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RETHINKING MECHANICAL AUTOMATA IN EARLY MODERN EUROPE

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TALISMANS AS AUTOMATA. HEBREW PHILOLOGY AND THE MECHANISATION OF NATURE IN JACQUES GAFFAREL'S *CURIOSITEZ*

Vittoria FEOLA*

Abstract. This essay aims to contribute to our reflections about automata in the early modern worlds by demonstrating that, first, a debate took place in seventeenth-century France about the nature of talismans, as to whether they should be considered akin to automata; and, secondly, that discussions about the reasons for which talismans should or should not be regarded as such enriched current reflections about mechanical natural philosophy, touching on the uses of philology in connection with the study of nature. I focus on Jacques Gaffarel's *Curiositez* (1629) as a case study. While Gaffarel is usually portrayed as an occult writer, in the first section I show that he was a playful libertin érudit, a Gallican, and a tolerant man with manifold interests, including natural philosophy and Hebrew philology. In the second section I demonstrate that Gaffarel was an accomplished Hebraist. In the last part of this essay, I relate Gaffarel's philological work to his explanations that talismans worked according to Gassendian atomism and Cartesian mechanicism.

Keywords: automata, talismans, Hebrew philology, atomism, Aristotelianism, Cartesianism, Gaffarel

Introduction

Seventeenth-century Western European countries witnessed a sharp rise in the production, uses, and discussions of automata, that is to say, mechanical objects which gave viewers the impression of animated machines. The trend had started in Renaissance Italy. The 1589 translation into Italian and publication of Heron of Alexandria's *Pneumatica* by Giambattista Aleotti had given great impetus to the trend towards the creation of moving artificial figures. As Jonathan Sawday has noted in his seminal work on the rise of machines in Renaissance culture, moving man-made objects captured scholars' attention. Machines were regarded as pertaining to both *techne* and *scientiae*.¹ Unsurprisingly, Martin Delrio tackled the issue of the link between automata and magic in his bestselling witchcraft handbook.² Theatrical devices were among the automata that caused wonder on people. The flying dragon which suddenly

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appeared on the scene with the French comedians at the Cock-pit in Drury Lane, London, caused “a great disturbance of the Ayre, or rather an Irregular motion of several wonderfull Machines”.³ Musical fountains began to appear in princely parks, such as the “Monsters Park” in Bomarzo, near Viterbo, in the Papal States, or in the Heidelberg Palatinate Castle park, which had been designed by Solomon de Caux.⁴

Machines performed mechanical operations which mirrored men’s abilities to move, to sound, and to cause change onto non-automatic objects. Once set into motion, machines like water pumps and levies looked like things with a will of their own. Engineers considered them as man-made objects which, in complementarity to human beings, partook of God’s providentially ordered cosmos, where each piece had its pre-programmed function and place: “Le Naturel est celuy par lequel chaque element cherche & se tire de soi mesme vers le lieu a luy assigné par la providence divine en la creation; l’Accidental celuy qui se Meult par quelque puissance exterieure autrement que ce premier.”⁵ God had created an orderly cosmos, with man, who, in turn, created automata. The engineer Isaac de Caux believed that man’s automata had their place in the cosmos and were able to function because they were made according to natural laws. Engineers were successful in making automata because they understood some of the laws of God’s cosmos.

Due to her military involvement throughout the century, France enjoyed flourishing communities of mathematicians and engineers. From René Descartes to Blaise Pascal, and from Sébastien le Prestre de Vauban to Gilles Personne de Roberval, to mention but a few of the most renown, France was a country in which applied mathematics was on the rise.⁶ Automata-making was seen as a branch of applied mathematics. (We should bear in mind that the English word “technology” and the French word “techniques”, or the expression “applied mathematics” include today what seventeenth-century people understood to be simply part of “mathematics”: automata were mathematical objects.) Further, French printing centres were catching up fast with Venice, and indeed, Paris became the most active printing city in Europe.⁷ Debates about automata took place as part of wider scholarly discussions about those aspects of mathematics that could help shedding light onto contemporary notions of God’s orderly cosmos. Galileo’s famous sentence, whereby mathematics was the language of the universe, was more than a *bon mot*; it was a programmatic stance.⁸ Competing hypotheses about the ways in which God’s cosmos works mathematically clashed and sometimes partly overlapped with one another. Descartes’ mechanical views were amply debated both in France and abroad. Rather than seeing them as monolithic, we should regard them as fluid and adaptive.⁹ There was no single French mathematical community throughout the century. Instead, several thinkers, coming from different backgrounds and proceeding along slightly different logical paths, all contributed to re-elaborating, digesting, explaining, amending, and developing several strands of largely Cartesian-inspired mechanical views of the universe.¹⁰

The mathematician and Catholic priest from Provence, Pierre Gassendi (1592-1655) is a case in point.¹¹ Gassendi was Regius Professor of Mathematics at the Collège Royal in Paris. He published widely on both theoretical as well as applied

mathematics. He also wrote on automata with special reference to his astronomical system.¹² Gassendi is best known for having re-elaborated Lucretian Epicurean atomism into a variant form of Cartesian mechanical philosophy. Gassendi believed that matter was made up of atoms, infinitely small seeds, which moved from body to body. Void was part of created space. Gassendi's explanation for the mechanical way in which some automata would work under the right star conjunction reflected his atomistic matter theories - as well as his belief in the influence of the stars on humans as means of God's providential will.¹³ Automata were for Gassendi all those objects which would cause a change in state to another object to which they would be applied for the purpose. The physical change in state would be the result of a transfer of seeds, or atoms, from the automata to the other object.¹⁴

As a Cardinal and an eminent mathematician, Gassendi was the dedicatee of a number of works. His friend from Provence and correspondent, Jacques Gaffarel (1601-81) dedicated to him the last part of his *Curiositez Inoyes, svr la sculpture talismanique des Persans, horoscope des Patriarches, et lecture des Estoilles*.¹⁵ Despite this flamboyant and slightly misleading title, the main subject of Gaffarel's book was talismans, which he understood in Gassendian terms as automata. The *Curiositez* first appeared in Paris in 1629, immediately attracting significant attention, with the editions of 1631, 1650, and 1676 following suit, to mention but those which came out during the author's lifetime. The first part of the book (pp. 1-93) aims to show the credibility of Gaffarel's Jewish sources about talismans. "Les plus Saints des Peres n'ont pas desdaigné la Curiosité des Gentils", he stated in peroration for his methodology, which provides "tout ce qu'il conduit à la cognoissance de Dieu, comme sont ces recherches." Gaffarel's stance implies a rehabilitation of Jewish authors against classical and Christian misrepresentations. In order to demonstrate that Jewish texts had been interpreted in the wrong way, Gaffarel needed to argue philologically. His knowledge of Hebrew, Greek, Latin, Italian, and French stood him in good stead. Although some of the etymologies which he suggested have recently been replaced by more accurate ones, Gaffarel's philological skills were remarkable for the time, as we are going to appreciate shortly. The second part (pp. 94-230) is devoted to talismans, their physical nature, and the natural philosophical reasons for their efficacy. The book closes with a letter from Gaffarel to his "Amico Gassendio", in which Gaffarel praises him as an active agent in the Republic of Letters, a great mathematician, an accomplished Hebrew scholar, and a fellow member of the Catholic church who values knowledge of Oriental languages to deepen his understanding of the book of God and of the book of Nature.¹⁶

Philology, observation of natural phenomena, Aristotelianism, and Gassendian mechanical philosophy were the key elements of the *Curiositez*. Historians have not dealt with the book in this way nor have Gaffarel's philological ability and knowledge of Hebrew been assessed properly so far. Sawday's choice of singling Gaffarel out as a particularly successful writer on automata, is as brilliant as solitary within the historiography available about the book. I will discuss the literature on Gaffarel in the next section. Here I wish to stress that Gaffarel's talismans are not usually associated with automata, whereas it is a fundamental tenet of this essay to

consider them in connection with them. A number of French parallel sources will be read together with the *Curiositez* in order to contextualise seventeenth-century debates about automata. Some of the authors were physicians, like François Bernier, the author of an *Abrégé de la Philosophie de Gassendi* which praised Gaffarel's work. Others were scholars who, like Gaffarel and Gassendi, were part of the same community of amateur professional as well as amateur mathematicians, some of whom corresponded with one another, others met regularly in Paris. They tended to belong to the de Mommor circle. It included such scholars, as Gassendi, Bourdelot, Gaffarel, Thévenot, Justel, Petit, Roberval, Pascal, de la Chambre, Sorbière, Miramont, Lantin, Henri, Rool, Auzout, and Moncony. They were the Who's Who of mechanical philosophers of the time. Moreover, Moncony corresponded with eminent mathematicians abroad, like Hobbes, Digby, Boyle, Morey, Oldenburg, Bruncker, Willis, Wallis, Wren, Vossius, Sluze. During his travels through Italy, Monconys met with Galileo's disciples, namely, Zucchi, Fabri, Kircher, Torricelli, Viviani, Bellucci, del Pozzo, Cassini.¹⁷ Gaffarel's *Curiositez* are in need of contextualisation, and so is his life, to which we are about to turn. We need a better appraisal of Gaffarel's life and Hebrew scholarship in order to be able to appreciate the ways in which he argued in favour of a Gassendian vision of talismans as automata.

1. Jacques Gaffarel's life, character, reputation, and sources about his work

Jacques Gaffarel was born in Mans in 1601 and died in Sigonce, Provence, eighty years later. A doctor of theology and a Catholic priest, he always professed himself so in his writings, although both his early works and private correspondence reveal him as an erudite libertin, with a deep-seated interest for the Orient.¹⁸ In 1624, at the age of twenty-three, Gaffarel published in Paris his first literary work, *Cleolthée, ou les Chastes adventures d'un Candien et d'une jeune Natolienne*.¹⁹ From the choice of the subject one can already glimpse his taste for the East as well as his worldly spirit. It was a love story, mockingly addressed by Gaffarel as "chaste", between an inhabitant of Candia and a Turk.²⁰ In 1628 Gaffarel published in Rome for Pope Urban VIII, through the intermediation and help of friend Leo Allacci, his translation from the Syrian-Armenian into Latin of the letter of John, Patriarch of Armenia to Constantinople.²¹ A year later, Gaffarel had become competent enough in Hebrew to be able to put out his translation of the *De Fine Mundi* by Elchaben David.²² In 1630 Gaffarel published a Latin tract about Muslim and Christian practices with the King's Publisher for Oriental languages.²³ Almost at the same time his *Curiositez* came out; we will focus on its content in the third section.²⁴ Here we should only note that by 1630 the Sorbonne was monitoring Gaffarel's works, and as soon as the *Curiositez* appeared on the Parisian market, censors attacked it vehemently, demanding its retraction. In 1631 a new edition of the *Curiositez* came out of Hervé du Mesnil's press. It contained a preface, framed as a retraction, in which, however, the author defended his work in rather vague terms. Nothing new: no expurgation, no self-censorship. We can see in this aborted censorship episode the protective shadow of Cardinal Richelieu, Provisor of the Sorbonne since 1622.

In 1633 Gaffarel left Paris for Venice. On 16 November 1633, Gaffarel wrote to "Monsieur d'Hozier, Gentilhomme de la Chambre du Roy & son

Historiographie".²⁵ The joking tone with which Gaffarel comments on the gossip of his Parisian friends about their Venetian loves gives us the image of a Catholic priest who is not exactly chaste, or at any rate, who likes two-way jokes maybe a little too much. We should also note the burlesque tone in reference to talisman which supposedly improved his correspondents' memory. Gaffarel seemed somewhat skeptical of the magical properties of talismans. We should bear it in mind when we shall be considering his ideas about them. In the rest of Gaffarel's correspondence with d'Hozier there are many more passages of the same tone, which explain the epithet of erudite libertine with which René Pintard described Gaffarel without, shyly, reproducing the salty ones.²⁶

As far as religion is concerned, Gaffarel did not hesitate to make fun of the popular piety of Venetian women who believed in the miracle of the Madonna del Carmine.²⁷ Likewise, he did not skimp tirades against the pontiff.²⁸ Gaffarel's other correspondents from Venice (and later from back in Paris) included the Who's Who of French Gallicans, such as the Dupuy brothers, Jacques-Auguste de Thou, François Hotman, Nicolas-Claude Fabri de Peiresc, Pierre Gassendi. Gaffarel's Gallican convictions and milieus have been amply studied, and these brief quotes simply confirm a well-known aspect of his character.²⁹

In Venice, Gaffarel attended the French embassy, where he resided. Soon he made the acquaintance of Leone Modena, a cultured rabbi, who presumably procured him Jewish volumes for his and the Cardinal's library. In Venice lived the largest Italian and freest Jewish community in Europe. Venice is often referred to as the "gateway to the East"; in the case of the intellectual formation of Gaffarel, this expression appears particularly appropriate.³⁰ A result of Gaffarel and Modena's friendship and collaboration was the publication in Paris in 1637 of Modena's book, *Historia de gli Riti Hebraici*.³¹ While this work was in line with Gaffarel's intellectual interests, it reflected a more "Richeulian" context, too. In his *Preface*, Gaffarel deprecated the general ignorance of the Hebrew language, sources, and rites by scholars all over Europe, and in Paris, as well.³² Modena dedicated his *Rites* "All'illvstrissimo ed Excellentissimo Signore mio Padrone Colendiss. Il Signore Presidente Clavdio Malliero, Consigliero del Re Christianissimo destinato per Ambasciatore come prudentissimo alla prudentissima e Serenissima Repvbblica di Venetia".³³ In 1637 Richelieu had an interest in remaining on good terms with the Serenissima. The geopolitical situation was such as to require the consent of Venice for possible troop transfers: the questions of Mantua, Monferrato, and the Grisons required the pragmatic friendship between Paris and Venice. Like every French resident of the Embassy in Venice was called to do, Gaffarel informed his Gallican friends of the movements of imperial troops, as well as of the pro-French elements in the Serenissima and in the north of the peninsula.³⁴

On his return to Paris, Gaffarel became advisor to Louis XIII and librarian of Richelieu first, and aid to Mazarin later, living off his reputation as an accomplished Orientalist as well as on commendations from the priory of the abbey of Ganagobie (Provence). When Gaffarel died in his castle in Sigonce, in 1681, his legacy was dispersed, thereby making both his reputation during his lifetime as well as today quite a hard task to the historian. Let us look at it in detail.

The fame of an Orientalist has accompanied Jacques Gaffarel since the seventeenth century. Pierre Bayle, in his *Dictionnaire historique et critique*, stated that Gaffarel “knew Oriental languages and many others.”³⁵ In the nineteenth century, Paul Gaffarel repeated that his ancestor Jacques knew Hebrew, Syriac, Arabic, and Persian.³⁶ The catalogues of major libraries, such as the National Library of France or the British Library, describe him as an Orientalist. Yet historians of Orientalism in modern Europe, like Gerald Toomer, Alaistar Hamilton and Francis Richard have not considered Gaffarel in their works.³⁷ Saverio Campanini is the only one who has attempted to evaluate Gaffarel's Hebrew.³⁸ While waiting for the reasoned edition of all Gaffarel's works by Frédéric Gabriel, it is worth remembering the difficulty of locating his books and manuscripts, which would be the desirable primary sources for an empirical study of his intellectual biography. The dearth of primary sources is undoubtedly the most important cause of the historiographical gaps in which we situate Gaffarel. Although Hiro Hirai's special issue of *Bruniana e Campanelliana* has the merit of starting to fill some of them, we are missing a discussion of the fate of his papers and, above all, of the uses that Gaffarel made of philology and atomism in relation to the mechanisation of nature. This essay aims to begin to fill these gaps by looking at Gaffarel's contribution to the seventeenth-century French debates on the nature of talismans through his *Curiositez*.

Theologian and priest, Gaffarel is generally considered as one of the greatest exponents of seventeenth-century Christian cabbala. François Secret had already painted him in this way in 1957.³⁹ On the other hand, in the *Cahiers d'Hermétisme* directed by Antoine Faivre and Frédérick Tristan, Geneviève Javari has regarded Gaffarel as a naive and uninteresting thinker within the "panorama" of French Christian kabbala in the early modern period.⁴⁰ Luciano Erba has recently reiterated this image of a gullible Gaffarel, occultist and infatuated with magic.⁴¹ The label of a Christian kabbalist is dangerous, because it attracts attention from those who want to see the occult everywhere. For example, Peter Forshaw, in Hiro's edited collection, recently focused on Gaffarel's kabbalistic interests, relating them to Pico's work. Rightly, Forshaw points out that Gaffarel found kabbalah useful, because it consisted of a set of exegetical techniques. The next section is going to deal specifically with Gaffarel as a Hebraist. Before doing it, I shall summarise the history of Gaffarel's own papers.

Gaffarel can be a difficult subject to study because of the complicated history of his collections. I myself set out to search for Gaffarel's holographic papers that have survived time and, above all, the many French revolutions. The result was frustrating. Gaffarel collected Oriental manuscripts and books which have found their way into Richelieu's library. There are two inventories for it, both compiled after his death in 1643 and kept in the National Library of France.⁴² Ms 4270-4271 is the longer and more complete of the two. Jean Flouret studied them without, however, being able to ascertain the different provenances of Richelieu's collections.⁴³ According to Alfred Franklin, as soon as Richelieu died, Blaise the bookseller was asked to compile an inventory of the cardinal's library. Richelieu left his library as an inheritance to his nephew, Armand de Vignerot.⁴⁴ Léopold Delisle reports with certainty that, in January 1648, the Duchess of Aiguillon ordered the preparation of

another catalogue of this library for the benefit of the young de Vignerot; it is also in the National Library in Paris.⁴⁵ The execution of Richelieu's will in relation to his own library was the object of dispute. Long and tedious judicial procedures culminated in the intervention of the Parliament of Paris (an institution that served as the high court of justice for the realm of France). This, in 1660, established that the Cardinal's library should be moved to the Sorbonne.

The Sorbonne, in turn, ordered the compilation of a new catalogue containing the titles of all new acquisitions of printed books and manuscripts acquired thus; fittingly, this document is still available at the National Library, in its Richelieu site.⁴⁶ The Delisle catalogue indicated two further manuscript copies of Richelieu's library catalogue.⁴⁷ It enumerates 350 Hebrew manuscripts, 17 Arabs, 28 Greeks, 215 Latins, 183 French and 109 Italians or Spanish. Paul Gaffarel, a descendant of Jacques's, attempted a first reconstruction of their origins.⁴⁸ During the French Revolution, in 1792, Richelieu's library was dispersed. According to Franklin, printed books were distributed among a number of public libraries, while 2,000 manuscripts were sent to the newly founded National Library. Today, in the Paris National Library, it is impossible to find any printed book that can be shown to have belonged to Richelieu. In the library of the Institut de France, the collection of manuscripts by Théodore Godefroy contains a mine of material on Richelieu. Indeed, the library of the Institut de France is the place where most of the primary material relating to Richelieu and his immediate political as well as intellectual contexts is to be found. Unfortunately, however, I could not see anything significant written by Gaffarel. On the other hand, a number of interesting manuscripts can be traced to the National Library of France. A search by provenance within the research of generic provenance 'Richelieu' allows us to identify some manuscripts that belonged to Gaffarel; most consist of Jewish texts produced in Venice in the fifteenth century, as is clearly shown by an analysis of their paper and watermarks.⁴⁹

It is likely that Gaffarel bought them during his stay in Venice in the 1630s. The correspondence of Gaffarel from Venice, freely available on e-corpus.org, dates them, precisely, before the publication of the *Curiositez*.⁵⁰ Gaffarel's Venetian Hebrew manuscripts are bound in red Moroccan, that is in the typical binding of Richelieu, with his arms well engraved on the covers. I have seen all the manuscripts mentioned here. Only one volume, MS Hebr.586, contains a few words in Gaffarel's hand: "225 Rituel Hongarico Judaicum Inedit En langue Germanique & En Caractere hebreu Contien Le Rituel hungaro = judaique = est esté de figures aussi Grossieres que ridicules." Gaffarel wrote the entire sentence in brown ink, except the word "Inedit," which he wrote in red. The reason for Gaffarel's rather dry commentary is easy to find among the many spicy scenes in ink drawings of Jewish holidays contained in the volume. An anti-Semite, like, for example, the well-known Johannes Buxtorf, or the lesser known Peter Lambeck, would have taken the opportunity to attack the Jews.⁵¹ Gaffarel, on the other hand, maintained an elegant *aplomb*.

The fact that the majority of these manuscripts do not contain Gaffarel's marginalia makes them frustrating primary sources. On the other hand, they give us an idea of the kind of Jewish sources he collected during his long career as a Hebraist. But given the scarcity of marginal notes, we can only guess the way in which Gaffarel

read and really understood them. In fact, it is not impossible that he read them with the help of someone else; again: the lack of concrete evidence in this regard leaves us with more questions than we had before embarking on this research. The fact that these volumes may have been collected for use by Richelieu could at least partly justify the absence of marginalia in Gaffarel's hand. He would not have written, if not slightly, texts for his protector. He will have felt compelled not to “dirty” or “use too much” the items intended for the Cardinal's collection. So it is not impossible for Gaffarel to have fallen back on another method of annotation, the one universally used by any polite reader of someone else's books: he will have taken notes on separate sheets. Which, precisely, being only pieces of paper, in an age that has seen not a few manuscripts of great authors lining pans and feeding rats, could have ended up thus.

As far as Gaffarel's personal library is concerned, it has proved impossible to locate. Most probably he kept his books, manuscripts, and cabinet of curiosities in his castle at Sigonce, where he died in 1681. The castle was a dependency of the priory of Ganagobie, of which Gaffarel was the prior from 1632 to 1639. As for the books and manuscripts that Gaffarel would have bought for Richelieu during his travels in Italy, unfortunately there does not seem to be a list.

Indeed, there is no clear evidence of instructions that the Cardinal supposedly gave Gaffarel when he sent him to Venice as a book agent, as virtually all historians have repeated with reference to Gaffarel's sojourn in the lagoon. It is an observable fact that a number of Richelieu's Oriental editions and manuscripts, which we can identify today through his red moroccan binding and his arms, as we have just seen, came from Venice, and some of them bear the signs of Gaffarel's former possession. Nevertheless, one cannot help but notice that Gaffarel's correspondence with Bouhier, who passed on news from Venice to the Cardinal, was eminently political in content and libertine in tone, without ever containing information about book and manuscript acquisitions.⁵² Either Gaffarel sent out information about the Cardinal's library acquisitions in separate letters, which have failed to turn up yet, or Gaffarel got books and manuscripts in Venice which reflected his own Oriental interests as well as the local market, and later gave (some of) them to Richelieu, perhaps in exchange for patronage. Surely the claim that Gaffarel acted as a book agent for Richelieu in Venice is not properly documented in the evidence available. What is safe to say, is that Gaffarel bought Hebrew books and made friends within the local Jewish community, because he was interested in the Hebrew language as a key to a whole set of sources to explore in addition to Latin and Greek ones. Given the importance that Hebrew philology held for Gaffarel as a scholar and, in particular, for his arguments about talismans as machines, we are now going to tackle the *Curiositez*.

2. The Jewish sources for Gaffarel's talismans: context, methodology, and aims

Let us start from the title. Why “inouyes”, that is, “un-heard of?”⁵³ Gaffarel explains in the title that he is talking about knowledge which is unheard-of by Christians because it can only be found in Jewish sources. Jewish, non-Christian learning can therefore be useful to both Jews as well as to all those who will read his

book, be it Christians or otherwise. Given the prevailing attitudes of the time, it is surprising, at first glance, that Gaffarel opens his *Unheard-of Curiosities* with a lengthy defence of the Jews. His reason for doing this is explained thus:

It concerns me therefore, for the better securing them⁵⁴ from suspicion, to take upon me the defence of the Eastern men, and chiefly of the Jews, who are the authors of them, and in point of curious learning, to defend their innocency, hitherto so much injured (*UC*, p. 3).

Being particularly mindful of their Jewish origin, therefore, Gaffarel's motivation is clearly to reinforce the validity of the traditions he is about to present. While his motivation may be completely self-serving, what follows remains a remarkably robust defence of the Jewish nation.

He begins by enumerating four common accusations levelled against the Jews (*UC*, pp. 3-4):

1. idolatry – due to a “false persuasion”
2. folly – due to ignorance of Jewish sources
3. blasphemy – due to hatred of Jews
4. apostasy – due to the arrogance of those making the accusation

What follows is a very strong and detailed rebuttal that comprises Part One of the work (*UC*, pp. 4-59). A detailed treatment of the subject is impossible in this context, but the following points are indicative.

a – ass worship

Gaffarel is competent in his use of classical sources, probably in Latin translations if the originals were in Greek, and he is prepared to engage with them critically. For example, he sides with Josephus against Plutarch and Tacitus on the subject of the supposed idolatry of the Jews:

For the first of these accusations, Apion, as Josephus affirms, was the first, that forged it out of his own brain: and notwithstanding that this excellent author of the Jewish Antiquities hath learnedly confuted him; yet Plutarch takes it still up for a truth; and Tacitus also, after him, brings it in, in his History, as a prodigious thing (*UC*, p. 4).

In this passage, Gaffarel is referring to Josephus's refutation of Apion's accusation that the Jews worshiped a golden ass's head, which was supposedly kept in the Holy of Holies (*AA*, II:79-88).⁵⁵ What is remarkable here is not so much Gaffarel's knowledge of Josephus's refutation, but rather his assertion that Apion's false claim influenced both Plutarch and Tacitus in that order. According to Callistratus, as quoted by Plutarch, Jews “honour the ass who first led them to a spring

of water” (*Symp.* IV:5.2).⁵⁶ A fuller version of this notion is given by Tacitus, according to which the Jews almost perished from thirst in the wilderness following their exodus from Egypt, but were saved when Moses followed a herd of wild asses to the rock from where water gushed. This was later commemorated by Moses, in the newly invented Jewish cult, by the dedication of an image of an ass in the Tabernacle (*Hist.* V:3-4).⁵⁷

As Peter Schäfer has observed, this is a comparatively rare accusation in classical sources. Among Roman authors, it occurs only in Tacitus, and the only surviving Greek source, aside from Josephus’s rebuttal, is Plutarch.⁵⁸ It may, however, have been a common misconception in the ancient world, particularly in Hellenistic Egypt where it seems to have arisen,⁵⁹ so a literary dependence of the type suggested by Gaffarel is neither necessary nor likely. Nevertheless, Gaffarel’s reference to these three sources represents what would have been an exhaustive treatment of the subject, thus demonstrating a good knowledge of classical literature.

Gaffarel also displays an excellent knowledge of a variety of Jewish sources, such as Ibn Ezra (e.g. *Aben-Ezra*, UC, p. 27) and David Kimchi (UC, p. 52). In many cases, it is clear that he has accessed these sources through Latin translations, e.g. “פרקי אליאזר, *Pirche Eliezer*, i.e. *Capitula R. Eliezer*” (UC, p. 70). But this does not mean that his knowledge of Jewish sources was limited to Latin intermediaries. He is able to quote from the Talmud with reasonable accuracy (UC, p. 45, margin, from BT Sanh 97a) and, as the next example demonstrates, he possesses an advanced understanding of Hebrew.

b – cloud worship

Gaffarel later writes:

But an account may more easily be given of the cause of the error, in the business of their worshipping the Clouds; which might spring from that miraculous Cloud, which was light on one side, and darke on the other, and was guide to the Children of Israell in the Wildernesse. Or perhaps this other reason which I shall now give, why the Jewes were called *Calicola*, Worshipers of the Heavens, or the Clouds, may be more satisfying: Namely, because they worshiped God, who is often called in the Hebrew tongue, שמים *Schamaim*, a word, that signifies also, the *Heavens* (UC, pp. 7-8).

This refers to the accusation that the Jews “clamour in the ears of high heaven” or that they “worship nothing but the clouds and the divinity of the heavens.” The former is found in one of Petronius’s poems,⁶⁰ and the latter in one of Juvenal’s satires (*Sat.* XIV:96-106).⁶¹ Apparently, and with good reason, the first explanation (based on Exodus 14:19-20) for this false accusation does not satisfy Gaffarel. The second explanation is apparently based on the Jewish use of שמים “heaven” as a metonym for “God” in phrases like שם שמים “the name of heaven” and מלכות שמים “the kingdom of heaven.” Underlying Gaffarel’s preference for this explanation is his knowledge that the Hebrew term שמים can refer to both the sky (i.e.

the earth's atmosphere; e.g. Genesis 1:26) and what we more readily understand as the heavens (i.e. outer space or the divine realm; e.g. Genesis 1:14 and Isaiah 63:15)⁶² which would account for both the variations of this accusation as found in the Roman satirists. This demonstrates sound scholarship in the fields of both classical and Hebraic studies.

c – month names

Another example of sound Hebraic scholarship is found in the following discussion of Jewish names for the months:

The Last Conjecture, which makes me thinke, that this Instrument was never in use, among the Ancient Hebrewes, is, because that the Names of the Moneths, which are graved on the Circle of the Moon, are not Hebrew, but Chaldee: and although seven of these names are to be found in the Hebrew Bible, which are these; נִיסָן סִיוֹן אֱלוּל כְּסֵלִיו טֵבֵת שְׁבַת אָדָר, *Nisan, Sivan, Elol, Kisleiu, Tevet, Schevat, Adar*; MARCH, MAY, AUGUST, NOVEMBER, DECEMBER, JANUARY, & FEBRUARY; yet are they not therefore Hebrew; for they are no where found, save only in the Bookes that were written, during the Captivity; as *Haggai, Zechariah, Daniel, Esra, and Esther*. If the Author of this Instrument had made use of these three names of Moneths, which are indeed Hebrew, though out of use, a man would have had the lesse suspicion of it: זו אֶתְנִים בּוֹל, *Ziu, Aitanim, Bouh*, which are used in the *Third Booke of the Kings*. The Translator of our Bible, interprets them not, nor specifies, what moneths they were. *Lucas Burgensis, Elias Levita, Marinus, & Ludovicus S. Francisci*, say, that they were, APRIL, SEPTEMBER, & OCTOBER (*UC*, pp. 278-279.)

Underlying this discussion is Gaffarel's knowledge that the Jewish month names, which are still used to this day, are not the historic Hebrew month names, but actually the Babylonian month names adopted from the time of the Babylonian Exile, hence his observation that they are used in those biblical books that date from the exilic and post-exilic periods.⁶³ He explains that they are Aramaic (Chaldee) rather than Hebrew, which, although not the whole story, is both correct and reasonable given that the Babylonian month names were not known until the decipherment of Akkadian in the nineteenth century. The reference to the earlier, authentic Hebrew month names is also correct, with זו occurring in 1 Kings 6:1 & 37, אֶתְנִים occurring in 1 Kings 8:2 and בּוֹל occurring in 1 Kings 6:38.

d – precious stones

Although Gaffarel demonstrates, in the context of what was known in the seventeenth century, a good level of knowledge and rational methodology, he does, from time to time, venture into more conjectural realms, as the next example demonstrates. Here, Gaffarel attempts to provide a new etymology for the French word "camaïeu":

To give an account now of this word, and to tell whence it is Originally descended, is something a difficult thing: no one Author that I have met with, having resolved this Doubt, or indeed so much as proposed it: only this one thing I do assuredly know, that it is no *French* word, but a Stranger. And I have sometimes thought; that, as the Jewes, who lived a long time in *France*, have left us many of their Words; (as I prove elsewhere:) they might peradventure have left us this also: and this Conjecture seems the more probable, in that this People traficks much in precious Stones. Now the word כמאיה *Chamaïeu*, may have beene corrupted from כמאיה *Chemaija*, which signifies, *As the Waters of God*: because that you shall see some *Agats* streaked in such manner, as that they perfectly represent the Figure of *Waters*: and the word, *God*, is here added, according to an Idiotisme, frequent in the Hebrew Tongue; which, when it is to speak of any thing of Excellence, usually adds this Holy Name after it (*UC*, pp. 100-101.)

As Gaffarel himself acknowledges, this idea is pure conjecture. Indeed, it is very wide of the mark for a number of reasons, not least that the word is French and of Latin origin. Despite this, however, there are two parts of his argumentation that go some way to redeeming his reputation for us. The first is that he is clearly aware that the Hebrew letters ך and ך are often confused in manuscripts,⁶⁴ something that is not so obvious if one only consults printed sources. The second relates to the reference to Jews trading in precious stones, which could indicate that Gaffarel is aware that Maimonides's family engaged in the gem trade across the Indian Ocean.⁶⁵ Either or both of these suggest that Gaffarel has more than a passing interest in the field of Hebraic studies. This also demonstrates that, even when Gaffarel is pursuing a wholly incorrect and bizarre line of argument, it is still worthwhile considering his methodology and argumentation because some parts may yet be well informed.

Early modernists have been waiting for an assessment of Gaffarel's competence in oriental philology, and this article begins to fill the gap. Stephen Burnett's recent *Christian Hebraism in the Reformation Era* mentions Gaffarel in the context of early modern French Hebraism, pointing out that someone like him fully participated in the vibrant intellectual life of Parisian Hebraists, be they academics or "working outside of the university, including Bishop Jean Plantavit de la Pause, the Almoner of the French queen, Louis Henri d'Aquin, physician to the queen, and Jacques Gaffarel, purchasing agent for Cardinal Richelieu."⁶⁶ Paris was then a major centre of Catholic Hebrew scholarship; it outstripped Rome as far as the quantity and quality of Hebrew books that were published there. Gaffarel also spent time in Rome, where he worked closely with Cardinal Barberini's Oriental press.⁶⁷ Patronage in Hebraic studies was not lacking, and in this sense Gaffarel's case is exemplary, having been able to secure Cardinal Richelieu's protection. Moreover, since Gaffarel's philosemitism emerges as a fundamental topos of his *Curiositez*, it deserves more than a passing mention, as it happens in Karp and Sutcliffe's *Philosemitism in History*.⁶⁸ Above all, however, we should pay close attention to Gaffarel's insistence on the need to contextualise ancient Jewish texts by reference to their geo-political and linguistic contexts of production, because it reflected his Humanistic training and antiquarian

activities. Indeed, his interest in investigating natural philosophy by marrying philology to experiments was typical of the antiquarian milieu in which he spent his scholarly life outside Richelieu's court. Gaffarel was a correspondent of the "Prince de la République des Lettres", Peiresc.⁶⁹ He was part of overlapping learned circles in Paris, whose members gave a significant contribution to seventeenth-century French debates about atomism and Cartesianism. This will become evident in the next section about the *Curiositez*.

3. Were talismans a kind of automata? The *Curiositez* in relation to seventeenth-century French debates on the mechanisation of nature

The first hundred pages of the *Curiositez* were dedicated to establishing the scholarly credentials of Jewish sources; the remaining six hundred presented talismans as a kind of automata. Thus we should regard Gaffarel's work as contributing to two overlapping debates in seventeenth-century France, which, in turn, reflected two major scholarly trends. First, the *Curiositez* aimed to demonstrate that talismans worked for sheer physical reasons, and, therefore, they should not be branded as tricks worthy of charlatans' sulphurous and groundless "magic". Secondly, and immediately related to the former point, was Gaffarel's aim to show that talismans were a kind of automata, because they worked automatically according to the mechanical laws of nature of a properly understood Aristotelian cosmos. To appreciate these two interconnected points, we need to look at the two partly overlapping scholarly contexts. First, in order to interpret Aristotle's correctly, Gaffarel argues that we need the tools of philology. But ancient Latin and Greek sources are not enough; we need Hebrew and other Oriental works to complement the former. Secondly, once we have enlarged our pool of texts from which to draw evidence for our revised analysis of Aristotle's thought, can we argue in favour of a Gassendian version of a mechanically ordained cosmos, in which talismans automatically work under certain constellations, thereby producing a range of physical effects, from healing wounds to preventing snake infestations. Thus, the *Curiositez* contribute to the two connected French and more widely European trends of a rising interest in Oriental philology on the one hand, and of competing ideas about the mechanization of nature, on the other hand. Ultimately, we can see the *Curiositez* as partaking of the seventeenth-century fashion for re-writing histories of knowledge in which Eastern wisdom and learning is increasingly on a par with the classical tradition.⁷⁰

In the previous two sections about Gaffarel's life, character, and competence as a Hebrew scholar I have shown that he was a French Gallican priest who enjoyed the pleasures of life, loved books, and had a life-long interest in Jewish learning. He was also well-connected, having served both Richelieu and Mazarin, and having ended his long life in the comfort of a castle in Provence. Gaffarel was a worldly man of letters with an open mind. The latter aspect of his personality is reflected in his scholarship. This is not the right place to show in detail his competence as a Hebraist, nevertheless, the second section of this essay is the first published discussion of Gaffarel's methodology as a Hebrew scholar. While his ideas about talismans may be proved wrong today, the same cannot be said about much of his Hebrew philology.

Establishing Gaffarel's competence is important, because he has been regarded as the odd author of a weird work on magic. The *Curiositez*, however, were the brainchild of a learned man's mind that was rather typical of his time. A closer look is in order.

The second part of the *Curiositez* opens with a chapter on, first, the ignorance of languages being the main reason for misunderstanding Aristotle, and, secondly, the Jewish works on talismans which Gaffarel will be using in support of his arguments.⁷¹ According to Gaffarel, Aristotle speaks of qualities in terms of abilities to do, from the Greek *poieo*, to do. There are four kinds of qualities which are consubstantial with the things they pertain to, which enable them to be, and to function according to their innate (potential) scope. Gaffarel illustrates this point with reference to mechanical objects.⁷² He gives the examples of a wheel and of a sharpened sword as opposed to a cubic mass and an unsharpened blade as mechanical objects, whose geometrical shapes are the very qualities which make the former roll down and the latter cut through. If a wheel were not spherical, and a blade unsharpened, their shape would be wrong with regards to one of their essential qualities, and, therefore, they would be unable to perform their natural tasks. Gaffarel's use of the word "figure", therefore, must be translated into English as "shape". Thus Gaffarel demonstrates that by translating Aristotle's Greek correctly, one will inevitably consider shape as a quality in Aristotelian terms.⁷³ Gaffarel cites here a number of mechanical devices, or automata, in support of his argument, and concludes by saying that scores more examples from the mechanical arts may be cited in point.⁷⁴

Belief in providence and Aristotelianism shaped Gaffarel's thinking about the natural world.⁷⁵ Gaffarel describes several natural objects which are naturally inscribed with images resembling people, animals, plants, or saints. Gaffarel explains that these natural objects produce natural effects on people's health. For example, blood-stained looking *Heliotropus* (a plant indigenous to warm climates) has the innate property of stopping blood when it is applied to an open wound. This is a case of shape enabling the inner power of the natural object.⁷⁶ Likewise, some stones have similar properties. Gaffarel points out, nevertheless, that just shape or natural engravings are not enough for stones or plants to possess healing properties; they need an influence from above. Particular astral conjunctions and the matter itself which constitutes the object in point are other essential factors. Gaffarel gives the example of a sword once again. Even if the blade were sharp, and it looked sharp (even if the shape were the right one), it will not be able to cut anything at all were it made of wax or butter (if the matter were the wrong one). Shape, therefore, is not the only factor in determining the efficacy of objects.⁷⁷ Following Della Porta, Gaffarel applies the analogy principle to the natural properties of natural remedies, likes heal alike: in the same way as a pumpkin looks like a man's head, so pumpkins heal headaches. There follows a list of simples which look like the organs whose aches they can cure effectively.⁷⁸

Having explained the natural, physical properties of talismans that one can find ready-made in nature, Gaffarel turns to man-made talismans. "Nothing has been bothering modern Philosophers more than "figures" or "images" made up under particular constellations. Most have rejected the practice as vain and superstitious, while others, who are less prone to passions, have recognised them to be true and have supported them, not without being blamed for it."⁷⁹ Gaffarel starts from the

etymology of the word talisman. He tries to demonstrate the Hebrew, Persian, and Arabic origin of the word, contrary to the received notion which followed Scaliger's Greek etymology. Oriental languages, and Hebrew in particular, are thus crucial to Gaffarel's arguments about both the etymology of the word, and, therefore, the nature of talismans themselves. Hebrew and Arabic etymologies of the word "talisman" from the Hebrew "tselem", "image", or, in French, "figure". Thus Gaffarel contradicts even the Greek scholar Saumaise, who had provided a Greek etymology, "telesma", meaning "ringlets", or "anuli" in Latin.⁸⁰ He then engages in a rebuttal of silly cabalistical practices. Gaffarel argues vehemently against the etymological possibility that talismans should only be those stones inscribed with the Tetragrammaton, the four-letter word for God in Hebrew.⁸¹ Contrary to the groundless fancies of demonologists, Gaffarel explains that his way of proceeding is based on the three criteria of star influence, look, and experience.⁸²

Star influence works mechanically: God's cosmos is ordained in such a way that stars above influence the world below as means of God's providence. Gaffarel commented the image of a talisman consisting of a stone tablet engraven with words. He considered it as an example of superstitious and groundless practice, just as the belief in incantations (sentences uttered with the aim of healing someone through the imaginary power of words). The inefficacy of such remedies is due to practitioners' lack of astrological competence: only by pairing the right words onto the right materials at the right astrologically-set time can one make objects which will speed up physical change that would otherwise occur much more slowly.⁸³ Talismans, thus, are means whereby to influence the pace of change, they do not engender physical transformation. Their efficacy, as we have seen, depends on an Aristotelian understanding of matter, whereby matter has in itself the seeds to fulfil its potential. Through artful combination of matter, words, and star constellations, men can speed up seeds so the potential state of matter comes about in full.

As far as look and experience are concerned, there are talismans ("Figures Talismaniques") which have healed snakes, scorpions, and dogs' bites. Ancient Arabians, such as Almansor, Messahallah, Zahel, Albohazen, Haly, etc have testified to this effect in countless works which scholars consider as trustworthy. In other words, after having been bitten by a scorpion, one can touch a bezoar with the image of a scorpion engraven on it, and the stone will heal the bite. If one did not want to lend credence to Arabic sources, then there are plenty such like stories in Latin and Greek texts. Gregory of Tours, for instance, recalled the time when people dug up a stone in Paris in which images of a rat, a snake, and a fire had been engraven on it. As the stone images deteriorated through neglect and time, the city of Paris found itself infested with more and more rats, snakes, and fires, whereas before the finding of the stone, Paris had been protected from such nuisances.⁸⁴ Citing the German scholar Camerarius, Gaffarel reinforced his point by reporting the story of Sultan Muhamad the second in Costantinople, who, on conquering the city, had accidentally smashed the mouth of a snake-like statue, thereby causing the sudden infestation of the city with thousands of snakes. Likewise, medieval Greek sources from the time of Anna Comnena, reports Gaffarel, tell the story of the stork-shaped talisman, which had kept Costantinople free from the birds until it was removed, thereby causing a stork

invasion which wreaked havoc on the Byzantine city. Talismans in the shape of constellations were made by the ancient Greeks to protect ships, as Herodotus recalled. Here, once again, Hebrew philology stands in Gaffarel's good stead. Even though the etymology he comes up with might well be fanciful, it is nevertheless an instance of the ways in which he used Hebrew philology to discuss the uses of talismans in ancient times.⁸⁵ He equated classical and Jewish sources when he stated that *teraphims* in the Temple of Jerusalem, which are described in the Bible, were akin to the automata, described by Heron of Alexandria. Editions of the *Curiositez* after 1650 included engravings of talismans, such as *teraphims* and moving statues from classical sources, which illustrate this point most vividly.⁸⁶

We can better appreciate Gaffarel's contribution to contemporary discussions about talismans and automata through a number of French works which engaged with the *Curiositez*. Gaffarel and his friend Gassendi delved in the same milieu of Gallican antiquaries and amateur natural philosophers who tried to combine Cartesianism with philology, the empirical study of objects (natural, artificial, ancient, classical, modern - what not) with observations of natural phenomena. Among them we find Nicolas-Claude Fabri de Peiresc, the Dupuy brothers, Jacques-Auguste de Thou, and the de Mommor circle in Paris, with their correspondents throughout the Republic of Letters. They formed the context of production, dissemination, and criticism of the *Curiositez*.⁸⁷ Rather than considering the *Curiositez* in isolation from their author's intellectual and social contexts, we should regard them as one of their products. This is evident in Baudelot de Dairval's *De l'utilité des voyages, et de l'avantage que la Recherche des Antiquitez procure aux Sçavans*.⁸⁸ Baudelot is in favour of Gaffarel's analysis because the latter has employed what the former considers as the best means to gain knowledge of nature, namely, to complement it with knowledge of antiquity by way of philology. Baudelot appreciates Gaffarel's philological criticisms of such authors, as Selden, Liceto, Pithou, Turnèbe, Scaliger. Gaffarel's superior knowledge of Hebrew earned him Baudelot's respect.⁸⁹ Baudelot argues that it is a contradiction in terms to state one's disbelief about talismans on the basis of "the classics" while such a major classical author as Galen listed some gem-talismans among medicinal simples: clearly Galen must have believed that a number of gems held innate, natural healing powers, thereby he regarded them as effective healing means as other naturalia, such as herbs and minerals. This point by Baudelot is all the more remarkable in that Baudelot was not a physician by training, like Bernier; rather, he was a lawyer, an antiquary, and, as such, he was both an amateur philologist as well as an amateur natural philosopher. His work is crammed with quotes from classical authors, even Jewish ones. Moreover, Baudelot was very interested in manipulating and observing objects, probably from his own collection, and using them to elucidate passages from the classical texts he commented in his book. Let us not forget that the main aim of Baudelot's work was to argue in favour of travels as means to adding up objects to antiquaries' collections: Baudelot was an amateur archaeologist, to say it with Alain Schnapp.⁹⁰ Fig. 1 is an engraving of an ancient talisman in Baudelot's collection. ⁹¹ Baudelot had experimented himself with a talisman against hemorrhoids - successfully.⁹² He applies himself to translating Galen from the Greek, citing in the original profusely. He insists that our listing talismans among artificialia is only due to our ignorance of the

laws of nature. Galen, instead, had listed them among naturalia, probably on the intuition that talismans worked for natural causes.⁹³ “The discoveries in physics made by the Cartesians over the past half century are the right tools to advance the argument in this work; modern philosophy can restore those parts of natural knowledge which the ancient already had, but which got lost in centuries of superstition and ignorance” which have made one regard talismans as artificialia and demonic, rather than natural remedies working according the laws of nature.⁹⁴ He then goes on to explaining the reasons for which a Cartesian cosmos can be interpreted astrologically, thereby aiding in the use of talismans.⁹⁵

In his *Discours sur les influences des astres, selon les principes de M. Descartes*, Charles Gadroy contrasts those who believed in the influences of the stars over men (the Ancient) versus those who deny them (the Modern).⁹⁶ First, Gadroy cites Pico della Mirandola and Gassendi. Gadroy praises them for providing a healthy warning against the superstitions of the astrologers without, however, denying the reality of star influences.⁹⁷ Next, Gadroy answers possible objections to Descartes’s theory of internal fires in planets. Had men known the true physical nature of planets in antiquity, no absurd theory regarding astral influences would have been conceived.⁹⁸ Further, Gadroy elaborates on the physical influences of the stars on men by way of seeds: Gassendi’s atomism is mixed with Cartesian *tourbillons*. He even visually presents his readers with picture of a Cartesian *tourbillon* in order to explain heat waves (“canicules”, Fig. 2). The figure is meant to show Gadroy’s mechanical explanation of a heat wave as a sphere within a *tourbillon*: it comes back cyclically and may be represented geometrically. This is a pragmatic example of an observable phenomenon - says Gadroy - which Cartesian mechanics and atomism explain in a satisfactory manner. Furthermore, it is a instance of physical influence of the above on the below.⁹⁹ Likewise, celestial matter - the physical principle whereby Gadroy explains heat waves - also illustrates the temporary powers of talismans.¹⁰⁰ Thus, Gadroy takes sides with the Ancient, although his mechanical philosophy is the same as the one advocated by the Modern. It seems to be a case of Ancient vs Modern rhetoric used in fact to argue for a middle ground approach.¹⁰¹ Gadroy, an educated man, must have realised that assuming Descartes’s *tourbillons* hypothesis was exactly just that: a hypothesis, an empirically unsubstantiated choice of side. There is not enough textual evidence from Gadroy’s text to try and argue, with Shapiro, that Gadroy, Gaffarel and the other authors cited here chose one side of the argument following a probabilistic approach.¹⁰² Nevertheless it is conceivable that at least some of them should have applied mechanicism to talismans because they felt it was more likely than not.

The choice of explaining physical phenomena on the basis of the mechanical hypothesis was exactly that, namely, a hypothesis, and, as such, was randomly employed for and against subjects which only much later came to be understood as magical, and, therefore, properly groundless. During Gaffarel’s own lifetime, mechanic and atomistic thinking about the world was not yet a consequence of a proper mathematical study of nature, despite the great progress which was under way in several fields. It was the result of an arbitrary decision. Descartes’s choice of likening animals to automata, for example, as rhetorical as it might well have been,

strikes one for its arbitrariness. In a letter from Descartes to Mersenne, published in 1659, the former told the latter about his scepticism regarding talismans being akin to automata.¹⁰³ Descartes (who, it should be noted, had not read the book about talismans cited by Mersenne) denied talismans all mechanical powers. Talismans could not be automata. On the other hand, animals could. What were automata for Descartes? Automata have no will, they do what their creators will them to do mechanically. Automata are tools because they do not operate any choices. Will is a manifestation of the soul. Body is the mechanical tool of soul.¹⁰⁴ Descartes' definition was thus arbitrary.

Similarly, the *Journal des voyages de Monsieur de Monconys* is yet another example of the erratic ways in which one could be a Cartesian, an atomist, a cataloguer of ignorant people, and a believer in the philosopher's stone.¹⁰⁵ The point needs explaining. In May 1645, Moncony embarked on a long journey. He decided to start a catalogue of ignorant people (charlatans, superstitious people, folk healers...) whom he would be meeting in his travels. He duly recorded among them, for instance, two possessed ladies and a woman healer, whom he clearly considers impostors or ill.¹⁰⁶ Next, he devotes a lengthy section about the alchemical opus, which he trusts as a worthy enterprise.¹⁰⁷ Further, he declares himself an atomist and a Cartesian thinker, through which he gives an explanation of tides.¹⁰⁸ His faith in Cartesian explanations of tides did not prevent him from recording the natural remedy of beheaded frogs applied to one's back against urinating in bed.¹⁰⁹ On the other hand, Moncony made it clear that he considered talismans as frauds.¹¹⁰ Monconys established his reputation as a learned man in 1630s Paris by joining in the mechanical and physical experiments of the de Mommor circle. It included such scholars, as Gassendi, Bourdelot, Gaffarel, Thévenot, Justel, Petit, Roberval, Pascal, de la Chambre, Sorbière, Miramont, Lantin, Henri, Rool, Auzout, that is, the Who's Who of mechanical philosophers of the time. Moreover, Moncony corresponded with eminent mathematicians abroad, like Hobbes, Digby, Boyle, Morey, Oldenburg, Bruncker, Willis, Wallis, Wren, Vossius, Sluze, "and others". During his travels through Italy, Monconys met with Galileo's disciples, namely, Zucchi, Fabri, Kircher, Torricelli, Viviani, Bellucci, del Pozzo, Cassini.¹¹¹ While it could be expected of a Modern like Monconys to side against talismans and superstition, we must observe the fact that it was, ultimately, by chance that he picked the right side. Why were decapitated frogs alright against urinating in bed, whereas talismans were not? Clearly, the fact of being a Cartesian atomist did not dictate believing or not in particular remedies. It was just an apriori theoretical framework, in competition with other available ones. Its adoption implied an act of faith, and could lead to opposite arguments about observable (or perceived so) phenomena. Science as we understand it today was not there yet, although these were all useful steps which helped pave the way for today's complex mathematical understanding of many laws of nature.

François de Ceriziers nicely summed it up by pairing talismans with ancient automata.¹¹² Ceriziers's way of arguing brings us back to Gaffarel. Like him, Ceriziers believed that classical texts from antiquity could be useful sources about physical phenomena which people observed in their lifetimes. Gaffarel added Jewish texts to the pantheon of the classics. Moreover, Ceriziers regarded talismans as automata,

because they possessed natural powers to produce physical effects on the bearers. He did so, like Gaffarel, on the basis of atomism and Cartesianism.

Conclusion

Gaffarel's *Curiositez* were highly successful throughout the seventeenth century because they discussed two highly fashionable and interconnected topics, namely, talismans, and automata. For Gaffarel, the former were akin to the latter due to his Aristotelian matter theory, complemented by a Gassendian atomistic view of matter property transfer. His competence as a Hebraist enabled him to argue on the basis of both classical as well as less-known Jewish sources. Gaffarel's *Curiositez* are an ideal case study for the relationship of philology to natural philosophical enquiries in seventeenth-century France. Indeed, they remind us that early modern discussions about automata were not left only to engineers in the modern, and therefore anachronistic sense we would understand them today. On the contrary, automata, from the Renaissance on, aroused suspicion and curiosity from many angles. Automata were mathematical objects; however, we should bear in mind that early modern mathematics, as the key to reading God's book of nature, maintained its implicit and explicit links with the hidden causes of nature. One did not need to be an occultist in the sense of a black magician to be interested in automata and talismans as God's means to let men produce effects in the world below. Gaffarel's *Curiositez*, therefore, enrich our understanding of early modern debates about automata, in that they remind us of the blurred boundaries between *techne* and *scientiae* in the early modern worlds.

References

- ¹ Sawday, J., *Engines of the Imagination. Renaissance Culture and the Rise of the Machine* (Abingdon and New York: Routledge, 2007), pp. 188-189, "The arts, whether technological or magical, which could induce movement in seemingly inanimate marble or stone were described in detail by the French cabbalist, Jacques Gaffarel, whose treatise on the 'talismanical sculptures of the Persians' was continuously reprinted throughout the seventeenth and the eighteenth centuries." This observation echoes the arguments put forward by Evans, R.J.W. and Marr, A. (eds.), *Curiosity and Wonder from the Renaissance to the Enlightenment* (London: Routledge, 2006).
- ² Delrio, M., *Disquisitionum magicarum libri sex: quibus continetur accurata curiosarum artium et vanarum superstitionum confutatio... auctore Martino del Rio...* Editio postrema, quae ut auctior castigatiorque ceteris, sic et indicibus... prodit hodie illustrior (Lyon, 1612), Quaestio II, p. 19.1.
- ³ Anon., *The Description of the Great Machines, of the Descent of Orpheus Into Hell. Presented by the French Commedians at the Cock-pit in Drury-lane. The Argument, Taken out of the Tenth and Eleventh Books of Ovids Metamorphosis* (London, 1661), Sig. A3v.
- ⁴ Alessi, A., Frommel, S., *Bomarzo: il Sacro Bosco: fortuna critica e documenti* (Rome: GB Editori, 2009); de Caux, S., *Hortus Palatinus: A Friderico Rege Boemiae Electore Palatino Heidelbergae Exstructus* (Frankfurt a. Main, 1620).
- ⁵ de Caux, I., *Novvelle Invention de Lever L'Eau plus haut que sa source avec quelques machines mouvantes par le moyen de l'eau, et un discovrs de la conduite d'icelle. Avec beaucoup de Figures en taille Douce, par Isaac de Caus: Ingenieur et Architecte à Charles le Premier, le Roy de la Grand Bretagne* (London, 1657), p. 1.
- ⁶ Barbin, E., *La révolution mathématique au XVII^e siècle* (Paris: Ellipse, 2006).

⁷ On the development of French printing in the seventeenth century, see the classic Martin, H.-J., *Livres, pouvoirs et société à Paris au XVII^e siècle (1598-1701)*, 2 vols., (Paris and Geneva: Droz, 1969).

⁸ Galileo's quote is "la filosofia naturale è scritta in questo grandissimo libro che continuamente ci sta aperto innanzi agli occhi, io dico l'universo, ma non si può intendere se prima non s'impara a intender la lingua e conoscer i caratteri nei quali è scritto. Egli è scritto in lingua matematica, e i caratteri son triangoli, cerchi ed altre figure geometriche, senza i quali mezzi è impossibile a intenderne umanamente parola; senza questi è un aggirarsi vanamente per un oscuro labirinto", *Il Saggiatore* (Rome, 1623) reproduced in Favaro, A. (ed.), *Opere, ed. Nazionale* (Florence: Giunti-Barbera, 1966), vol. VI, p. 232.

⁹ On different Cartesianisms, see, for instance, Schmaltz, T. A., *Early Modern Cartesianisms. Dutch and French constructions* (Oxford: Oxford University Press, 2016).

¹⁰ Hilaire-Pérez, L., Simon, F., Thébaud-Sorger, M. (eds.), *L'Europe des sciences et des techniques. Un dialogue des savoirs, xve-xviii^e siècle*, Rennes, PUR, 2016; Van Damme, S. (ed.), *Histoire des sciences et des savoirs* (Paris: Seuil, 2015) vol. 1 : *De la Renaissance aux Lumières*.

¹¹ Taussig S., *Pierre Gassendi, 1592-1655 : introduction à la vie savante* (Louvain: Brepols, 2003).

¹² Gassendi, P., *Institutio astronomica juxta hypotheses tam veterum quam Copernici & Tychoonis : dictata parisiis a Petro Gassendo...* *Accedunt ejusdem varii tractatus astronomici... Editio ultima...* (The Hague, 1656), p. 194.

¹³ On astrology in seventeenth-century France, Drevillon, H., *Lire et écrire l'avenir. L'astrologie dans la France du Grand Siècle* (Seysssel: Champ Vallon, 1996).

¹⁴ Gassendi, P., *Oratio inauguralis, habita in regio collegio die novembris XXIII. A Petro Gassendo regio matheos professore* (Paris, 1645), p. 194.

¹⁵ Gaffarel, J., *Curiositez Inoyes, sur la sculptvre talismanique des Persans, horoscope des Patriarches, et lecture des Estoilles, par M. I. Gaffarel* (Paris, 1629) hereafter referred to as *Curiositez*.

¹⁶ *Curiositez*, page numbers take a different run at this point, instead of running continuously, they begin again, though from page number 14, so this almost 800-page book bizarrely ends on p. 23.

¹⁷ *Journal des voyages de Monsieur de Monconys, Conseiller du Roy en ses Conseils d'Etat & Priué, & Lieutenant Criminel au Siege Presidial de Lyon. Où les Sçavants trouueront un nombre infini de nouveautez, en Machines de Mathematique, Experiences Physiques, Raisonnemens de la belle Philosophie, curiositez de Chymie, & conuersations des Illustres de ce Siecle; Outre la description de diuers Animaux & Plantes rares, plusieurs Secrets inconnus pour le Plaisir & la Santé, les Ouurages des Peintres fameux, les Coûtumes & Moeurs des Nations, & ce qu'il y a de plus digne de la connoissance d'un honeste Homme dans les trois Parties du Monde. Enrichi de quantité de Figures en Taille-douce des lieux & des choses principales. Avec des Indices tres-exacts & tres-commodes pour l'usage. Publié par le Sieur de Liergues son Fils. Première Partie. Voyage de Portugal, Prouence, Italie, Egypte, Syrie, Constantinople, & Natolie. A Lyon & se vend à Paris, 1677, p. 3.*

¹⁸ On *libertinage érudit*, see, for example, Charles-Daubert, F., "Le libertinage érudit", in (ed.), *L'État baroque 1610-1652*, ed. H. Méchoulan (Paris: Vrin, 1985), 181-202.

¹⁹ Gaffarel, J., *Cleolthée, ou les Chastes adventures d'un Candien et d'une jeune Natolienne* (Paris, 1624). In the library of the Sorbonne there is the *Clarissimi ac reverend. Viri. F. Thomae Campanellae* that Gaffarel gave Mersenne: "Pour le Pere Mersenne, Gaffarel". The book is stamped "Les Minimes de la Place Royale", whose book collection, in fact, has largely merged into the library of the Sorbonne. The latter also received several works from the Collège des Jésuites, formerly Collège Louis-le-Grand. Among these is the only Parisian copy of *Cleolthée ou les chastes adventures d'un Candien*. Given the greater availability of copies of other works by Gaffarel, first of all the *Curiositez*, we can deduce that *Cleolthée* should be regarded as a minor work. Yet I am tempted to consider it significant that the only specimen available comes precisely from the Jesuit College. The theme and the way in which Gaffarel treats it makes *Cleolthée* akin to that

Jesuit sensitivity that was careful to smooth out the difficulties in human relationships due to differences in faith, since, ultimately, we are all children of God. The anonymous collector of Jesuit and Jansenist writings that compiled the current MS Français 15796, preserved in the National Library of France, has perhaps made the same considerations as I have, when he/she inserted a letter from Gaffarel among the Jesuit material of that volume.

²⁰ On Venice and the Ottomans, see Preto, P., *Venezia e i Turchi* (Rome: Viella, 2013) with its exhaustive bibliography on the subject; on pirates in the Mediterranean in the seventeenth century, Greene, M., *Catholic Pirates and Greek Merchants. A Maritime History of the Mediterranean* (Princeton: Princeton University Press, 2010).

²¹ Gaffarel, J., *Epistola quam misit Joannes, episcopus et superior Armeniorum et christlicorum omnium qui ex Syria et Assiria Constantinopoli degunt...papae Urbano VIII, quamquam Jacobus Gaffarello,...ex armeno-syro in latinum sermonem vertit* (Rome, 1628).

²² Gaffarel, J., *De Fine Mundi, a R. Elchaben David, ex haebraeo in latinum, interprete Jacobo Gaffarello* (Paris, 1629).

²³ Gaffarel, J., *Testamentvm et Pactiones initaie inter Mobamedem et Christianae fidei cultores. Parisiis. Excudebat Antivns Vitray, Linguarum Orientalium, Regis Typographus. In Collegio Longobardorum. M.DC.XXX.*

²⁴ Gaffarel, J., *Curiositez Inoyes, svr la sculpture talismanique des Persans, horoscope des Patriarches, et lecture des Estoilles*, par M. I. Gaffarel (Paris, 1629) hereafter referred to as *Curiositez*. While I will always be quoting from the original French sources cited in this essay, I have chosen to use the 1650 English translation of the *Curiositez* for the reader's convenience when arguments about the Hebrew language would have required a convoluted two-step translation. I have checked before-hand that the 1650 English version accurately rendered the original French. The edition is the well-known translation by Edmund Chilmead, *Unbeard-of Curiosities: Concerning the Talismanical Sculpture of the Persians; The Horoscope of the Patriarkes; And the Reading of the Stars* (London, 1650). I will refer to this edition as to *Curiosities*.

²⁵ MS. Français 33239, f. 4v, “ie vays vous faire un Talisman de remembrance per vi far stare in cervello, tout le monde m'oublie par dela, & si le bon pere Bourdelot me parle, ce n'est qu'en rechignant. Si vous ne luy ottez ceste humeur – ie diray quun se lasse d'aymer aussi bien que de faire l'amour; che maligno spirito conduce adesso tutti i miei amici? Che demoni di mezo giorno le possede? che pazzia le inganna? O cielo e perché tu mi sei tanto ingrato? Che cosa io hò fatto contra di te? Di qual peccato son io colpevole. Misero ben sapeva io che ogni cosa ha il suo fine eccetto il mio amore che non hebbe mai termino, piangerò i miei infortunij, al meno sì quei ingratti Amici non hanno altro ricordo di me, forse che i miei sospirij...veniran nelle loro orecchie.”

²⁶MS. Français 33239, f. 8-r-v: Nous attendons icy le 25 du present Monsieur de Crequi auquel ceste Republique a faict apprester deux grands palais pr le loger et tout son train. Les putaines de Rome ont pris le deuil pr son despart, & celles de Venise en font de feu de ioye. Il ya plus de deux mois quelles se fourbissent & le devant et le derriere Pasquin les ayant advertie de sayder de tous les deux costez che la roгна di Napoli li venga, che i tanchoni scolamenti & ogni spetie di lancari li possan mangiare le loro preputij, bestie brutte, porchi, o bel honore per la nation nostral!” Pintard, R., *Le libertinage érudit dans la première moitié du XVIIe siècle* (Paris: Boivin, 2000), 188-254; 274, 278, 300, 437. Similar arguments as Pintard's can be found in F. , “Le libertinage érudit”, in Charles Daubert, F., (1985), 181-202.

²⁷ MS. Dupuy 712, ff. 134v, 135r, letter from Venice to Pierre Dupuy on 10 August 1633. Gaffarel assures Dupuy that he will procure books for de Thou – yet another Gallican abbot – according to his wishes (f. 132v).

²⁸ MS. Français 33239, f. 14v: “Pour le pape il s'amuse a faire des Oraisons contre la peste, il Gagneroit bien mieux d'en faire quelque bonne contre la guerre qui va manger sa mittre s'il n'y

prend Garde.”

²⁹ In addition to Frédéric Fabriel's several works on the subject, see: Bergin, J., *The Politics of Religion in Early Modern France* (New Haven and London: Yale University Press, 2014). Blet, P., *Le clergé de France et la monarchie: étude sur les Assemblées Générales du Clergé de 1615 à 1666*, 2 vols. (Rome: Analecta Gregoriana Cura Pontificiae Universitatis Gregoriana edita, 1959). Martimort, A.-G., *Le gallicanisme de Bossuet* (Paris: Éd. du Cerf, 1953). Orcibal, J., *Jean Duverger de Hauranne, abbé de Saint-Cyran, et son temps* (Paris: J. Vrin, 1948). Parsons, J., *The Church in the Republic: Gallicanism and Political Ideology in Renaissance France* (Washington D.C.: Catholic University of America Press, 2003). Poncet, O., *La France et le pouvoir pontifical (1595-1661): l'esprit des institutions* (Rome: École Française de Rome, 2011).

³⁰ On the Jewish community in Venice, see the huge bibliography and other research tools on renatomaestro.org cited 15.10.2019.

³¹ *Historia de gli Riti Ebraici. Dove si hà breve, e total relatione di tutta, la vita, costumi, riti, et osservanze de gli Hebrei di questi tempi. Di Leon Modena Rabi Hebreo di Venetia. Parigi. M.DC.XXXVII.*

³² Modena, L. (1637), A5r-A6v.

³³ Modena, L. (1637), A3r.

³⁴ “Le Duc de Parme en a tesmoigné ses ressentiments (sulla Valtellina) de ioye tres grands par lettres à quelqun que vous cognoissez bien Il se prepare à bien montrer les dents alla Signora Austriaca, laquale con volto terrible andaua minacciando la pouera Italia, ma questa impresa de' francesi nella detta Valle abbassa miracolosamente la sua Superbia, ritrouandosi adesso con una briglia in bocca à guisa di Cauallo che non ouò sofferire che con grandissimo bauaglio di corpo e fatiga d'Ingegno, uedendo lei che hor' i passi di genoua e di Milano in Alemagna sonno chiusi e serrati, e non cé più altra uia apperta che quella della Valmonica nel Stato di San Marco, ma tutti i Almanacchi d'Italia dicono, che non ui daranno passaggio, ciò che fa adolorare assai a detta Signora d'Austria”, MS. Français 33239, f. 12r.

³⁵ Bayle, P., *Dictionnaire historique et critique*, tome VII, p. 1.

³⁶ Gaffarel, P., (1903-1904), p. 378.

³⁷ Toomer, G., *Eastern Wisdom and Learning: The Study of Arabic in Seventeenth-Century England* (Oxford: Clarendon Press, 1996); ib., *John Selden A Life in Scholarship*, 2 vols. (Oxford: Oxford University Press, 2009); Hamilton, A., Richard, F., *André du Ryer and oriental studies in seventeenth-century France* (Oxford: Oxford University Press, 2004).

³⁸ Campanini, S., “Eine späte Apologie der Kabbala. Die Abditia divinae Cabalae Mysteria des Jacques Gaffarel”, in *Topik und Tradition. Prozesse der Neuordnung von Wissensüberlieferungen des 13. bis 17. Jahrhunderts*, eds. T. Frank, U. Kocher, and U. Tarnow (Göttingen: V&R Unipress, 2007), 325–51.

³⁹ Secret, F., *Les kabbalistes chrétiens de la Renaissance* (Paris: Dunod, 1963).

⁴⁰ *Kabbalistes chrétiens. Cahiers d'Hermétisme*. Introduction par Antoine Faivre e Frédérick Tristan, Paris, Albin Michel, 1979, contains Geneviève Javari, “Panorama de la Kabbale chrétienne en France aux XVIe et XVIIe siècles, p. 67-88, p. 81-2 she is highly critical of Gaffarel's intellectual worth. This kind of scholarship clearly reflects a Whig understanding of the history of science. I have decided to single it out, nevertheless, because much of this kind of criticisms still taint contemporary attitudes to Gaffarel and like-minded early modern scholars. They clash against serious attempts at evaluating early modern eclectic scholars in their larger intellectual context.

⁴¹ Erba, L., *Magia e Invenzione. Studi su Cyrano de Bergerac e il primo Seicento francese* (Milan: Vita e Pensiero, 2000), 243.

⁴² Paris, BnF, Ms 4272, 'Partie des catalogues de feu monsieur le cardinal de Richelieu', 298 ff, <http://www.calames.abes.fr/pub/ms/MAZC12805>. Ms 4270-4271, 'Inventaire des livres du cardinal de Richelieu, fait par T. Blaise', 2 vols., 2070 ff,

<http://www.calames.abes.fr/pub/ms/MAZC12802> cited 20.07.2019.

⁴³ Flouret, J., “La bibliothèque de Richelieu,” *Revue Française d'Histoire du Livre*, 48/24 (1979): 611-619.

⁴⁴ Franklin, A., *La Sorbonne: ses origines, sa bibliothèque, les débuts de l'imprimerie à Paris et la succession de Richelieu d'après des documents inédits* (Amsterdam: G. Th. van Heusden, 1968). Further bibliography on the Sorbonne library in Martin, H.-J., *The History and Power of Writing*, trans. L. G. Cochrane (Chicago and London: The University of Chicago Press, 1988) 533.

⁴⁵ Delisle, L. (ed.), *Cabinet des manuscrits de la Bibliothèque impériale*, Paris, 1868-1881, Reprod. En fac-sim., Hildesheim, G. Olms, 1978, see <http://gallica.bnf.fr/ark:/12148/bpt6k140991d/f215> (pp. 204-205) cited 10.04.2012. The manuscript in point is Ms Latin 15464.

⁴⁶ Ms Latin 15465. A copy of this catalogue is in Bibliothèque Mazarine, Ms 4218, 'Copie d'inventaire des livres de la bibliothèque de feu M. Le cardinal de Richelieu, qui ont été trouvés en l'hostel de Richelieu et de là transportés en la maison de Sorbonne, au mois de juillet, l'année mil six cens soixante, par arrest du Parlement de la même année', <http://www.calames.abes.fr/pub/ms/MAZC12748> cited 15.05.2016.

⁴⁷ BnF, Mss Latins 10384 and 15466.

⁴⁸ Gaffarel, P. (1903-1904), pp. 374-406, 463-491, 501-536, in particular p. 464.

⁴⁹ MSS Hébreux 586, 588, 628, 626, 613, 625, 630, 350, 629, 587, 589, 935, 201; MS Latin 3369.

⁵⁰ <https://e-corpus.hypotheses.org/109> cited 22.07.2017 and 16.10.2019.

⁵¹ On Buxtorf and antisemitism in Gaffarel's time, Grafton, A., Weinberg, J., Hamilton, A., *Isaac Casaubon, The Jews, and a forgotten chapter in Renaissance Scholarship* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 2011), especially 284-285 as well as the bibliography.

⁵² See Zwierlein, C., *Imperial Unknowns: The French and British in the Mediterranean, 1650-1750* (Cambridge: Cambridge University Press, 2016) on the context of the envoys in Venice.

⁵³ As per footnote 5, the edition used in this section is Edmund Chilmead's English translation, *Unheard-of Curiosities: Concerning the Talismanical Sculpture of the Persians; The Horoscope of the Patriarques; And the Reading of the Stars* (London, 1650), hereafter referred to as *Curiosities*. I am very grateful to Professor Siam Bhayro for helping me with Gaffarel's uses of Hebrew.

⁵⁴ i.e. the *Curiosities*.

⁵⁵ See Thackeray, H. St. J. (ed. & trans.), *Josephus: The Life, Against Apion* (LCL 186; Cambridge MA: Harvard University Press, 1926), 324-329.

⁵⁶ See Clement, P. A. and Hofferleit, H. B. (eds & trans.), *Plutarch: Moralia Volume VIII* (LCL 424; Cambridge MA: Harvard University Press, 1969), 356-357.

⁵⁷ See Hamilton Fyfe, W (transl.), *Tacitus: The Histories* (Oxford: Clarendon Press, 1912), II, 204-205.

⁵⁸ See Schäfer, P., *Judeophobia: Attitudes towards the Jews in the Ancient World* (Cambridge MA: Harvard University Press, 1997), 194.

⁵⁹ Schäfer (1997), 55.

⁶⁰ See M. Heseltine (ed. & trans.), *Petronius* (LCL 15; London: William Heinemann, 1925), 356-357.

⁶¹ See G. G. Ramsay (ed. & trans.), *Juvenal and Persius* (LCL 91; London: William Heinemann, 1930), pp. 270-273; see also Schäfer, *Judeophobia*, 77-80.

⁶² See, e.g., M. E. J. Richardson, *The Hebrew & Aramaic Lexicon of the Old Testament IV: װ-ן* (Leiden: Brill, 1999), 1560.

⁶³ For an introductory discussion with bibliography, see P. Bienkowski, 'Calendar', in P. Bienkowski and A. Millard (eds), *Dictionary of the Ancient Near East* (Philadelphia: University of Pennsylvania Press, 2000), 63.

⁶⁴ Hence the Babylonian Talmud's stipulation that, in legal documents, certain ך's are to be lengthened in order to clearly distinguish them from ך's; see BT *Gittin* 85b.

⁶⁵ See H. A. Davidson, *Moses Maimonides: The Man and His Works* (Oxford: Oxford University Press, 2005), 32-35.

⁶⁶ Burnett, S. G., *Christian Hebraism in the Reformation Era (1500-1660): authors, books, and the transmission of Jewish learning* (Leiden, 2012), 70.

⁶⁷ Much more research is needed about Gaffarel's stay in Rome and his co-operation with Leone Allacci. On the latter, Sojer, C., "Leo Allatius Philologe und Verleger aus einer neuen Perspektive: Vergleichendes Studium der editio princeps seiner Graecia orthodoxa (Band 2) und des ihr zugrundeliegenden Autographon (Rimini, Biblioteca civica Gambalunga, SC-MS 87)", in *Acta Antica Hungarica* 50 (2010): 295-315.

⁶⁸ Karp, J., Sutcliffe, A. (eds.), *Philosemitism in History* (Cambridge: Cambridge University Press, 2011), 60.

⁶⁹ Fumaroli, M., *La République des Lettres* (Paris: Gallimard, 2015).

⁷⁰ Levitin, D., *Ancient Wisdom and Learning in the Age of the New Science: Histories of Philosophy in England, c.1640-1700* (Cambridge: Cambridge University Press, 2015).

⁷¹ *Curiositez*, pp. 94-130. On p. 131, Gaffarel cites his own *Advis aux Doctes touchant les langues orientales*, which does not seem to have survived.

⁷² *Curiositez*, p. 146.

⁷³ "Pourquoy vouldra-t-on prier la figure ("shape") de ceste propriété, & la rendre moins habile que les autres especes? et pour quelle cause serait-elle donc appelé poiotes, Effectrix?", *Curiositez*, p. 148.

⁷⁴ "Mille autres exemples se tirent des Mechaniques.", *ibid.*, p. 148.

⁷⁵ "Car si la Theologie nous apprend, et la raison nous confirme, qu'il y a une providence certaine qui conduit toutes choses à leur fin, et qui ne fait rien sans dessein: pourquoy veut-on donc attribuer au cas fortuit ce qui nous fait admirer la puissance de Dieu, et donner à l'aventure les choses plus merveilleses? puis que de tant de feuilles qu'on voit dans une forest il n'en choisit pas une sans la volonté de celui qui les a creées.", *ibid.*, pp. 153-154.

⁷⁶ *Curiositez*, pp. 155-190.

⁷⁷ *Curiositez*, p. 194.

⁷⁸ *Curiositez*, pp. 206-208.

⁷⁹ *Curiositez*, p. 225.

⁸⁰ *Curiositez*, pp. 227-229.

⁸¹ "Ailleurs nous destruirons la puissance de ces caaracteres, & nous nous mocqonsde ces resveries enfantees, par le caprice de quelque ignorant Cabaliste.", *ibid.*, p. 230.

⁸² "La plus grand partie de ce qu'en ont escrit les Demonographes, se soit que pures fables"...Nostre discours sera seulement tissu de la puissance naturelle que peuvent auoir les Images dressees soubz certaines constellations, bannissant d'icy toute operation des demons, & toute vertu superstitieuse. Je prouue donc ceste puissance des Figures & Images par trois voyes, par l'influence des Astres: par la vertu de la ressemblance: & par l'experience.", *ibid.*, p. 231.

⁸³ *Curiositez*, pp. 285-288.

⁸⁴ *Curiositez*, pp. 232-234.

⁸⁵ *Curiositez*, pp. 235-237.

⁸⁶ <https://blogs.cul.columbia.edu/burke/files/2016/05/Gaffarel-Curiosities-no12.jpg> cited on 27 November 2019.

⁸⁷ Peter Miller, to name but one scholar, has studied Peiresc, Gassendi, and Gaffarel's milieus. See, for instance, Miller, P., *Peiresc's Europe. Learning and Virtue in the Seventeenth Century* (New

Haven: Yale University Press, 2000); Ibid., *Peiresc's Mediterranean World* (Cambridge Mass.: Harvard University Press, 2015). Anthony Grafton has recently insisted on the collaborative nature of antiquarian scholarship at the time. Grafton, A., *What Was History? The Art of History in Early Modern Europe* (Cambridge: Cambridge University Press, 2006). The Mommor circle included such scholars, as Gassendi, Bourdelot, Thévenot, Justel, Monconys, Petit, Roberval, Pascal, de la Chambre, Sorbière, Miramont, Lantin, Henri, Rool, Auzout, that is, the who's who of mechanical philosophers of the time. Moreover, Moncony corresponded with eminent mathematicians abroad, like Hobbes, Digby, Boyle, Morey, Oldenburg, Bruncker, Willis, Wallis, Wren, Vossius, Sluze. Moncony, a later detractor of Gaffarel's work on talismans, gave a description of the Mommor circle in his travel journal.

⁸⁸ *De l'utilité des voyages, et de l'avantage que la Recherche des Antiquitez procure aux Sçavans. Par Monsieur Baudelot de Dairval, Avocat en Parlement, tome II, Paris, 1686, pp. 361-390 on the powers of talismans.*

⁸⁹ Baudelot de Dairval, C. C. (1686), 362-365.

⁹⁰ Schnapp, A., *La conquête du passé* (Paris: LGF, 1998); Schnapp, A., *Histoire et histoire naturelle: tome 1, Le géant, la licorne et la tulipe. Les cabinets de curiosités en France au XVII^e siècle* (Paris: Champ des arts, 2012).

⁹¹ Baudelot de Dairval, C. C. (1686), 373.

⁹² Baudelot de Dairval, C. C. (1686), 380-381.

⁹³ Baudelot de Dairval, C. C. (1686), 378-381.

⁹⁴ Baudelot de Dairval, C. C. (1686), 382-383.

⁹⁵ Baudelot de Dairval, C. C. (1686), 385-390.

⁹⁶ *Discours sur les influences des astres, selon les principes de M. Descartes. Ou l'on fait voir qu'il sort continuellement des Astres une matiere par le moien de laquelle on explique les choses que les anciens ont attribuées aux Influences occultes. Par C. Gadroy, Paris, 1674.*

⁹⁷ Gadroy, C. (1674), 10-12.

⁹⁸ Gadroy, C. (1674), 52-58.

⁹⁹ Gadroy, C. (1674), 89-90.

¹⁰⁰ Gadroy, C. (1674), 109.

¹⁰¹ Feola, V., "The uses of the Ancients and the Moderns: the Oxford publishing programme of ancient science, ca. 1660-1710", in *Ancients and Moderns in Early Modern Europe. Comparative Perspectives*, eds. P. Bullard, A. Tadié (Oxford: Oxford University Press, 2016), 19-35.

¹⁰² Shapiro, B., *Probability and Certainty in Seventeenth-Century England* (Princeton: Princeton University Press, 2018).

¹⁰³ *Lettres de M. Descartes. Où sont expliquées plusieurs belles difficultez touchant ses autres Ouvrages. Tome second. A Paris Chez Charles Langot, 1659, p. 531, Av R. P. Mersenne. Lettre CXII, "Pour ce Liure de Camoyeux & de Talismans, ie iuge du titre qu'il ne doit contenir que des Chimeres. De mesme, la teste qui parle, couure sans doute quelque imposture; Car de dire qu'il y eust des ressors, & des tuyaux, comme au Coq de l'horloge de Strasbourg, pour exprimer tout le Paternoster, i'ay bien de la peine à le croire."*

¹⁰⁴ "Pour les Bestes brutes, nous sommes si accoustumez à nous persuader qu'elles sentent aussi que nous, qu'il est malaisé de nous défaire de cette opinion, Mais si nous estions aussi accoustumez à voir des Automates, qui imitassent parfaitement toutes celles de nos actions qu'ils peuvent imiter, & à ne les prendre que pour des Automates, nous ne douterions aucunement que tous les Animaux sans raison, ne fussent aussi des Automates, à cause que nous trouuerions toutes les mesmes differences entre nous & eux, qu'entre nous & les Automates. Comme ie écrit à page 56. de la Methode; Et i'ay deduit tres particulierement en

mon Monde, comment tous les organes qui sont requis pour faire toutes ces actions en Automates, se trouent dans le Cors des Animaux.”, Descartes, R. (1659), p. 230.

¹⁰⁵ *Journal des voyages de Monsieur de Monconys, Conseiller du Roy en ses Conseils d'Etat & Priué, & Lieutenant Criminel au Siege Presidial de Lyon. Où les Sçavants troueront un nombre infini de nouveautez, en Machines de Mathematique, Experiences Physiques, Raisonemens de la belle Philosophie, curiositez de Chymie, & conuersations des Illustres de ce Siecle; Outre la description de diuers Animaux & Plantes rares, plusieurs Secrets inconnus pour le Plaisir & la Santé, les Ouurages des Peintres fameux, les Coûtumes & Moeurs des Nations, & ce qu'il y a de plus digne de la connoissance d'un boneste Homme dans les trois Parties du Monde. Enrichi de quantité de Figures en Taille-douce des lieux & des choses principales. Avec des Indices tres-exacts & tres-commodes pour l'usage. Publié par le Sieur de Liergues son Fils. Première Partie. Voyage de Portugal, Prouence, Italie, Egypte, Syrie, Constantinople, & Natolie. A Lyon & se vend à Paris, 1677.*

¹⁰⁶ Monconys, de, B. (1677), 6. In May 1645 Moncony began a catalogue of ignorants ('catalogue des ignorans'); pp. 8, 9, 15, 21 on such individuals.

¹⁰⁷ Monconys, de, B. (1677), 34-39.

¹⁰⁸ Monconys, de, B. (1677), 49, “tides are caused by the Moon, which by pushing the air around, compresses the sea, so water moves around in search of space elsewhere: & thus gravity must proceed from an expulsion of bodies towards the earth, either by sun rays, or through the perpetual movement of the atoms, both of which ideas are Descartes's own.”

¹⁰⁹ Monconys, de, B. (1677), 50.

¹¹⁰ Monconys, de, B. (1677), 188, 189, 354.

¹¹¹ Monconys, de, B. (1677), 3.

¹¹² *Le Philosophe François. Par le Sr. de Ceriziers, Ausmonier de Monseigneur le Duc d'Orleans. Tome premier, Rouen, 1651, p. 54: “I am aware that the statues of Dedalus, which walked by themselves, Archimedes' sphere, which reproduced all the movements in the heavens, the wooden dove by Achitras, which could fly mechanically, talismans, which are figures made under certain astral conjunctions and with chemical skills, (all these machines) have not persuaded some that art can produce natural effects.”*