

Knowing and doing in the sixteenth century natural magic: Giambattista della Porta and the wonders of nature¹

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Abstract

In the first book, chapter 3, of *Magia naturalis*, Giambattista della Porta (1535-1615) states that: “Quoniam ipsam Magiam activam; & naturalis Philosophiae portionem describimus...”, i.e., “Seeing Magick, as seen before, is a practical part of Natural Philosophy...”. By this Della Porta referred to knowledge of a particular set of phenomena which would enable him to operate nature from within. Actually *Magia naturalis* covers a broad spectrum of issues which include topics related to the art of distillation, perfumes, fireworks, cookery, fishing and hunting etc. The purpose of all these subjects was to survey whole natural and artificial things in order to reproduce them. One could infer that each phenomenon described in *Magia naturalis* was singular and could only be known through empirical bias of investigation. That is why all reports in his *Magia naturalis* are reduced to the formula: “how to make, how to do etc”. In this sense, one could say that natural magic is a kind of art (*techné*) in the Aristotelian sense because it implies the sort of knowledge which depends on the ability of those who will manipulate phenomena. That is why the conception of natural magic is usually closely associated in meaning to “skill”. Although natural magic approaches in meaning to art (*techné*), it somehow does not address a skilled craftsman because a magician should consider theoretical background as well as practical knowledge. It was expected from the magician to have an acute knowledge of natural philosophy in order to articulate such theoretical part with that of practical counterpart. Therefore, a magician was not a mere craftsman for he should take into consideration not only the material but also how to manipulate nature using the necessary tools. In other words, since a magician had to deal with singular and rare phenomena, he had to consider all materials and know how to prepare and organize them. The aim of this paper is to point out that natural magic was a science closer in meaning to *techné* because it had a concrete sense of craftsmanship with the

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connotation of the ability to devise stratagems. However, once it had not been limited to the intellectual or manual activity, it could not be considered a mere technical art, or technical science, meaning technology or technique.

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Introduction

Here in this work we discuss the relationship between science and art (*techne*) in the origin of modern science approaching the idea of wonders in the sixteenth century natural magic². We then examine Giambattista della Porta’s conception of natural magic pointing to a specific example³. This work relates to Della Porta’s purpose to produce wonders (*mirabilia*) considering natural magic as a practical part of natural philosophy. First we will deal with the meaning of practical knowledge in *Magia naturalis*. And then we will consider how this very practical knowledge addresses to natural philosophy considering the process of distillation.

Natural Magic as the practical part of Natural Philosophy

In the first book of *Magia naturalis*, chapter 3, Giambattista della Porta states that: “Quoniam ipsam Magiam activam; & naturalis Philosophiae portionem describimus...”⁴, i.e., “Seeing Magick, as seen before, is a practical part of Natural Philosophy...”⁵. By this Della Porta referred to a body of knowledge acquired through a meticulous inspection of nature which could provide to the magician (*magus*) some skills and tools which would enable him to manipulate this nature from within. Such practical knowledge involved not only a diligent observation of

² On arts in the Sixteenth and Seventeenth centuries, see: P. H. Smith, “Art, Science, and Visual Culture in Early Modern Europe”; *Idem*, *The Body of the Artisan: Art and Experience in the Scientific Revolution*; P. Long, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to Renaissance*; P. Rossi, *Philosophy, Technology and the Arts in the Early Modern Era*.

³ On Della Porta’s life, see: Pompeo Sarnelli, “Vita di Gio. Battista della Porta napolitano scritta da Pompeo Sarnelli”, in G. della Porta, *De ea naturalis physiognomoniae parte quae ad manuum líneas spectat libri duo; in appendice Chirofisonomia a cura di Oreste Trabucco*, 79-82; see also: P. Piccari, *La sapienza dei maghi: Giovan Battista Della Porta e la filosofia occulta*, 4-10; F. Colangelo, *Racconto storico di Gio: Battista della Porta Filosofo Napolitano con un’analisi delle sue opere stampate*, 2-19; and L. G. Clubb, *Giambattista Della Porta Dramatist*, 3-56.

⁴ G. della Porta, *Magiae naturalis libri XX in quibus scientiarum naturalium divitiae et deliciae demonstrantur*, I, 2; henceforth to be denoted by *Magia naturalis*.

⁵ For 1658 English version, see: G. della Porta, *Natural Magick by John Baptista Porta a neapolitane in twenty books*, I, 2; henceforth indicated by *Natural Magick*.

the behavior of whole things in nature, but also a concrete sense of craftsmanship capacity to devise stratagems⁶.

We can say that Della Porta pursued in nature the procedures which would inspire him to imitate them. Indeed the purpose of all subjects covered by his *Magia naturalis* was to survey whole natural and artificial things in order to reproduce them. In fact, Della Porta referred to a particular set of phenomena which could not be deduced from pre-established principles. In other words, Della Porta referred to a kind of knowledge which did not arise from the systematic tracking of natural phenomena themselves but from information derived through a meticulous investigation of singular phenomena which could be provoked in quite a particular way. This meant that this sort of knowledge was acquired not only by observation but also by physical manipulation of nature.

As a practical part of Natural Philosophy one could say that natural magic was a science which retained both the meaning of artifice and nature (*physis*). Actually, since the agent's source of motion in nature lies in the natural things themselves, a magician had to learn from this the processes in order to reproduce those movements. Then differently from the Aristotelian natural philosophy, natural magic copied nature in being in order to reproduce and perfect this very nature.

Once the phenomena which natural magic was interested were singular, they could only be known through an empirical bias of investigation. That is why all reports in *Magia naturalis* are reduced to the formula “how to make, how to do etc” requesting the sort of knowledge which depends on the ability of those who will manipulate phenomena. The disposition of these reports and the way they are portrayed imply a kind of knowledge which is usually closely associated in meaning to “skill”.

However, by this we cannot see natural magic as representative of the imperfection of human imitation of nature as it is implied in the Aristotelian notion of art (*techné*). It should be taken into account that although Della Porta remarks that natural magic is the practical part of Natural Philosophy this does not mean that it is a kind of knowledge which only fits for use. Indeed, natural magic did not rely only upon a whole set of knowledge available to users in order to perform intended actions. It involved heterogeneous bodies of learning which could be tacit or codified. A magician should have a broad knowledge in natural philosophy in order to articulate such theoretical part with that of practical counterpart. In fact, in *Magia naturalis*, Della Porta asserted that a magician should have a broad acquired knowledge not

⁶ On *ars* and *techné*, see: B. van den Hoven, *Works in Ancient and Medieval Thought: Ancient Philosophers, Medieval Monks and Theologians and their Concept of Work, Occupations and Technology*. On arts in the Sixteenth and Seventeenth centuries, see: Smith, *Art, science, and visual culture*, 83-100; and Smith, *The body of the artisan*, 1-55; and Long.

only by means of account the tradition, but also by his own hands by observing and manipulating nature⁷. Moreover he refers to a magician as an *artifex* or a *mechanicus*.

It should be taken into account that at that time both terms, *artifex* and *mechanicus*, were close in meaning to *ingenium* which alluded to someone who had a natural talent.⁸ Hence besides being well learned in philosophy, astrology, medicine, mathematics and so on, Della Porta remarks that he “must be a skillful workman, both by natural gift, and also by the practice of his own hands”⁹.

We can say that a magician was someone who had dexterity of manipulating nature using necessary tools. It was precisely by watching and imitating nature metamorphosis that the magician acquired knowledge and practice of his art. This in turn involved a constant trial and retrial which could lead to a deep knowledge of nature. Nevertheless, this does not mean that Della Porta was an experimenter in the modern sense. These trials and retrials which Della Porta refers to in his *Magia naturalis* as well as in his other works were not controlled testing of hypotheses as in its modern connotation. Differently, Della Porta referred to *experimentum* or *experientia* in the sense of *experta*, which was close in meaning to the idea of expertise. In other words, a *magus* was an *expertus* or someone who had expertise in a particular subject. He was someone who had not only a hands-on experience, but also the ability to manipulate nature in all of its aspects.

The physical manipulation was required because nature could not reveal all its aspects and consequently, all its potentiality, without overcoming by trial and retrial the ordinary course of nature. In this sense, the production of wonders was an important task which a magician should embrace in order to master nature.

Wonders of nature

We can say that Della Porta adopted empirical standards which were radically different from ours¹⁰. His *Magia naturalis* assigned to those rare and singular

⁷ Della Porta, *Magia naturalis*, I, 3.

⁸ *Ingenium* (and the Italian *ingegno*) means talent, the natural gift of a person, and is opposed to what may be learned from art and experience. See: D. Summers. *The Judgment of Sense: Renaissance Naturalism and the Rise of Aesthetics*, 99.

⁹ Della Porta, *Magia naturalis*, I, 3.

¹⁰ L. Daston & K. Park, *Wonders and the order of nature 1150-1750*, 154-160. As Lorraine Daston and Katherine Park have outlined, Della Porta belonged to an influential group labeled by themselves as “preternatural philosophers”. According to Daston and Park, “preternatural” was an intermediate category between two set of phenomena, supernatural (*supernatura*) and natural (*natura*). This classification goes back to Thomas Aquina who named *praeter naturae ordinem* those unusual occurrences which

phenomena which did not occur in the ordinary course of nature in Aristotelian fashion. These were wonders (*mirabilia*) of nature and, despite they belonged to that nebulous domain of marvelous, they were not unnatural. Indeed Della Porta observed in his *Magia naturalis* that he referred to those phenomena which were extraordinary but not miraculous. Then the wonders produced by magicians did not exceed the limits of nature¹¹.

The deep interest of Della Porta on this set of phenomena was twofold: on the one hand, his purpose was to pursue the knowledge of how nature produced such wonders in order to manipulate it from within and produce bigger wonders. On the other hand, such wondrous effects enabled him to have access to the most hidden secrets of nature¹².

These kinds of phenomena were singular in the sense that they were a manifestation of particular occurrences which one could not fancy the causes. Since this set of phenomena was not miraculous, but marvelous, it was identified with *admiratio* or wonder. Then one could have two attitudes toward this. One could be, on the one hand, a disinterested delight and, on the other, an interested wish to hold the working process of nature either to use it in a profitable way, or to get a deeper understanding of nature operations.

As we showed in our recent work, *Magia naturalis* had twofold. For a simple reader, the phenomena described in it offered only fun (*ludus*). But for a magician they should be taken as challenges having as a prize knowledge obtained by applying the instructions given by the book, which were not always explicit. In this latter sense we can say that the results acquired by applying such instructions were seen by magicians as prizes reserved only to one who could put into practice the acquired knowledge. Then by providing a mix of fun and knowledge, natural magic show us playfulness as an instance that reconciled manipulations, operations, practices and theoretical speculations. This procedure was considered to be part of natural magic taking into consideration the purpose to know nature by different means combining practical and theoretical knowledge in order to warn the reader not only about how to lure nature, but also to point out those rare, artificial and artful phenomena¹³.

depended upon secondary causes and were not miraculous events naturally impossible.

¹¹ Natural Magick, I, 2..

¹² Ibid., 171 In this sense one could say that, as Daston and Park assert, Della Porta's preternatural philosophy was also a preternatural technology.

¹³ F. Saito, *O telescópio na magia natural de Giambattista della Porta*.

As we have mentioned before, a magician should acquire knowledge which could eventually enable him to simulate (even emulate) nature and learn how to seize it and to operate upon it without exceeding its limits. In order to achieve this, a magician had to devise different devices and apparatuses. These devices were designed “according to nature” in such a way that by using them, he could take nature out of its ordinary course in such fashion to constraint and lure it.

As we can note in his *Magia naturalis*, Della Porta designed devices and apparatuses considering the effects they could produce. It was his purpose to multiply and to create bigger and wondrous effects. However as we have already shown in a recent study, these devices were more than simple tools used to examine nature, they were part of nature and enabled a magician to penetrate it from within. The magician designed apparatuses to serve two purposes, to illustrate a process which was intrinsic in nature and, to be useful tools by which he could go into nature and grasp its most occult secrets. This meant that a device has twofold roles in natural magic: on one hand, it follows nature and reproduces phenomena, on the other hand, it could be used as a tool to manipulate nature in order to make it reveal new phenomena¹⁴.

In this sense we can say that three words play central roles in Della Porta’s natural magic: “devising”, “improving” and “knowing”. We can say that these terms referred roughly speaking to three important steps toward understanding nature. The first one refers to the idea of imitating natural process. A magician must devise stratagems in order to imitate the working process of nature. However to achieve and succeed in this a magician should know how to prepare and organize different materials. The imitation of nature involved not only observing and representing it but also coming to know about the properties of materials in order to manipulate them. The second one is related to the first one but at the same time differs from it in degree. After acquiring the knowledge of how to imitate nature a magician should take into consideration how to improve such processes in order to produce bigger wonders. This certified a magician that nature could be controlled and at the same time enabled him to manipulate it producing different tangible effects. The third step also related to the two before required a deep understanding of natural philosophy. Besides knowledge which enabled a magician to imitate nature, he should operate nature from within and lure it. To achieve this, a magician should consider his understanding of nature along with Natural Philosophy which shed light on the meaning of these phenomena. Furthermore, after learning from nature how to devise different wonders, a magician should build different sorts of

¹⁴ Ibid.; F. Saito, “*Ars et Scientia: The Role of Apparatuses and Devices in Della Porta’s Natural Magic*” [forthcoming, 2013].

instruments and apparatuses by which he could constraint nature and then grasp its most hidden secrets.

Distilling *Clissus*

The distillation process exemplifies this very well. According to Della Porta, a magician learned the distillation process from nature itself. It was by observing process of rarefaction and condensation in nature that the magician improved the art of distillation. Nevertheless, the distillation was not only a procedure used to reveal those processes, but also an art which allowed a magician to extract the virtues of plants, mineral and herbs.

This subject was treated in the tenth book of *Magia naturalis* and in the *De distillatione* published in 1608. In both works Della Porta remarks that “nature produced things and provided them with faculties” and art could “ennoble them and provide them with many qualities”. In this sense, the art of distillation¹⁵ taught a magician how to extract “dewy vapors, spirits, lumpy, sticky or viscous humors and that very essence which is hidden in the depths and intimate parts of things”¹⁶. In other words, the virtues of plants, herbs and minerals could be revealed to a magician by means of distillation.

Della Porta’s work on distillation was not much different from other traditional books. In the tenth book of *Magia naturalis*, he dealt with several kinds of apparatuses and processes by which a *magus* should follow to extract the virtues of different plants and herbs. Moreover, he explained and exposed the reason why different devices should be used for different materials which would be distilled.

This latter subject was better developed in his treatise on distillation. In the first book, after dealing with distillation as a general sense and presenting different types of furnaces used in this art, Della Porta discusses various genres of vessels that can be used according to the material to be distilled. Furthermore, he described specific processes by which someone could prepare *Waters*, *Oils*, *Quintessence*, *Magistry*, *Tincture* and *Elixir* as long with how to split the four *elements* from different materials¹⁷.

We can say that each of these preparations required not only knowledge of several kinds of materials found in the three kingdoms of nature, but also an ability and skill to manipulate and prepare them in order to acknowledge them in their transmutation in distillation process. Indeed, to describe how to prepare *aqua vitae*, for instance, Della Porta reported in great detail the elevation of water and the

¹⁵ On distillation, see: Della Porta, *Magia naturalis*, X; and also: Della Porta, *De distillatione libri IX*.

¹⁶ Della Porta, *Magia naturalis*, I, 3.

¹⁷ *Ibid.*, X; and also: Della Porta, *De distillatione*.

condensation of the spirits and the phlegm, taking into account the conditions of cucurbit heat and the cold in the head of alembic¹⁸.

The process of obtaining such “waters” was complex because it involved digestion, successive distillation and circulation. This encompassed complex laboratorial procedures which required a continuous flow of material in the vessels until all impurities were eliminated to obtain a thin and subtle essence. By these processes a magician could extract for each thing in nature four virtues: *Quintessence*, *Magistry*, *Tincture* and *Elixir*.

However Della Porta also refers to fifth virtue which could be obtained by this process besides such essences which he called *clissus*. This substance which was very useful for medicine was a mixture of all subtle parts of a plant¹⁹.

The procedure for *clissus* preparation involves those three steps which we mentioned above, namely “devising”, “improving” and “knowing”. This procedure consisted of extracting from a single plant all their essences or subtle parts which then were distilled again:

“(…) There are in a Plant, the root, leaf, flower, fruit and seed, and in every one of these parts, there is a peculiar nature. The operation is thus: Dig the roots when they are full of juice, the leaves when they are fresh and green, the flowers when they are blown, the fruit and seeds in their due time. Extract the spirits or essences out of all these by Distillation, Maceration or Calcination, or any other of the former wayes. But when they are all extracted severally, one in the form of oyl, another of Salt or Liquor; then mix them all together, so that they may be conjoined and united in one body, which is called a Clissus”²⁰.

In other words, oils, salts and liquors obtained in such way were put in three distinct recipients which had long necks, all of them united in a single head. All these recipients were sealed and placed on fire. The heat in each recipient raised the subtlest essences which were mixed in the head. There such mixture called *clissus* was condensed and trickled through the nose of the still being collect in a vessel.

Final remarks and conclusion

The distillation was a process learned from nature itself. Once this knowledge was acquired, a magician was able to devise and improve the process by himself. The equipment used to prepare *clissus* indicates a step beyond the imitation of nature. It

¹⁸ Ibid. X.

¹⁹ Ibid., X, 18.

²⁰ Ibid.

shows us that a magician imitates nature in order to perfect what it is unable to achieve alone.

The idea of distilling the three newly obtained “spirits” (oil, salt and liquor) separately depends on a deep knowledge of matter, especially of *materia medica*. The knowledge of these materials and how to prepare them required, as we mentioned before, a theoretical ground. This means that we cannot establish a neat divide between knowing and doing in natural magic. These two spheres of knowledge were interchangeable in many ways. We can say that natural magic was not limited to skills and know-how neither to the intellectual or manual activity. Practical as well as theoretical knowledge must be considered here as part of Natural Philosophy. In other words, natural magic proposed to investigate nature horizontally instead of vertically as in Aristotelian fashion. Then knowledge in magic was expanded to the extent that new phenomena were assimilated and technical difficulties of apprehending them were overcome. Finally we can say that singular phenomena were connected to the general principles of natural philosophy by ties which arose from the intersection between the production of wonders and methods used to improve them.

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