Alchemy and Armaments:
On an aljamiado Fragment in a Houghton MS

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MS Typ. 479 Houghton Library, Harvard University is a compendium of miscellaneous works in Italian. The subject of the following lines is not this Italian compendium but rather some folios at the end of the codex. They are not in Italian. Although sometimes described as being in Hebrew we can say for certain that the text in these pages is not in Hebrew. It is in Hebrew characters, and may be described as Judeo-Catalan *aljamià*. The identification of the content reveals that it is concerned with and uses the language of alchemy. It has multiple references to armaments. The article attempts to reconstruct a historical context for Jewish interest in alchemy and armaments in late medieval Spain.

KEYWORDS: Jews in Medieval Spain; Jews and Alchemy; Jews and Armaments; Aljamiado texts.


PALABRAS CLAVE: Judíos en la España bajo-medicieval; judíos y alquimia; judíos y armas; textos aljamiados.

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1. THE MS

MS Typ. 479, Houghton Library, Harvard University is not a Hebrew book. It contains Aesop’s fables and other works in Italian. It is an illuminated, colorful MS which has been exhibited to the public. The subject of the following lines is not this Italian compendium but rather some pages at the end of the codex: 110v-112r. They are not in Italian. Although described as being “in Hebrew” we can say for certain that the text in these pages is not in Hebrew. It is in Hebrew characters, which is quite a different thing. Nor is it helpful to label it Ladino. It is in aljamía. The pages are placed at the end. This might lead to thinking


2 After a page in Latin characters (fol. 112v) and an empty folio (113), fol.114r contains a further shorter aljamiado text.


about the date of the MS. In a MS which is usually dated to the 1380s, this raises the question whether the last pages are chronologically linked to the scribal efforts on the MS or to the work of the early binders. Similarly in need of explanation is the presence of the Jewish cultural artifact in a thoroughly Christian MS of the late fourteenth century.

Recent work on the history of the book in late medieval Hispano-Jewish communities has underlined the multifaceted significance of the binders, of Jews in the binding craft and of their judeo-converso followers. We have various documents and other types of evidence as to the Jews in this field. There are documents about late medieval Jewish binders, there are requests by ecclesiastics for Jewish binding work; and there is also a growing corpus of evidence based on finds of Hebrew characters at various points of late medieval hispanic MSS in Latin characters (in Catalano-Aragonese areas to be sure, but also in Castile as in the Biblia de Arragel) which lead to the conclusion of Jewish involvement in paper and binding and its cultural significance, affecting, as it does, our perspectives on the relations between Jewish and Christian books.5 The last pages of the Houghton MS need to be seen in this light.

2. ALCHEMY

The text presents itself as a series of paragraphs with an epigraph or subtitle. One of the repeated elements of the rubrics is “de luna.” This brings us to the question of alchemy and the Jews. In broader terms and on another plane, the much debated question of whether there was a medieval Jewish interest in alchemy needs some awareness of the Genizah evidence. The plethora of medieval Hebrew character MS fragments on alchemical themes at the Genizah of the Ben Ezra Synagogue in Cairo and their location is now known for the CUL’s T-S collection and other collections may have more.6 The subject of Jews and alchemy

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had been treated by Moritz Steinschneider, 7 Gerhard Scholem 8 and a number of others who, unlike us, did not see the place and date, the Iberian peninsula or the late middle ages as the meaningful parameters. Indeed, in the case of a Hebrew character text in a late medieval Sephardi hand such as this, reconstructing the Iberian-Jewish historical background is a priority. We are now fortunate to have access to a number of contributions by R. Patai such as his edition and study of the MS at the Bibliothèque Nationale de France (Fonds Hebr. 1207, fols. 155 verso-158 verso). The author of that Hebrew text on alchemy was a Jewish physician who lived in Spain in the fourteenth or fifteenth century, and knew Hebrew and Spanish. 9


8 See, for example, Gershom Scholem, “Alchemie und Kabbalah,” MGWJ 69 (1925) pp. 13-30 and 95-110. Relevant Hispano-Jewish texts include the Zohar and works by Falaqera, Qalonymos ben Qalonymos.

9 Raphael Patai, “An unknown Hebrew medical alchemist: a medieval treatise on the quinta essentia,” Med Hist. 28:3 (1984) pp. 308-323. Another MS, which seems to have been unknown to Patai, would seem to be relevant here, because it combines Hebrew character and Latin character alchemical texts and also as an added piece of evidence to show that alchemy was more widespread in Hispano-Jewish culture than thought in recent years. The MS had belonged to the collection of Heinrich Kellner; Freiher von Holzhausen, i.e. the Frankfurt jurist who lived in 1536-1589. He acquired it in Louvain, in 1558. It is now part of the medieval Latin group of MSS at the University Library of Frankfurt under the call mark Lat. Oct. 231. It could be described as a small “library” or collectanea of alchemical texts. The texts are in Spanish, Latin, French and Judeo-Spanish aljamia and the MS is believed to be from ca. 1480. After the end of the aljamiado section there is a curious interlinear transcription into Latin characters of Hebrew angelic “names” [fol. 141v] and a Zahlensquadrat, or “magic square” on fol. 140v. The aljamiado text contains rubrics such as fol. 188v “... la obra del simiento de la luna” or fol. 189v “para sacar la quintaesencia de oro” or “este es el mercurio rubificado para la obra susodicha” or “este es el oro blanco susodicho.” It begins at fol. 194 and finishes at fol. 142 (evidently, the Hebrew text was paginated according to the Latin direction). It begins with the conventional abbreviation of b[arukh] h[ashem] reconfirming that the scribe was a Jew (from Spain, probably Castile). It mentions more than once an Alonso de Almazan as an authority on alchemy. On fol. 137v
A fuller historical context is still a desideratum. In the case of documented Jewish alchemists, none is better known than Menahem, active in the 1340s and alchemist at the court of Pedro IV of Aragon. According to Patai:

The name of Magister Menahem appears the first time in a document dated June 1345, which tells about a lawsuit brought by a certain Jose Maria Quadra in Palma de Mallorca, accusing Jacobus Rubeus and “Magister Menaym [Menahem] Judeus” of defrauding people with counterfeit silver and gold. Points III through VII of the indictment read (in Dr. Joseph Salemi’s translation)... \(^{10}\)

José María Quadra Nieto was born in Ciutadella on 14/6/1819 and died in Palma de Mallorca, on 6/7/1896. He was a journalist, writer and historian. The main point to remember is that in 1843 he became the archivist of the Archivo Histórico de Mallorca, thus achieving close proximity to the primary evidence on the late medieval period including documents on Menahem. But obviously he could not litigate with that alchemist.

In any case, as Quadrado and Romano\(^ {11}\) realized, Menahem was of interest as a concrete, documented case of late medieval Hispano-Jewish alchemists. Menahem achieved fame (he is mentioned by later chroniclers) and closeness to the monarch, Pere IV, King of Aragon (ca. 1336-


1387). Samuel Caracosa appears for the first time in 1367, as one of the secretaries of the *aljama* of Perpignan. Six years later, he appears again in an order issued by King Pere IV. King Joan I (1350-1396) ordered authorities not to obstruct Caracosa’s alchemical projects.  

Some decades later, we hear about Samuel of Granada who is accused of alchemical practices. *Ca.* 1416, the investigation of his possessions revealed “pólvores.” He was accused that “usava fer alquímia.” But the connection of Jews to alchemy in medieval Spain which constitutes the broader historical frame which can explain the existence of such an unexpected aljamiado text in the Houghton codex cannot be reduced to these three documented individuals.

Jews in medieval Spain read the *Kuzari* and the Ḥovot ha-Levavot, albeit in Hebrew translations. The Ḥovot Ha-Levavot (*Duties of the Heart*) contains a relatively sustained meditation by way of analogy on alchemy, as does the *Kuzari*. Neither is a treatise on alchemy, let alone practical instructions on it, but they show the familiarity with or interest in the subject as integral part of the culture. What needs to be added here is that this is not a purely twelfth century phenomenon. A translation into the *romance* of the *Kuzari* comes from this period (fifteenth century) so that these works are not only of interest for the eleventh and twelfth centuries, but also for their influence on -and the history of- reading in the fifteenth century. Joseph Albo, the philosopher who hailed

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12 On Caracosa, see PATAI, *The Jewish Alchemists: A History and Source Book*, p. 235ff. See also the letter of Pere IV (1/4/1384) who orders, concerning alchemical workers, “... que permitais a los antedichos hacer las citadas operaciones y experimentos en union de cristianos, judios o moros que con aquellos quisieren ocuparse de la dicha obra...;” José Ramón de Luanco, *La alquimia en España* (Barcelona: Obelisco, 1889) p. 64.


15 PATAI, *The Jewish Alchemists*, ch. 11.

from the Crown of Aragon is an additional fifteenth century example of interest in alchemy. 17 Somewhat different is the case of Simeon b Zemah Duran. 18 He is undoubtedly late medieval (d. 1444), he was educated and matured in Mallorca and left it only after the events of 1391. It should be added that even in N. Africa he seems to be connected to a network of Catalano-Aragonese exiles like himself and continues his contacts with Mallorcan Jews through his rich correspondence. His Magen Avot is usually described as a medieval encyclopedia. In it, 19 there is a relatively sustained section on alchemy. Apart from remarks on the immorality of some practitioners, there are descriptions/discussions of inorganic matter, minerals, metals, etc. The originality, surely, is evident at least in the use or creation of a defined semantic area in Hebrew. The importance of such a vocabulary was realized by the early scholars of Jewish alchemy. 20 His essay depends also on making choices as to the subject matter, the stones and metals he will discuss and those he will not. It is reminiscent in some ways of the lists and descriptions of minerals in the Lapidarios of Yehudah Ha-Cohen Mosca which, again, on a first encounter might be dismissed as unoriginal translations. Recent work has tried to show why this is not the case. In any event they discuss metals and their properties as does Duran.

Alchemy in late medieval Spain was linked to medicine. 21 The borders between “Jewish” and “Christian” in this field are not hermetic but rather porous, as in other areas of late medieval Hispano-Jewish culture. While the evidence is not rich, an important element was the belief in the quintessence. Enrique de Villena, who, in his works, cites a number of Jewish sources (not yet found) refers to the quintessence in his commentary on the Psalm Quoniam videbo. In this passage he also refers to what he calls mequbalin. 22

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17 Patai, The Jewish Alchemists, ch. 23.
18 Patai, The Jewish Alchemists, ch. 19.
19 Simeon Ben Zemah Duran, Magen Avot pt. 2 (Leghorn, 1785) pp. 10 and 71.
He also refers to Rocacissa. Recent work has shown that Rocacissa was being read in the Jewish community of Segovia around the middle of the fifteenth century.\textsuperscript{23}

This brings us to the neglected case of Yanto [Shem Tov?] Aseo.\textsuperscript{24} Yanto Aseo lived in Elche and the council of Alicante asked for his services as goldsmith. They promised to pay him well for his work. He went to Alicante with his tools. He worked for the council for three months making images and figures as he was asked to do by the masters of the art. He was also charged by the municipality to find “agua encantada” [“diz que avian de sacar agua encantada”] near the road to Alicante. He was promised fifty florins if he obtained the water, otherwise he would be well paid for his other work. In 1391 he left the town for Murcia, seeking refuge from the attacks.

Although “agua encantada” appears in a number of late medieval and early modern texts, it is generally a hazy concept. This might explain the lack of attention to the case of Yanto Aseo in studies of Jews and alchemy. The best known reference is in the Quixote. In the famous scene of the burning of the books by the local priest (I/VI) we read: “Que se quite todo aquello de la sabia Felicia, y de la agua encantada”: in Jorge de Montemayor’s Diana, the book’s reference to the “wise Felicia” and to the “agua encantada” have to be censored. It is reminiscent of Urganda in the Spanish Amadís, and her «agua encantada».

“Agua encantada” appears in medieval and early modern texts with an aura of vagueness: we do not know what it does. In the Razon de amor, ca. 1205, the first person narrator refers to a glass of fresh water. Though thirsty, he avoids it because it might be “agua encantada.”\textsuperscript{25} Also in the thirteenth century, in the fourth part of the Alfonsine General


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Estoria, it reappears in a more comprehensible guise. Ch LXVII “De como Nabuchodonosor enuio un su Rico omne con muy grand poder a tierra de Egypto & de lo quel mando que fiziesse.” There, “agua encantada” has the power to kill snakes (p. 89) and it is associated with Egypt and its hechiceros. A related usage comes from Mallorca and is linked to Adoart de Bosia, who sent the messengers of the king of Aragon, Alfonso the Magnanimous, an alchemical elixir or medical water [cierta agua bona a curar totes les malalties] which he had prepared in the Ermita de la Victoria in Alcudia (Mallorca). 26 A colophon at the end of a Hebrew MS of the fifteenth century, achieved near Segovia, refers to the waters of a river which solidify whatever is left there. 27 This seems similar to the idea voiced by Simon b Zemah Duran in his essay on alchemy in his Magen Avot: “And there are those that are water in the womb of the earth, and when they come out into the air they turn to stone.” 28 This evidence is sufficient to show the existence of Jewish involvement and interest in alchemy in late medieval Spain, and thus to provide a historical context for the interest in alchemy of the fragment in the Houghton MS. The next question would be whether its interest in armaments also has a background in Sephardi history.

3. Armaments

The locus classicus for discussions of Sephardi Jews and armaments is a book published in 1567, Quatre premiers livres des navigations. It is supposed to record its author’s (Nicholas Nicholay) observations about the Ottoman court and peoples from his 1551 mission to Istanbul on


28 Patai, The Jewish Alchemists, ch. 19.
behalf of the French government. The book served as a survey of customs in the Ottoman world, and was believed to be one of the earliest and most accurate depictions of the Islamic world to appear in Europe. It was later reissued and translated in Italy, the Netherlands, England, and Germany. It is divided into four books, following Nicholay’s voyage to Istanbul, accounts of ethnic groups and Ottoman court life, and the religious and military administration in Istanbul. He referred to the

... marranes, n’a pas longtemps bannis et déchassés d’Espagne et Portugal, lesquels, au grand détriment et dommage de la Chrétienté, ont appris au Ture plusieurs inventions, artifices et machines de guerre, comme à faire artillerie, arquebuses, poudre à canon, boulets et autres armes ... 29

Nicholay’s assertion that “the marranos” were expelled in 1492 would seem, at first sight, a proof of his unfamiliarity with Spanish and Jewish history and, therefore, a reason for ignoring him. But travel literature of this period is commonly problematic and not only in his case, as has been recently shown after reading other sixteenth century texts of Mediterranean travel. 30 There is the problem of the travelers’ linguistic skills or of the use of previous writings presented as genuine observations. Bataillon showed long ago, in the case of the Viaje de Turquia, which expresses the same notion of Sephardi involvement in weapons for the Ottomans, how much of it (like Nicholay) rewrites previous travel accounts such as those of Menavino, Bassano, Spandugino, Busbeq, Georgevitz and others. 31 More recently, the notion of the Viaje’s derivative quality has been reaffirmed by Prosperi: “possiamo afferrare...che l’idea del Viaje come testo ingenuamente veriterio...[è] veramente insostenibile.” 32


In the *Viaje*, as elsewhere, artillery is by no means the only technical skill that is being discussed.\(^{33}\) In addition, in sixteenth-century Europe, the idea that the exiles brought with them skills in the field of armaments to the Ottoman empire is by no means restricted to Nicholay as has been seen. Veinstein, who has addressed the question\(^ {34}\) asserts

... the findings of a Danish historian, Stephen Christensen, ... deserve full attention... to confirm the falsehood of the allegation against the Marranos and, consequently, *the validity of Christensen’s hypothesis, it is important to do a double-check and consider whether there was clear evidence for a significant Jewish involvement in the field of artillery ... in pre-expulsion Spain ...* As far as the Spanish documentation is concerned – admittedly, my inquiry remaining very much limited – I only could find mention of the Jew Samuel Ravatoso, an expert in the new firearms, who around 1430 was the chief of the artillery of the king of Navarra ...

That is to say that the problem of the value of Nicholay’s assertions is not so much one of early modern French letters as of Iberian (pre-1492) history. What is important in Veinstein’s analysis is the realization that one cannot explain or assess Nicholay’s stance purely by attributing it to some individual, personal quirk, not even his antisemitism. Scholarly attention has shown how widespread the idea was in the sixteenth century. While the notion that research must concern itself with the evidence for Jewish involvement with armaments in pre-expulsion Spain is clearly useful, it should be pointed out that Ravatoso was not an obscure personality in the late middle ages. Carrasco has found documents on the family concerning real estate which show that his was one of the seven families which con-

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stituted the most elevated strata of Jewish society in Tudela. Béatrice Leroy’s documents amplify considerably our knowledge of the personality, his functions and his context: “... 1430 ... Samuel Ravatoso dirige les réparations effectuées par Johan Peynado l’arbalétrier, et surtout fait assembler des leviers et des châssis (pour les canons?).”

But the cases of Navarran Jews engaged in the field of armaments are by no means unique.


37 In an inquiry such as this, the Portuguese case is also relevant; François J. F. Soyer, “Living in Fear of Revenge: Religious Minorities and the Right to Bear Arms in Fifteenth-Century Portugal,” in Vengeance in the Middle Ages: Emotion, Religion and Feud, eds. Susanna A. The hoop and Paul R. Hyams (Farnham: Ashgate, 2010) pp. 85-104. In 1366, the Jews of Lisbon and Santarem were ordered to have horses and weapons. They protested to the Crown that the Christians forced Jews to serve on the frontiers of the kingdom and guard prisoners, monies and places to which they were not used to go and that they were badly treated by the Christians who were with them. In response Pedro I (1357-1367) ordered the municipal judges not to force Jews to perform duties at the frontier, to ill-treat them or permit them to be so treated. But the king did not exempt them from military service. That year the same privileges were given to the Jews of Setubal, Beja, Coimbra and Santiago de Cacem. The privilege granted to the Jews of Setubal mentioned that they were only to guard the King’s tents and treasure. Although it is not my subject here, it could be mentioned that Iberian judeo-conversos in Italy, particularly in Ferrara, in the time of Amatus Lusitanus, traded in sword blades. See Eleazar Gutwirth, “Universae gentis nostrae...: Amatus in Context,” in Praxi theoremata coniungamus: Amato Lusitano y la medicina de su tiempo, ed. Miguel Ángel González Manjarrés (Madrid: Escolar, 2019) pp. 49-79.
It would be wrong to attribute the scholarly scepticism about Jewish involvement in weapons to a purely modern sensibility. The idea that Jews did not have contact with weapons existed and is attested in late medieval Iberia. In 1392, a provision by Joan I of Aragon orders that, in pageantry, the Moors of Huesca should have precedence over Jews because of the former’s help for the monarch with weapons, implying that the Jews provided no such help. 38 The profound suspicions of present day readers of Nicholay and analogues has itself old roots. The Shevet Yehuda – printed around the mid sixteenth century – presents the question of Jews and armaments as being of interest to scholastic Christians and a topic for their discussions at the royal court:

... originally while the Jews found favor in the eyes of God, He would fight their wars, as it is known to all ... Therefore they did not learn the ways of war for they did not need them ... and when they sinned God turned away his face from them and they thus remained losers on all counts – they were ignorant of weapons of war and its invention, and the will of God was not with them; they remained naked and fell like sheep without a shepherd ... 39

As usual, the chronicle, in a paragraph using *oratio recta*, has an ambiguous relation to reality. But it presents the topic as the view of Tomás: an individual’s opinion rather than that of Christianity as a whole. Without attempting a full analysis of the chronicle, it should be clear that the figure of Tomás in it is far from that of an ideal intellectual or theologian. On the contrary, he is frequently ridiculed in the text. There is perhaps an awareness that the attitude is contradictory and that attitudes are multiple: whether the Jews could not 40 or would


39 Shebet Yehudah, eds. Azriel Schochat and Yitzhak Baer (1947) p. 44. I am not aware of interpretations of this passage as polemics against the notions in Nicholay, the *Viaje* or their precedents and analogues.

40 The evidence contradicts generalizations. The stereotype of cowardice would lie behind the exemption from military service in some Portuguese locations, ordered by João II, according to Maria José Pimenta Ferro Tavares, Os judeus em Portugal no século XV (Lisboa: Universidade Nova de Lisboa, 1982. 2 vols) vol I, p. 26 and p. 40, nt. 40. Tavares (Os judeus em Portugal no século XV, vol. I, p. 40, nt. 41) documents cases of Jews serving the
not, should or should not bear arms were all positions attested in late medieval Iberia.

Fifteenth century attempts to order the Jews to carry arms and maintain horses were understood by Torres Fontes as attempts to incorporate the Jews into chivalry. From the royal chancery in Castile there emanated the argument that such attempts were unrealistic. The 1460 letter of Enrique IV argues that Jews never had horses, that they “biven de otras maneras” and that “sus oficios non son por armas ni biven por ellas.”

Literary sources are also contradictory. A poem in the Cancioneiro Geral refers to Jews as fighting. Others [Gil Vicente] deny that possibility. According to SOYER (“Living in Fear of Revenge”), in the fifteenth century, in Portugal, it can be inferred that the Jews continued to be liable for military service to the Crown since a law of 1422 exempted Jewish converts to Christianity from having to appear for muster.

SOYER (“Living in Fear of Revenge”), writing about Portugal, asserts that the laws of Joao I and Prince Pedro forbade Jews and Muslims from carrying weapons in public. Nonetheless, an exception was made when arms were carried in the service of the Crown.

As early as Israel ABRAHAMS, Jewish Life in the Middle Ages, ed. Cecil ROTH (London: Edward Goldston, 1932) p. 402, we find some minimal awareness of the evidence. Thus, he mentions that in 1390 the Jews of Mallorca were forbidden to carry arms; in 1412 Jews in Castile were forbidden to carry swords and daggers; in 1481, in Portugal there was criticism of the Jews because they ride on finely caparisoned horses and mules in fine clothes and guilded swords.

Of interest is the position of Abraham b Eliezer Ha-Levi in the early sixteenth century, especially if we bear in mind his Toledan origins and his family relation to Abraham Zacut of Salamanca. He represents the intellectual elite of Castile. In a paragraph selected and translated by BENMELECH (“History, Politics, and Messianism”), Abraham avers “And they brought with them many catapults and destructive weapons with fire and sulphur, and the king of Persia was with three hundred and fifty thousand cavalrmen. And the Turkish king camped close to him and launched all the catapults and the destructive weapons with fire together against the Persians and they turned their horses around to flee.” He obviously thinks that weapons are a prime factor in history. His view is that modern weapons are superior and determine the outcome of conflicts. He pays attention to different attitudes (such as contempt) to armaments in his analysis of politics.

Juan Torres Fontes, “La incorporación a la caballería de los judíos murcianos en el siglo xv,” Murgetana 27 (1967) pp. 5-14. Appendix: “... Los quales diz que nunca fue vso ni costumbre en la dicha cibdad ni en las otras cibdades e villas e lugares que son en frontera de moros, ni en las otras que non están en frontera, asy porque los dichos judios biven de otras maneras e tratos que los christianos, como porque sus oficios non son por armas ni biven por ellas para que oviesen de tener e mantener cavallos. El que sy ellos por fuerça e contra su voluntad ovieren de tener los dichos cavallos, perderían por ello sus faziendas e menesteres de que biven e se mantienen e allende de los traba-
Signed by various royal secretaries, registered by the chancellery with the approval of the royal council, the argument nevertheless rehearses old ideas, as has been shown, and seems to originate in the recently studied supralocal, centralized institution of the general Castilian Jewish “procurador.”

How accurate a description of reality is the argument? It may be seen as a generalization about a majority of cases. It may also be seen as an argument against raising taxes. But, as it is addressed specifically to Murcia, it may also be seen within the context of the notorious ongoing tensions between royalty and Murcian authorities at the time.

It has affinities with the arguments articulated in the Shevet: both assume that Jews are not involved in armaments; that these are foreign to their culture.

Archival documents leave no doubts as to the existence of Jewish craftsmen involved in arms and armour. They also document Jewish possession of arms and similar items. In 1432 the inventory of the possessions kept in the house of Moses Benjamin in Tudela yielded 14 swords, 8 daggers, 8 crossbows, 4 cuirasses. In the 1360s, the Jew Yahuda crafts spear tips and knives. In 1382, a Jew helps the council of Orihuela by remaining in the town and practicing his work of repairing or improving [adobar] sillas [harnesses rather than chairs], corazas [cuirasses, armor] and “other weapons.” In 1429, Jews of Murcia, such

jos que tienen e padecen por razón de los servicios e cabezas de pechos con que me syrven e dan e pagan en cada año ...”

45 Eleazar GUTWIRTH, “Trends towards Centralization in XVth c. Castilian Jewish Communities” [in Hebrew], Te’udah 4 (1986) pp. 231-246. The richer evidence for Portugal is also earlier. The similarity of the situations has not been noticed but seems clear. See note above.


48 Agustín NIETO FERNÁNDEZ, Orihuela en sus documentos (Murcia: Espigas, 1997. 4 vols) vol 4, pp. 22ff, and 25: Mahir Çalema frenero is granted help by the council for his rent in 1448; the council also pays him for two items of artillery (bombardetas) he forged with his iron for the defense of the city in 1467.
as Abeniatar and also Yuçaf, sell sulfur for making gun powder. 49 The Jew Içaq sells 8 pounds of sulfur “para fazer polvora para las lonbardas.” 50 In 1407, the town council of Murcia needed weapons for the defense of the city and had to borrow them from the Jews. Special care was taken to register them so as to return them later. 51 In 1432, a document is extended by the Bayle General of Valencia to Yafuda Maymo of Sagunto allowing him to bear sword and shield. 52 After Velez Blanco was conquered by Alfonso Yáñez Fajardo in 1436, his widow left four Jews [among others] to defend the town. In 1447 the Jew Çalema is engaged in the construction of a lonbarda or smoothbore cannon. 53 In 1477 the Jews of Murcia complain that their espingardas / shotguns had been sequestered. 54 The council orders thirty to be returned to them. The hostage taking of the fifteenth century gave rise to law suits about torture and theft as in the case of Shlomoh Aliulieh whose weapons were stolen by unnamed partisans of Fajardo. 55 A document of 1411 reveals the case

49 Luis Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500) (Murcia: Universidad de Murcia, 1992) p. 122.

50 Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p. 121.

51 Another case of Jews collaborating in the defense of a city alongside their fellow townsmen would be that of Calahorra. Along other city dwellers, the Jews helped in the city’s efforts during the siege by the French; Enrique Cantera Montenegro, “Los últimos tiempos de la presencia judía en Calahorra y La Rioja,” Kalakorikos 10 (2005) pp. 57-86.


53 Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p. 20.

54 Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p. 155. Abundant evidence on Jewish espingardeiros was preserved in Portugal: Moises Faras mestre de fazer espingardas in Estremoz appears in 1475 and 1482; Salomao Curcim of Beja in 1478; Moises Crescente fazedor de polvora de Castela in 1486; Salomao Canes espingardeiro do rei, of Trancoso, in 1492. See Tavares, Os judeus em Portugal no século XV, vol. II p. 600. See also vol. I, p. 307: Salomao Folega receives 3000 reais por saber muy bem fazer muytas coussas d’artelharia da guerra.

55 Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p. 39. In 1472 Aventuriel demounces those who stole a lanza from his shepherd: Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p.106. Also in 1472, there is a complaint against the merino who stole a lanza and an adarga (leather shield) from the Jew Santaren; Rubio García, Los judíos de Murcia en la baja Edad Media (1350-1500), p. 136.
of Yanto Alfatex, victim of theft. Amongst other items stolen by the thieves were a horse *ensellado e enfrenado* as well as *una lança e una espada e un punnal.* In 1407, the council of Murcia was told by Antonio Gonzalo that the Jews had many weapons.

4. **The Language of Alchemy and Armaments**

The texts at the end of the Houghton MS are in *aljamía.* It is not Spanish/Castilian *aljamía.* The ubiquitous */pren/* alerts us to the fact that the underlying language is Catalan. Contreras Mas has underlined in a number of articles the centrality of Mallorca in Iberian alchemy in this late medieval period. The royal court certainly seems to have been interested in Mallorcan alchemy and alchemists. The examples of Menahem, Caracosa, Samuel of Granada, Albo, Simeon b'Zemah Duran come from the Crown of Aragon, especially the (former) Kingdom of Mallorca-Rousillon. The contents of the Houghton text in Judeo-Catalan *aljamía* recall the works in Catalan ascribed to Arnau de Villanova. Cifuentes, who has studied the pseudo-Villanova texts as sociolinguistic documents, emphasizes the burgherly and lay character of the public of scientific texts in Catalan. The Houghton text is concerned with

56 RUBIO GARCÍA, *Los judíos de Murcia en la baja Edad Media (1350-1500),* p. 41.
57 RUBIO GARCÍA, *Los judíos de Murcia en la baja Edad Media (1350-1500),* p. 89.
themes which are reminiscent of those which engaged the pseudo-Arnau writings. These themes are *sublimar, mercuri, armoniach, sofre*. Indeed, the table of contents of a pseudo-arnaldian text reads: 1. “*Per subimar los spirits [volàtils]. Primerament, del mercuri. Sublimatió del sofre. Sublimatió de arsènich. Sublimatió de rialguar. Sublimasió de sal armoniach.*” These are also the themes treated in the *aljamiado* text. The Houghton texts offer a rich vocabulary of objects or utensils: *una escudella* [fol. 112r]; *amortella, alanbic, cresol* [fol. 112v]; *bastonet, cassola, un marbre, carabe, paieta, filtre* [fol. 111v]. They testify to the weight measurements current in their time and place: *adramme* [fol. 112r]; *unça* [fol. 111v]. They are concerned with sulfur, one of the components of gun powder alongside charcoal and potassium nitrate (saltpeter): “*pren un pes de fin sulfur*” [fol. 112r].

Of particular interest are the instructions for gun powder of *colobrina* or *culebrina*, a piece of artillery mentioned as early as the first half of the fifteenth century: “... *e met de una en una e com més l’hi metràs pus alt serà pòlvora per colobrina ...*” [fol. 110v]. The same may be said about the instructions concerning the *espingarda*, a weapon with long barrel known in Byzantium since the XIth c. and in Western Europe since the XIIth-XIIIth c. “... *quatre e mija de sal nitre una de sofre viu una e de carbó deursal per espingarda ...*”


5. CONCLUSION

The text in the Houghton MS is not in Hebrew but in the vernacular in Hebrew characters. The presence, in a thoroughly Christian, Italian MS in Latin characters, of pages in Hebrew character aljamía is – to say the least – surprising. Neither does the Italian MS exhibit interest in alchemy or armaments. It differs then from the numerous vernacular texts on alchemy in medieval MSS which are in Latin characters. The difference is by no means purely linguistic but also social. It is also cultural as it establishes differences between those with access to such technical texts and those without. Its formal type is that of instructions or recipes rather than poetry, commentaries, allegory, etc. Its existence reinforces the suggestion about a dominant trend in the culture of the Jews of Catalonia in the late middle ages advanced some years ago.\(^{61}\) It was an emphasis on Sachliteratur and Fachliteratur in the vernacular of the Jews of that time and place. Its relation to Hebrew and Judeo Arabic texts has to take into account the difference between languages but also the fact that minerals had been discussed in the vernacular Lapidarios by Mosca and that Hebrew texts on alchemy may switch occasionally their language to the romance vernacular. The involvement in alchemy in Hispano-Jewish communities is attested not only in “literary” philosophical texts but also in documented cases of individuals engaged in alchemy. Not all of these are well known.

The references to weapons inevitably raise the question of Jews and armaments in late medieval, i.e. pre-expulsion, Iberia. Discussed some-
times in relation to writers such as Nicholay, it is nevertheless a clear case of late medieval Iberian Jewish history. Less clear is the attitude towards weapons and towards Jews bearing arms. A variety of attitudes in the evidence about Jews and Christians has been underlined here. The fragment’s instructions in Judeo-Catalan *aljamía* show the interest in alchemy and weapons and the links between them in what is a text produced by a Jewish scribe of the late middle ages.

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