a cause and an effect, which usually occurs, but stands derogations – derogations which, once again, pertain to Nature as it has been instituted by God, and not to a supernatural intervention.

4 Ibid., chap. 8.
6 II, prolog.
7 Otia imperialia, III, prolog.
An important relay for this conception was Peter Damian (11th c.), who wrote in his *Letter on the Divine Almighty*: “the one who founded Nature is the one who changes it” ("naturae conditor naturae est etiam inmutator"). This does not preclude some regularity among phenomena. Nature, posited as the whole of things, is said to command creatures which yield to its laws. But Nature itself submits to the laws of the Creator: “He who created the Nature changes the natural order at the discretion of his mightiness.” Thus, ‘natural’ does not mean ‘absolutely necessary’, but only ‘conditionally necessary’, that is: provided that, and as long as, God does not want the opposite. The universal order of things is not an absolute state of affairs, for “Nature has itself its own nature, namely God’s will”. Nature is not an ultimate grounding, which would entail an immutable necessity, but a provisional arrangement, which submits to God’s will. And Damian, taking up Augustine’s examples, proves there is no question that God can accomplish great changes, he who has established among the lowest, tiniest things so many natural marvels that are against the usual order of Nature.

One has to specify: the ‘usual order’, because one cannot say accurately: ‘against Nature’. Actually, nothing is against Nature widely construed. Indeed, whatever happens had been foreseen by God in the general scheme of His creation. From the divine point of view, there is no distinction between Nature and portents, for there is only one providential order in which all events, either ordinary, or exceptional, or miraculous, are forecast in a unique sight by God’s wisdom. One must of course avoid thinking that God, the immutable being, changes his mind when he performs a miracle. Everything bound to happen is inscribed into “the first foundation” of things, as Augustine calls the work of the first six days, during which God created the elements and all the “seminal” or “causal reasons”, that is the seeds from which all future creatures successively arise during the course of centuries.\(^8\) These seminal reasons unfold under God’s overseeing, but without new creative acts. A natural prodigy is the manifestation of one of these reasons. But miracles, too, are made possible by them. Either such “reasons” are special ones,

\(^8\) *Cf. De Genesi ad litteram*, book V, v, 12-16 and xx, 41.
implanted by God’s Providence in anticipation of extraordinary events; or God makes use of ordinary reasons, drawing out their natural effects without the normal delay and circumstances.⁹ For instance, according to Augustine, the miracle of the wedding in Cana is nothing else than an acceleration of the natural wine-making process.¹⁰ Each year, water (rain) is converted into grape juice, in the vineyards, and further on into wine. Actually, the Cana miracle is no more astonishing than this natural process. But men no longer admire marvels they are accustomed to, and it is precisely for this reason that God sometimes performs miracles, in order to remind them of his mightiness.

By the same token, wizardry is possible and Christians may accept the reality of wonders performed by heathens. This is what happened when Pharaoh’s magicians transformed their rods into snakes, just as God did in favor of Moses: they knew how to command the demons to discover the seminal reasons of snakes hidden in the matter and imperceptible to human senses. Hence, in every case, “a portent happens not contrary to Nature, but contrary to what is known of Nature”.¹¹ No exceptional thing happens without a reason, but its reason is not one of those which are manifested ordinarily. Nature is full of unknown possibilities; all sort of events can occur without the usual process from which they ordinarily result.

Did the medieval conception of Nature change during the 13th century because of the influence of Aristotelism, which was supposed to be more ‘scientific’ or determinist?

Certainly, Thomas Aquinas, for instance, no longer appeals to the “seminal reasons” to explain miracles. He offers an explanation which relies upon universal causality:¹²

[1] Each cause constitutes with its effects a particular system.

[2] The different systems are fit one in another: as each cause is submitted to a superior one, each system is included in a superior one.

⁹ Ibid., VI, xiii, 24 - xiv, 25.
¹⁰ Ibid., VI, xiii, 24 ; De Trinitate, III, v, 11.
¹² Sum of Theology, Iª p., q.105, a.6.
There is a universal system, which includes all the others, and which directly depends on the First Cause.

Therefore:

[a] What is contrary to nature from the view-point of a particular system is not such from the view-point of a superior system.

[b] Nothing is contrary to the universal system, namely Nature in the most extensive sense, or the order of creation as thought and willed in its entirety by God (including the particular decrees of Providence, that is: miracles).

But proposition [a] must not be understood only in the modern sense of a change of reference (what is false in a particular system can be true in a broader system, or inversely, like a law in Newtonian and in relativist physics). It rather means that an upper cause can modify a lower system by a direct interference: the superior agent alone is able to produce directly, without the secondary causes, an effect that the latter ordinarily produces; or, the superior agent is able to produce an effect that the secondary causes are not able to produce (there are two different types of miracles, for instance, respectively: to change water into wine, and to resurrect the dead).

As a consequence, Aquinas’ theory does not actually depart much from the Augustinian conception of Nature. Again, a natural process is only a usual one, and tolerates derogations. An example proposed by Thomas clearly illustrates this point. Although (he says with reference to Aristotelian physics) water by nature moves downwards (which we observe in ebb), high tide is however not against nature. It is only against the particular nature of water, whose ordinary place is the lower part of the world. But this particular system is modified by a superior cause, namely the moon, which raises water, in opposition to the peculiar tendency of the latter.

A still more detailed account is given in Aquinas’ *On The Occult Operations Of Nature.* Some operations of natural bodies — like that of the magnet — cannot be

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explained by virtues of the elements whereof they are composed. Therefore, these operations, called “occult”, are due to the influence of higher agents, the “separate (intellectual) substances” and “celestial bodies”. There are two kinds of influence. Either the upper agent impresses a form or virtue in the lower agent: thus, the moon shines when receiving light from the sun. Or the upper agent merely moves the lower one, which receives no power in itself but only transmits the movement, like a saw in the carpenter’s hands. The second process is the one which is involved in the ebb and flood of tide, or in divine or demoniac operations through bodies as well: relics do not cure, it is God who cures through relics. Now – and this is noteworthy – such occult operations are not common to all individuals of the same kind, neither do they appear regularly: “all relics of saints do not cure when being touched, but some and sometimes (...) nor each bulk of water does ebb and flow according to the movement of the moon”. This variable behavior of water is not irrational, since it is determined by causes; and there is one normal and usual movement, in regard of which others are exceptions. But by the sole fact that these exceptions exist, the normal movement is bound to be only a custom, not a necessity. Water usually behaves in a certain way, but sometimes it acts contrariwise.

Thus, the Thomist Nature is no more homogeneous than the Augustinian one, and this was unavoidable within the frame of a physics grounded on qualities like heavy, light, cold, hot, etc. These qualities give to things their specific tendencies, so that an inverted effect appears to be contrary to their peculiar nature, to be an exception and a violent interruption of the ordinary process. Such a view, then, stands still far from the conception of Nature claimed by modern science, which overall seeks universality and homogeneity. This requirement will be philosophically expressed by Spinoza or Kant:

“Nature is always the same, everywhere and at any time, and its virtue and power of action are always identically the same”\textsuperscript{14}

“Nature is the existence of things as determined by universal laws”.\textsuperscript{15}

\textsuperscript{14} Ethica, III, Praef.

\textsuperscript{15} Prolegomena zu einer jeden künftigen Metaphysik, §14.
For modern science, there is no natural place or particular nature of water: its attraction “downwards” is exactly the same phenomenon as its attraction “upwards”, it is an effect of the same law of universal gravitation. Likewise, the apparently opposed properties of straw (keeping warm and keeping cold) are in fact relevant to the same isothermal power. Or, if water generally extinguishes fire, but sometimes, on the contrary, “wakes up fire”, as for instance when reacting with sodium (likely the “Agrigente salt” in Augustine’s text), this latter phenomenon is not an exception to the laws of combustion: it can be explained by the very same chemical theory as the one that explains a wood fire. We endeavor to uncover a single, self-same physical process under contradictory appearances.

Since there are for modern science no natural exceptions inside Nature, we are far less inclined to admit miracles. However, let us remark that the ancient and medieval predisposition to believe in miracles or prodigies was not a mere matter of superstition and credulity. Augustine wrote: “Neither do I wish all the marvels that I have set down to be rashly believed, for I do not accept them myself in such a way as to exclude all doubts about them from my mind. I do believe the things that I have experienced myself and those that anyone else may easily put to the test”.16 And he tells us how he realized an experience about what he had heard of and wanted to verify: that God “has granted to the flesh of the dead peacock immunity from decay”.17 The difference with the modern scientific attitude (means of investigation, like observation instruments or mathematical methods, put apart) lies in Augustine’s conception of an heterogeneous Nature: for him the scope of possibilities was much wider than it is for us (the peacock could represent a real exception to the usual law of decay), and he was lead by this concept of an heterogeneous nature to do no more than verify the existence of strange facts and grant them the status of exceptions, not so frequent but not improbable, instead of pursuing his inquiry so as to eventually reduce the supposed exceptions to the common law, and explain them by ordinary causes.

17 Ibid., chap. 4.