CHAPTER FOUR

אֶ לְיוֹבָרֵה דָי קֹהָמָא שֶׁפָּאוּרֵנָא אֶשׁ קוּרְיֵשׁ

O LIBRO DE KOMO SE FAZEN AS KORES

(PARMA MS. 1959)

1. INTRODUCTION

The text known as *O livro de komo se fazen as kores* 'The Book on How to Make Colors' is the best-known Hebraicized Portuguese manuscript, the only one to be specifically mentioned in more general studies of pre-expulsion Portuguese Jewry (Ferro Tavares 1992: 146). The earliest printed reference to it appears in Zunz (1876), though the only substantial study of the text was not undertaken until well into the twentieth century. Based on a photograph of the manuscript at the Jewish Theological Seminary in New York, the text was transcribed and translated by Blondheim (1929), with a Romanization appearing in Blondheim (1930). However, this edition contained only a few notes of commentary, along with a number of hesitations with respect to individual transcriptions, transliterations, and translations.

Based on my first-hand consultation of the manuscript at the Biblioteca Palatina in Parma (Italy), the present edition addresses these errors, and expands on excerpts first published in Strolovitch (2000c) to include a thorough philological commentary on the entire text. The Romanization presented in this chapter also corrects several of Blondheim's errors, most of which consist of unwarranted Castilianizations1 of several forms, as well as a

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1 Although the spelling of some forms is, in principle, ambiguous with regard to a given Spanish-versus-Portuguese feature, Blondheim does not actually justify these Romanizations (see chapter 7 § 4.3 for clearer examples of Castilianisms in Judeo-Portuguese).
small number of characters that he plainly misread. It also departs significantly in form from his, since I have used the system of transcription described in the previous chapter, which more faithfully preserves the distribution of Hebrew graphemes and disregards some conventions of Roman-letter Portuguese writing. I do, however, owe a great deal to Blondheim for his translation, which provides the English meaning of many rather obscure elements and compounds.

As kores contains 45 chapters, varying in length from single sentences to several folios, each of which provides instructions for the preparation of inks and dyes, as well as practical information on how to best apply them in manuscript illumination. The text is bound together with ten other manuscripts which, based on similarities of format, justification, number of lines, and other features – and in spite of their varied subject matter – were probably designed as a unified volume (Metzger 1977). In her discussion of Hebrew manuscript production in late fifteenth-century Portugal, Metzger devotes a lengthy introductory footnote to the debate over the date and authorship of As kores. Although a colophon reveals the name of Abraham ben Judah ibn Hayyim writing at Loulé in Portugal, the year of composition or copy is given only as "22." Blondheim (1929) takes this to be the year 5022 in the Hebrew calendar, that is 1262 in the Gregorian, a date that would place the text among the earliest examples of Judeo-Romance (beyond individual glosses). Yet the writing style and language clearly places the extant copy later than the thirteenth century. Metzger does contend, however, that despite its distinct Portuguese character, it was probably not a manual used by the scribes and illuminators of what she considers a "Lisbon school" of practitioners.
2. **OVERALL LINGUISTIC CHARACTER**

Like the larger astrological text *O libro de maģika* in chapter 5 (and most non-liturgical Judeo-Romance writing), diacritic vocalization is used in only a handful of words. The use of the four *matres lectionis* `a,  `a#,  `o/u, and `e/i is generally more robust than in *O libro de maģika* (chapter 5), and with rare exception only /a/ is left implicit and unspelled, most often in Arabic loanwords (cf. chapter 3 § 2.4.2). The double-duty of `b, `g, and `p, representing both plosives as well as the corresponding spirants `v, `g, and `f, is indicated less than consistently by a diacritic apostrophe (as opposed to *rafeh*). Nevertheless, *As kores* does offer the most wide-ranging adaptation of Hebrew script for writing Portuguese, in terms of both orthographic variation and overall linguistic structure. While most of these features are discussed in specific detail in the commentaries on individual items in § 5, one aspect of its adaptation of Hebrew script is worth highlighting in advance.

2.1. **Sibilants**

As noted in the previous chapter (§ 2.3.2), the spelling of sibilants in Judeo-Portuguese, as in the Roman-letter orthography of the time, is quite variable. Further adding to this variation, *As kores* is the only text in the Judeo-Portuguese corpus to make any significant use `s for vernacular\(^2\) words. It occurs most often in final position, where the rest of the corpus would have `z (usually corresponding to <z> in the modern orthography):

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\(^2\) Along with a number of items in this text, `s is used in the spelling of several Arabic and Greco-Latin loanwords in *O libro de maģika*. Given their technical nature, however, it not clear to what extent they would have been part of the colloquial language, so that the question of a distinct pronunciation as indicated by this letter may not be pertinent.
As kores is also the only text in the corpus in which the noun-marking plural -s is spelled by a letter other than ŋ, though in most cases it appears to be influenced by another non-ŋ sibilant letter in the stem of the word:

This variation is further complicated in future subjunctive forms of the verb querer 'want', which occurs frequently in the text as an opening formula for a given set of instructions, usually addressed to the reader in second-person singular form (ModPg. si quiseres 'if you want (to)’ < perf. subj. QUAESÍVERIS). Not only does the normally stable verb desinence vary between ŋ and ð, but the stem-final consonant varies even more frequently between ŋ or ð (both of which may or may not include the apostrophe). Thus all three of the following alternate throughout the text:

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3 This word does not survive in Modern Portuguese (see § 6, note line 155).
4 The only other verb to feature this unconventional final consonant is one future subjunctive occurrence of tuberes 'you (will) have' (ModPg. tiveres < TENUERIS) on folio 13r. Since it is followed there by ð deș 'ten', which more justifiably contains the same final letter, the verb spelling may be an anticipatory gesture.
3. Romanization

Although the scribe has not made use of any word-internal punctuation to indicate morpheme boundaries, I have used a hyphen to indicate a clitic pronoun that is not graphically separated from the verb stem or desinence. In contrast, I have used a period to indicate an otherwise free-standing morpheme (most often the definite article) that the scribe has not separated from an adjacent word. The intralinear numbers indicate the line breaks in the manuscript itself, though line numbers in the commentary of § 5 refer to the numbering in the left margin.

aki se.komeinça 1 as libro de komo se fazeien as kores das tintas 2 todas pera aluminar os livros e digamos 3 logo primera mente do oro sol [1] i 5 kiseires fazer o 4 oro kon.ke posas aluminar 6 o pintar o kabidoar o eskreber 8 asi kome te.este libro diš€r e mändar adiant e tu non mengues nin akreçentes 10 mas do.ke tu libro diš€r ka si o fizeires todo 11 eraras, e nao tebera prol enkuanto 12 fizeires e por esta razon nao faças 13 per outra gis 1h sinon komo ti o libro 14 diš€r e mandar fazer. primera 15 mente tomaras deš onças 16 de ţukipite ides estanyo kroato e [1v.] linpio, e tomaras çinko onçaç de fuţiţbő 2 ides azoge e dereteras primero o ţubiter 3 e deit 4 çinko onçaç de ţugipiter en un almoñariș. e o 14 estanyo deretido deita o no almoñariș ko o 15 azoge. e mistura-ly 6 çinko onçaç de ensofre. 16 e dos onçaç de sal armeniko, ides anoštar 17 e esto semiş mui bein modo e peneirado e 18 oke non si poder peneirar torna-o a moer 19 ata ke seça todo peneirado e enton agúnta 10 todo en un bação bein lino e despois 11 deita-o en uah aredom 9h de vidro. e enbestiah 12 de.bitume e de bou baro forte kuatro 13 o çinko vezes porke pos 9h soportar o 14 fogo e enton mete-ah en uah panel 9h. 15 ţeahas de çiniz 9h do lar e da- 16 ly çinko manso 16 ata ke végas ke saih o fogo vermelyo e entou 17 atap 9h ah boka da.redom 9h kon do baro e leşa ah 18 estar sobre o fogo apanel 9h kon ah aredom 9h [2r.] en estos tripes. e as végadas destap 9h 1 a.boka daredom 9h e quando vides ke nao 13 deit 9h fumo
nenyun tira a panela ko.ah 14 rodeo h de sobre a fogo e leisá estar 15 ah esperar ata otro día e depois 16 kebrantaras ah rodeo e ágaras un 17 pao de oro fino e moy-o pekeno e pekeno 18 kuando kiseires labrar ko.ele e destenpera-o 19 ko aguah gomada e faze ko.ele tu ah 10 prolo e este oro dizen o oro musiko.

11 capítulo segundo do.ouro pera 12 fazer o oro de 13 musiko kon.ke eskerbas. toma ġubiter 14 e fujatibo e sal armeniko e onsofre 15 tanto de uo komo de otro e.fonde-lo-as 16 nuah kulyar de fero grande o ġubiter e 17 deitas ençima o fujatibo e meçe-lo-as [2v.] todo muy bein kon pao e deita-lo-as kento no 12 almofarís sobre os pou do sal armeniko e do 3 ensofre e moe-lo-as ata tanto ke sega 14 todo en pou sutil e tomar* s todo esto 15 esto e deita-lo-as en uah kulyar de fero 16 atal enke todo esto solta mente pos*h 17 kaber mui bein e akenta-lo-as sobre brasas 18 ata ke fumege mensendo senpre mui bein e depois 19 torna-lo-as ah moer outra vres e deita-lo-as 11 na kulyar e poe-l-as sobre as brasas 111 ata ke fomege e esto faras ata tres 112 vezes e desae mete-lo-as en un pano de linyo grosso 13 e atalo-as mui bein kuanto poderes e poe-lo-as 14 en kal biha komo sair do.forno en uah 15 panel*h sobre o.fogo ata ke saya o bafo e 16 poelo-as ante sobre brasas porke 17 sega ante kente e depois tira-o do pano [3r.] e deita-o en un pokaro de baro ke seg*h feito 12 e kozido e manera de rodem*h e kobre-o e 3 bara-o mui bein kon baro de sobre akabez*h do 14 fokaro bein caráda e poen-o sobre uas 15 tripees e da.lye fogo grande des a.manyah 16 ata meo diah e ata ses oras do diah. 17 e si eskebralyar o baro pon-lye otro por 18 las eskebralayaduras e esto feito saka 19 tuha obra mas ante ales*h esfriar 110 ata otro diah. e kuando kiseires eskrever 111 ko.el toma goma aravika koma un ervanco 12 e o otro sega komo lentilya e deita aguah 13 en uah vieira kont*h posa avondar 114 agoma e kon ela destenpera o oro e eskerbe 15 e fik*a ran as letras faradas do 16 oro.

kapitulo 3 do oro [3v.].] pera poer o oro en libros o sobre folyas 12 de ġupiter ke e ġamado alfer e pos*h brunya* r 13 toma o grude do cervo e deita-o en molyo 14 aguah e leisá-o estar evanto ata ke 15 se desaçe por si e kuando for been 16 desfeito proba-o en teu dedo e si for bein 17 likido e mole en esa aguah asi feit*h 18 lançaras okre e en kroço de pesego todo 19 modo e o karoço sega primero keimado porke 10 fac*h o oro mas resprandeçente e depois 11 poen esta konfaçion do grude e do okre e do 12 karoço keimado komo dito e eskrebe u kiseires 13 mas bafez*h primero o lugar onde puñeres 14 esta konfaçion sobre dita e poen en çima 15 o oro de eskreber e depois ke
for enšuto 16 brune-o ko.o dente do ḡaḇari muy pasa mentre l17 e asi foras bein o oro. ite mas [4r.] p'ra f'zer sesa para poer o oro toma o l2 koyro de kongre o mete-o akuzir ata ke l3 se desfaga per si e koa-o en esta l4 koadura e façe sesa dokre e do k'ruço l5 de peseo e poen o oro do esk'ber ençim'h l6 en enest'h ses'h do peskado kapitulo | l7 4 do oro [] si kiseires poer l8 o oro kon dobre o kon.eskudo o kon l9 f'rolino kon anel de oro toma apedra l10 kristal e moya muyo e filya akra do l11 obo been pretado e goma e tenpra koest'h l12 e faze masa e poen esta mas'h l13 u kiseires e leša sekar e toma uah l14 dobra o.frolen o eskudo o anel komo dito l15 e e esfriga-o muto ençim'h da mas'h l16 e oke akel'h mas'h fišar luzente do l17 oro nunka se toly'ra. e despois pes'h [4v.] a dobra e.nou ağašas menos dela nada [] l2 kapitulo 5 de komo se faz nobre l3 azul. kuando kiseires l4 fazer azul ke semely 5 de akre toma uah l5 p'nela grande e noba e faze en.ela kuatro l6 furakos e poen e akeles furakos duas l7 vergas de fero e (ke) vinyao em manera de krus l8 e despois aberas liminas destinališ luna l9 ides folyas de prata estena ben delgadas l10 e untas kou mel e ponas ençim'h das l11 vergas do fero ental gis'h ke nou ağaže l12 uah ah otra e despois deity dentro l13 na panela vinagre been forte atanto del l14 ke ğeše ah as vergas e nou pase ariba l15 e despois atapa been a.panel'h kon l16 brao forte e poras a.panel'h en l17 estirko de best'h kente ke seğa soterada [5r.] en ela ata a boka e muy bein kobert'h ata l2 vente e dos dias e akabo de estes 22 dias l3 destapah apanel'h e ağašas na boka azul l4 fino e arapa-o kon uah palei't'h de palo de l15 kan'h. e despois torna as laminas ah l6 a.panel'h ehe lešas (estar) os dias as komo de primeiro l7 fizeiste e per est'h gis'h faras bou l8 azul e podes fazer poko o muito asi komo l9 übères gisado.

kapitulo 6 do azul l10 para tenperar o azul l11 toma agoma arabika luzente e fina em aguah l12 em uah taç'h e despois toma akela taç'h l13 en.ke estüber e koa-las kon o pano de linya l14 e toma a.terça parte da.krara do obo e l15 deity ko.el'h no korno o na konga [] ite l16 debes asafer ke o azul deves renobar em kada l17 un dia porke si estüber per longad'h mente [5v.] akela aguah no azul tornase negro e esto l2 faras dos o tres vezes no dia e tomaras l3 da goma arabika e da.krara do obo l4 e escreveras ko.ela [] l5 kabidart-t-as do azul luzidio. e o ke es l6 asi komo kardeo e bou. dazul te dou l7 para o konočeres mete un pekeno dele na l8 lenguah o no p'lima on'h onya do l9 do dedo e si o sentires as komo a.de uso l10 mao e []
kapitulo 7 do azul | 11 pera tenparar o | 12 azul toma azul dakra e moyo ben ko.ah | 13 de koahda das vides leve mente o kolye o | 14 un uah veevrah o konghãh e lava-o | 15 kon akelãh de koadah das vides e moyo-o otrãh | 16 vê ve levê mente kon uah pokãh de rosa e eskreve | 17 o ke kiseires o aluninhãh o pintãh o | 18 retãhys uah pekenãh de krara dobo kon goma e nao | 19 fike de un diah [6r.] pera otro kon ela ke se tornara negro

| 12 kapitulo 8 pera fazer rosãh | 13 toma uah onçãh | 14 de brasil fino e rapa-o meudo e pon-o | 15 adeparte e depois toma uah kuartãh | 16 onça de pedra ume e toma peso de dos | 17 dineros de alvai alde e moyo-o kon a. pedra ume | 18 en un almofarish e pon-o aparte e toma | 19 depois o brasil e deita-o en uah | 10 taçãh de malegãh e deitchâh os outros pous | 11 e kon o brasil e deita-lye e çima urinãh | 12 ata ke se reskobrao e esten asi per 3 | 13 dias akabados e toda viah meçendo-os | 14 kon un pao k’dã diah 5 o 6 vezes. e depois | 15 koa-o e aparo-o por un pano de | 16 linyo e çima de uah piah feitiãh de ãis o de pedra kri. e leãa-obibir na [6v.] piah e kuando for enßuto rapa-o muy | 2 bein kon uah paleîth. e guardar-o bein do | 3 ayre e kuando kiseires labrar ko. ele | 4 moio kon aguah gomada []

kapitulo 9 | 5 pera fazer otra rosãh | 16 toma do brasil oke uberes mester e | 7 ahrapa o been meudo e deita-o en unãh | 8 olya pekena noba e deitchâh na olya de koadãh | 9 de vides ke seãh o brasil dela koberto | 10 poen-ãh ao fogo e da-lye uah | 11 fer vora atanto ke tome adekuada sustançâah | 12 do brasil e toma duas p’rtes | 13 de pedra ume e mais a. meiaîh parte de | 14 pedra kri e moye kada un muyto por si e | 15 depois mistura-o e moya de konson e faze | 16 komo ãa sabes de pedra ume rosãh.

| 17 kapitulo 10 para fazer mui nobre [7r.] azãhkon Â toma alvâ yalde kuant kihesers | 2 e moyo e penyêra-o e lança-o en uah | 3 tiğela o tiğelas anças o levas ao forno | 4 do vidrio e leãa-o e estar per vente e | 5 dois dias e akabados estas dias tirao do | 6 forno e âgaras muy fermoso azãhkao. | 7 desta gisãh faras kunato kiseires []

| 8 kapitulo 11 pera fazer azinyabre | 9 mui fino toma folyas | 10 de kobre mui delgadas e molyas en | 11 vinagre kente e mui forte e mete-o en | 12 unah olya akoçtadãh e untãh abokãh | 13 da panelãh kon mel e kobreah kon testo e | 14 soterah son o estirko de bestas grandes | 15 e este ali trinta e un dias e akabados | 16 os dias tiraras e olya e âgaras

| 17 azinyabre e rapa o kon uah paleîth e [7v.] si mais kihesers fazer torna afazer | 2 komo dito e aberes dou azinyêbre.
13 kapitulo 12 de otro anizyabre 14 tomaras un algidar 15 e mea-lo-as de urinas bein pudres e tomaras 16 un baço de laton muy ben labado do fondo 17 de fora e poe-las en çimãh do algidar ke 18 non ãegen as urinas ao fondo do baço 19 kon dos dedos. e seega o fondo do baço 10 untado de bou mel e o baço segãh 11 meado de dentro da keles meãgados e ençima 12 do baço enbroka otro algidar. e 13 ençima do algidar poras enãlmos 14 e vertiras o vido do baço eno algidar 15 de fondo. e vee ao fondo do baço e 16 aãgaras o mel ke-ly e puseste tornado en 17 azinabre e rapa-o ko uah pãleãh. e 8r. guarda-o en papel e mas verde kiãseres 12 fazer unta o fundo do baço kon mel 13 e faze komo da primeira fiezte e asi 14 faras kuanto kiseires. e pera ah des tenpraõn 15 pera este verde quando kiãseres 16 labrar kou ele moyo ante mui bein e 17 deitaly e pokó de açêfrao bein modo 18 e destenpera-o kon aguah gomada ke náo 19 ah diãblo ke-ly e tolya pres a akolor.

10 kapitulo 13 para fazeres nobre 11 karmen tomaras 12 uah olya grande noba e ke kaybao 13 kuatro açumbres de aguah e engiah de 14 meãgados do omen e mese os por dias 15 e faze-õs ben kraros e toda ora 16 ke lebantaren eskuma e depois ke foren 17 ben kraros e eskumados toma uah 8v. tiãgela grande e poen sobre ela palya de çenteo 12 e ençima da palya un pano de linyo e en 13 çima do pano deitaras zinça de vides as duas 14 partes e o terço de kãlibã e poke de fundo 15 uah olya e deitãh ençima da barilãh as 16 urinas dekoadas ke koaste no asado e 17 vayo koando ata de se engã apanela destãh 18 de koada per gisãh ke kaihao e kuatro açumbres 19 e poen-a ah feber ke menguen ata 10 2 dedos e ao fogo otra olya ãeh de urinas 11 kraros komo de kada e fervaõ anbãs 12 e lanãras na panelãh das urinas klarifikadas 13 komo de kada uah libra de laka e 14 daras fogo manso e toda viah meçendo-ah 15 kon un pao forkado poke e kuando for 16 a laka deretuda koa-o en un sako de linyo 17 e poke en fundo un baço o ke fikar no 9r. sako mete-o na olya da dekoada ke guardaste 12 ao fogo ferãeendo manso ata ke sega deretuda 13 mesendo-ah kon un fuste e depois koa-o ah 14 parte kon akel sako koah frol. asi faras 15 karme de duas naturas e en pero prim e ra 16 mente debes klarifikar as urinas

17 kapitulo 14 pêra otro karmen 18 toma uah olya daguah 19 linpa e teãba en gisa ke si posa en 10 elãh dereter (desolber) uah libra de pedra uma e 11 toma destãh aguah do aume un açumbre deitãh 12 o meo en uah olya e otro meo en otrãh 13 olya e bolbe-o kon o pao e depois leã-o 14 klarifikar e kuando for peisado vae 15 vertindo da
aguah ke sobre nadar e kuando |16 for apurado ke nao posas sakar aguah |17 mete-os en.senyos sakos de linyo e kolga-os [9v.] ke verta o sobre senyos testos ou |12 tiêlas e o.ke se-koar si for tirao e torna o |13 ao sako e asi faras ata ke saya |14 kararo. e depo ke for karro faras pelveri |5 nyos komo ervâños e poyn-os e sekar |6 a o.sol ke segãh manso e si o sol for forte |17 poen uah saban en çima e deske foren |8 sekos guarda-os e faze deles tuah prol.

15 kapitulo para fazeres vermelyo toma çinko |10 liras de fuçatibo ides azoge e poyno |11 en uah aredoma o tiêlh grande vidrada |12 e toma uah libra de pedra ensofre bein |13 meudo e deita-lyo do pou de ensofre pokoke e |14 poko sobre o arqen viibo ata ke sega bein enkorporado |15 e toda viah meçendo-o kon pie de |16 kaw kon suah pele e sa la'h ata ke se torne |16 a.fogo komo çinza [10r.] e depo ke asi for mortifikado deita-o en |12 duas olyas nobas ke segan feitas komo |13 aredomas anças de yuso e estreitas ençima |14 e nao fike por ençar de elas sainao |5 um furako pekeno por o saia o umor e poras |5 as olyas sobre o fogo en suas fornalyas e |17 baras bein kon o baro e poen uah tiêla |8 en çima dos forados e kuando o fumo veres ke sal |9 vermelyo e nao feder mete dentro no furako |10 un espeto delgado e si alguaah kosa a apegar |11 ao espeto tira as olyas deo fogo e |12 leša-o esfiar e depo ke for frio kebrantãh |13 as panelas e ágara o bermelyou feito. e |14 per este pesa faras kuanto vermelyon kiseires |15 fazer e auah terça do azoge poy 5 liras do |16 ensofre e ah 5 liras da zoge uah libra |17 de ensofre e kileires ental gisa o fogo ke nao [10v.] se keme e da-lye fuego tenperado nin vivo |12 nin manso. i te se per ventura sese |13 keimar o bermelaio kebrant'h as olyas e |4 moy-o e enkorpora-o e mistura-o kon otro |7 peso daszoge e de ensofre e poen-o en otras |6 olyas e faze komo dito e. e para been mentes |7 nos fumos komo saen asi e nunkao os eraras.

15 kapitulo para por o oro en espada o kuytelo toma |9 as kabecaç do kaharo de braco e mete-as |10 na forga ata ke segan been bermelyas e depojs |11 sakas e ponas en uah tabaah e lançaras |12 sobre elas dos punyados de sal moido e moiras |13 todos en uo e depojs lanç-lye des onças |14 na noșatar meia onça da zinyabre e |15 amasa todo muy bein kon o forte vinagre. e faze |16 primeira mente alinpar a espada o o kuytelo [11r.] e komo si eskrebeses poen desta çirna |2 u kigères fazer letras o figurar mais |3 primeira mente seg'h untada kon vegera boli |4 e kon azarkoanboli e si for tenpe de inbenro |5 este e a espada'h o kuytelo 2 dias ke.nao |6 alinpes. e si for
vera o este-e un dia | de pois labora e guarda tuah arma ka ga | onrada fika.
kapitulo 17 | para tingir os osos | e paos de kual kolor kigeres toma o | pao de bubo o otro kual | keir madero e koze-o en azeite por tres vezes e depois tira-o e deita-lye pous | dalkebrite moido e lea-o estar | por 3 dias e depois alinpa-o e sera negro de | fora e de dentro.
kapitulo 18 | pela | tigre e fazer osos [11v.] bermelhos tomaras o alakar kuanto uberes | meester e desfaze-o en mui forte | vinagre e segah kon quatro danošatar | e depois koze osos o o madeiro en | estah fecao ata ke se tornen vermelyos | e ke se pages da.kolor ke estah tinta pareca | vermelya de dentro e.de fora.
kapitulo 19 | para fazer tingir o bubo | o outro madeiro de kolor preto e fermoso | ke semelye azevihe toma as limaduras do fero e do kobre e do sal comun | almartake e fezes de oro o kual aghado | no azarnefe de kada uah onça| e lança | os en muy forte vinagre por trinta dias | e de pois koze-o ata mengue a.metade | do vinagre e depois toma do azege e destenpera | o en aghau ke segah un poko espeso e metan [12r.] o pao e os osos kon al por muitas vezes sakando ao sol per kada veš e tu veras | ke se tornara preto de dentro e de fora e es | ta tintura nunca se tirara do pao o dos | osos.
kapitulo 20 para zeres os | osos de de mangos kolor verde komo | de azinyabre | toma o azinyabre e do anošatar | 2 onça de kada uah e moy-o kon o vinagre | bein for e des e deita en eles os osos o | mangos de gisa ke segan kobertas dakek vinagre | kon os pous e leisa os gazer ata ke se faça | verdes de tal kolor de ke te pages e pera melyor | se koze-os en kadeira de kobre e si en.esta | tintura meteres kual ker madeiro tornar-se-ah | verde e mui fermoso.
kapitulo 21 dos | osos limados pera | fares ashedreç. quando kišeres fazer os osos | [12v.] kon fogo o sin fogo e fazer de muytos ou | si o kigeres fazer toma osos de vaka ke | nao aghao karne nenyuah o osos de marfil | e lima-os bein kon uah lima ata ke segan | limados komo limaduras de fero o seraduras | de madeiro e deita estas limaduras dos | osos en uah panela vidrada kon muy forte | vinagre e sega a.panelah been koberta e | barada kon baro dareedor e depois dal | fadida peso de 5 onças e.de alyos pesados | peso de uah onça e ferban en kuatro | onças de vinagre vermelyo o en mais e | kobre-os akeles osos kon este vinagre | bolbe-os ben kon estas konfações | e poyn-o sobre o fogo ata ke se fundao | e quando
veres ke se fundey e koalyen [17] komo ġunbo e kišeres ke fiken brankos tira [...]


aguah gomada e en ton eskrebe kon ele 14 pero antes ke lye deites aguah gomada sega o 15 azul been enshuto da aguah e si ki filters 16 podes deitar na dit9h krara do brasil por-lye 17 dar melyor kolor.

kapituló 27 si kiseres 18 fazer boah ros9h filya 9 do brasil kuantó ki filters e rapa o muy ben 10 encima de uah kong9h o korno e desae 11 agunta kon el da pedra ume e deske esto 12 fizers filya da urina do omen kasto e 13 deita tanta encima dese brasil e dà pedra 14 ume ata ke sega tres kobertos e leasha-os 15 asi estar por 3 dias e depois filya un 16 pao de giis e deita do pou dele encima dese 17 brasil ata ke se melye ke seg9h tanto doun [15v.] komo dotro e desae leisha-o asi estar esa 2 konfacion por un diah e por dois e depois 3 toma esa rosa e moya kon krara dobo gomada 4 e eskrebe ko.el9h [] si kiseres fazer 5 fizer koor indiah 6 mete kon el do azul e si por ventura kiseres 7 fizer pinca negra mete kon el do negro e si 8 por ventura akor alva kiseres tornar en 9 negro agunta kon el do negro e do alvo e toma 10 do brasil e mete-o en un pano alvo e koa-o 11 sobre giis. sabe ke deshao as kores principais 12 azul. oripimento e vermelyon. 13 verde. karmen. cuf9. katasol. açafrao. 14 az9rkon. alvay9ide. brasil. [ ] kuando kiseres 15 kebrar la krara do obo ega alye 16 dela legê dela figeira e kebralya as muito bein 17 para tu obra klara komo aguah.

[15v.] kapituló 28 si kiseres fazer verde 2 e destenpera-o deita do 3 vinagre kon do verde e da gêma do obo e moyo 4 todo de konson e as tres partes seg9h do 5 verde e a kuart9h da gêma e si o melyor ki filters 6 fizer deta-lye da aguah gomada e destep9ra-o 7 kon ela si o kiseres tornar en otra kor 8 mete kon al do ac9frao e si en otra kor kigeres 9 tornar mistura kon el do brankete e pareêra 10 en sonbria verde e alvo.

kapituló 29 11 si kiseres destenpr azul 12 deitalye daguah e moy-o kon el9h un pokó e des 13 ke for bein seko daguah si o kiseres tornar 14 en otra kolor gunta kon el do brangete ides 15 leo kon krara do obo e si o kiseres torner 16 enceleçtre gunta koel 3 p9res de brangete 17 e ah uah do azul.

kapituló 30 si kiseres [16r.] bou karmen filya o karmen aguah e da gêma do obo 2 kuanto ah metade e moy todo de konson e si kiseres 3 ke semelye kolor sanginya agunta kon el ah 4 terça parte do azul [ ]

kapituló 31 5 si kiseres destenperar 6 ac9frao pera eskrever kon ele deita-lye da krara 7 do obo e nao o moyas nin metas kon.el otra 8 kosa. e si kiseires meter en outra kor 9 semelyabel âgunta kon el do
oripimento been \textsuperscript{10} modo kon a.krara si kišeres matizar kon el \textsuperscript{11} do azul been moido kuanto aterça parte e nou \textsuperscript{12} mais [kapítulo 32] si kišeres destenperar \textsuperscript{13} o oripimeto destenpera-o \textsuperscript{14} kon aguah e kon ĝema do obo e depois tira-o \textsuperscript{15} dinde es\textsuperscript{2}h aguah e obra kon ele ka näo ker \textsuperscript{16} outra natura [kapítulo 33] si kišeres \textsuperscript{17} destenperar o negro anil [16v.] filia da aguah gomada o da ĝema de obo e moy \textsuperscript{12} todo de konson e si kon.el kišeres destenperar \textsuperscript{13} e obrar ĝunta kol el do branko ata ke \textsuperscript{14} semely\textsuperscript{3} kor nuna [kapítulo 34] \textsuperscript{15} filia o azul e destenpera-o kon aguah gomada e kon ĝema de \textsuperscript{16} obo e deita sobre el para matiza-ly-o kʰrmen \textsuperscript{17} o do brazil. [kapítulo 35] si kišeres \textsuperscript{18} kolorar kon azul branko \textsuperscript{19} matiz\textsuperscript{4}h kon azul puro. e si kišeres kolorar \textsuperscript{10} kon karmen matiz\textsuperscript{4}h kon kʰrmen o kon brasil o \textsuperscript{11} kon bernelyon. e si kišeres kolorar indio \textsuperscript{12} alvo matiz\textsuperscript{4}h en al kon verde puro. e si \textsuperscript{13} kišeres kolor\textsuperscript{4}r kon a\textsuperscript{2}rkon matiza sobre el \textsuperscript{14} karmen o brasil o vermelyo e si kišeres kolorar \textsuperscript{15} kon bernelyon matiz\textsuperscript{4}h kon brazilo kon kʰrmen \textsuperscript{16} pero as kores tod\textsuperscript{3}s se poden matizar kon negro [kapítulo 36] filia açafrao e agoma e \textsuperscript{12} krara de obo destenpera\textsuperscript{9}h kon \textsuperscript{13} todas estas kousas e poen todo esto en \textsuperscript{14} akel lugar o letra ke kišeres fabrikar e depois \textsuperscript{15} toma a folya do oro muy sutil mente e a.sabor \textsuperscript{16} en uah kasa sin vento e sin ĝente per amor ke non \textsuperscript{17} fale a.nenyuo e un çendal o pano na boka e nos \textsuperscript{18} narizes ke non bafege ao oro ke-ly\textsuperscript{5} foğa atade na \textsuperscript{19} kabeça. e ponya-o ençima das ditas kous\textsuperscript{3}s \textsuperscript{10} e lesè-o e estar per uah or\textsuperscript{3}h do dâiah e depois \textsuperscript{11} filia un pokol dal godao e pono sobre esta \textsuperscript{12} folia pasa mente e oke uber de fikar pera \textsuperscript{13} letra leîsha-o estar e o al tolya-o. e deske fizeres \textsuperscript{14} esto mete mao ao bruny\textsuperscript{3} dor e brunya-o muy \textsuperscript{15} bein kon un dente de porko [kapítulo 37] os meçkramientos \textsuperscript{16} das kores atais \textsuperscript{17} ker kišer fazer kor komo dazul o de kʰrmen toma [17v.] a.metade de azul e a metade de kʰrmen e a terça \textsuperscript{12} parte de branko e si kišeres mais vermelyo \textsuperscript{13} mete mais do kʰrmen e si kišeres mais branko \textsuperscript{14} mete mais do branko. e quando kišeres perfilar \textsuperscript{15} o aluminar toma azul e o kʰrmen a metade de \textsuperscript{16} kada uo. e meçkra todo kon da aguah gomada \textsuperscript{17} e kon da krara e podes perfilar e aluminar \textsuperscript{18} e mete e mais do destenperamento ke sega been \textsuperscript{19} kraro. [kapítulo 38] si kišeres por \textsuperscript{10} o oro en lbro toma d.aguah \textsuperscript{11} das kʰrtas koğa ke seg\textsuperscript{3}h de boah gisa forte \textsuperscript{12} e pono kon pinzel uah veş
o duas en akel |13| lugar u kišeres poer o oro e depois moy |14| o gis
kon aguah kogʰh forte mente e mete i un |15| pok o d.çafraraao e pon-
o en akel lugar u kišeres |16| poer o oro per tres vezes. e deske for |17|
seko mete kuanto kišeres e poen o oro [18r.] kon aguah gomada
fria e depois brune-o forte |12| mente kon dente de porko []
kapitulo 39 si kišeres |3| been bruny³r e oro o argen |4| aprime-o been
o brunyador e depois âbre ah bokʰh |5| e bafegʰh sobre o oro
eskentado kon mano linpa |6| e segʰh o bruny³dor kente e kobra o oro
kon pano |7| de linyo velyo e depois brunya-o outra veš perçima |8| do
pano eskentado o bruny³dor outra veš sobre o |9| trapo e bafeγando
aberta ah bokʰh []
kapitulo |10| 40 si kišeres fazer kolʰh toma dos pᵉrgaminos |11| e lavᵃ-
os mui been e depois mete-os en uah |12| olya noba e velya e faze-oos e
muito feber |13| ata ke segʰh been koγos e deske for sumida ah |14|
primeira aguah mete dentro outra aguah e deske |15| kišeres probar
toma dela uah pokʰh e pon-a |16| ena pⁿima e aγunta uah mao kon
otrʰh e si |17| prenderen as maso ten ke e muy bein feiᵗʰh ah tʰ kolʰ
[18v.] kapitulo 41 si kiseires fazer okre |12| toma do bermelyo
destenperando |3| kuanto kišeres e mezkra-o kon gâlde |4| ke segʰh
bou e si veres ke e muito kolorado mete |5| poko de negro e sera bou
e si for muito kolorado |6| en negro mete un poko na primeira veš e
|7| de pois mete mais tanto do al[]
kapitulo 42 si |8| kiseires fazer braniʃ fislya |9| uah libra de garasʰh de
nobra o duos o kuanto |10| kišeres fazer e poen uah libra de grasʰh |11|
e dos d.olio de linyaça e mete-ah kada uo |12| dele en.suah olya e as
olyas segan nobas |13| e koze kada un de granzagar e guarden-se ke
|14| non kaiʰh en elyas aguah nin outra koisʰh |15| e dales fogo a sabor.
e kuando entenderes |16| ke sera a grasʰh kogʰh toma un fiste linpo
|17| e meçe kon akel fiste a grasʰh e akelo ke se [19r.] apegare ao
fuste [kol] dayo kon o kutelo e deita-o |12| dentro enʰh olya e proba-h
senpre ata ke se |13| nao pege e toda viah meçe-ah kon ese fiste |4| e
deske veres ke e rara ke nao pega en nin |15| uah de ayʰ toma uah
penah de galinya e mete |16| ah na olya do olio e si veres ke se enge ah
|17| penʰh entende ke e kozido e tolyᵉ-o do fogo e |8| deita-o sobre a
grasʰh e todʰh viah meçendo-o |9| e kuando for ralo e fermoso enton e
feito e |10| si dâkel barnis kiseires fazer kolor de oro ah |11| partʰh ah
meitade o kuanto kišeres fazer |12| e koao do ke fikar en fundo da
olya e des e |13| toma uah onça d.aloes o duos o kuanto |14| kišeres
fazer e moyo been en un morteiro |15| e toma dos pouς dos aloes e
deita os no |16| verniʃ e estando a olya sobre o fogo e ferba |17| e
let fire a strong clay four or five times so that it can withstand the fire, and then put it in a basin, mix a fugitive, ounces no states, directs which Here 4. Translation

Here begins the book on how to make colors of all shades for illuminating books. And let us talk first about gold (sol). If you wish to make gold with which you can illuminate or paint or capitalize or write, as this book states and directs you forward, do not omit nor add anything more that what your book states, for if you do so you will do everything wrong, and you will not profit no matter what you do. And for this reason do not do proceed in any way other than what the book tells you and directs you to do. First of all take ten ounces of Jupiter, that is, tin, clear and [1v.] pure, and take five ounces of fugitive, that is, quicksilver, and first melt the Jupiter and place the fugitive into a mortar. And the melted tin, place it in the mortar with the quicksilver. And mix with it five ounces of sulphur and 2 ounces of sal ammoniac, that is, anošt, and let this be well ground and sifted, and that which cannot be sifted, grind it again until it is all sifted, and then put it all together in a well-cleaned basin and then place it in a glass bottle. And cover it with pitch and good strong clay four or five times so that it can withstand the fire, and then put it in a pot full of ashes from the hearth and give it moderate heat until you see the fire becoming red, and then cover the mouth of the bottle with some clay and let [the pan] stand over the fire together with the bottle [2r.] on a tripod. And
from time to time uncover the mouth of the bottle, and when you see that it
gives forth no smoke remove the pot along with the bottle from the fire and let
[it] stand waiting one more day. And then break the bottle and take out an
ingot of fine gold, and grind it very fine when you want to work with it, and
temper it with gum-water, and do with it as you wish. And this gold is called
*aurum musicum* [bisulphide of tin (Blondheim 1929: 120)].

Chapter 2. On gold. To make *aurum musicum* with which to write, take *Jupiter*
and *quicksilver* and *sal ammoniac* and sulphur, as much of one as the other, and
melt them in a large iron spoon the *Jupiter* and pour [it] over the *quicksilver* and
mix them [2v.] all well with a [wooden] stick and pour it hot into the mortar
[and] over the *sal ammoniac* powder and sulphur, and grind it until it is all a
fine powder, and take all this and place it in an iron spoon in such a way that
all of it fits well and smoothly, and heat it over embers until it smoke appears,
always mixing well. And then grind it again, and put it in the spoon and place
it over the embers until it smokes. And do this three times. Then place it in a
piece of coarse linen and tie it up as tightly as you can, and place it over the
fire in a pot containing quicklime, which has just come out of the furnace, until
it gives off steam. And place it first over the embers so that it may already be
hot. And then take it from the cloth [3r.] and place it in a clay pitcher that has
been made and baked like a bottle, and cover it and encase the lid with clay to
seal it well. Place it on a tripod and heat it vigorously from morning until
midday, that is until the sixth hour. And if the clay breaks off, replace the
broken fragments. With this done, remove your work, but first let it cool until
the next day. And when you want to write with it, take *gum arabic*, the size of
a chick pea and another the size a lentil, and pour water into a shell, enough to
submerge the gum arabic, and with this temper the gold, and write. And the
letter will remain fully gilded.

Chapter 3. On gold. [3v.] To put gold in books or upon leaves of *Jupiter*,
which is called *alfer*, so that you may burnish it, take stag’s glue, and pour it
into water and let it stand in the wind until it dissolves on its own. And when
it is fully dissolved, test it on your finger; if it is very liquid and soft in the
water thus prepared, pour ochre and a completely-ground peachstone over it.
The peachstone should first be burnt, in order for the gold to be more
resplendent. And then place this concoction of glue and ochre and burnt
peachstone as described, and write where you wish, but first breathe on the
place where you apply the concoction described above. And place over it the
gold for writing, and once it is dry burnish it very gently with a peccary tooth,
and thus you will work well [with] the gold. Likewise, [4r.] in order to make
size for applying gold, take the skin of a conger-eel, and set it to boil until it dissolves on its own, and strain it in a strainer, and make size of ochre and peachstone. And place the gold for writing on this size made of fish.

Chapter 4. On gold. If you wish to apply the gold with a dobra or a crown or a florin or with a gold ring, take rock-crystal and grind it well and take an egg-white, well fried, and gum, and temper [it] with this, and make a mass. And place this mass where you wish and let it dry, and take a dobra or a florin or a crown or a ring as mentioned, and rub it well against the mass. And whatever part of the mass becomes brilliant will not come off. And then weigh [4v.] the dobra and you will not find there to be any less of it.

Chapter 5. On how to make fine blue. When you want to make blue that resembles Acre [ultramarine], take a large new pot, make four holes in it, and place two iron rods in these holes, in the form of a cross. And then take leaves of sterling Luna, that is, very thin leaves of sterline silver, and smear them with honey, and place them on the iron rods in such a way that they do not touch each other. And then pour into the pot strong vinegar, enough to reach the iron rods and not higher. And then seal the pot well with strong clay, and place the pot in hot animal manure, such that it be buried [5r.] in it up to its mouth, and be well covered for twenty-two days. And at the end of these 22 days, unseal the pot and you will find in its mouth some fine blue, and scrape it with a wooden or reed spatula. And then return the leaves to the pot and let it stand as many days as you did before, and in this way you will make good blue, and you can make as little or as much as you need.

Chapter 6. On blue. In order to temper blue, take gum arabic that is brilliant and finely divided in water in a cup. And then take this cup where it stands and strain it through a linen cloth. And take a third of an egg-white and put it, with the gum arabic, in a retort or bowl. On that note, you should know that the blue must be renewed each day, for if the that water sits for too long a time [5v.] in the blue it will turn black; so do this two or three times a day. And take from the gum arabic and egg-white and write with it. Beware of shiny blue; that which resembles dark violet is good. For blue I give you [this sign] to recognize it: place a little of it on your tongue or palm or fingernail, and if you smell it as it usually does, it is bad.

Chapter 7. On blue. In order to temper blue, take ultramarine and grind it well with lye made out of vine branches lightly. Collect in a shell or bowl and wash it with the lye made out of vine branches, and grind it again lightly with
a little rose [color]. And write whatever you wish, or illuminate, or paint, or temper it with a little bit of egg-white with gum. And do not let it sit from one day [6r.] to the next, for that it would turn black.

Chapter 8. In order to make rose, take one ounce of fine brazil-wood, and scrape it very fine, and set it aside. And then take a quarter ounce of alum and take two pennyweights of white lead and grind it with the alum in a mortar and set it aside. And then take the brazil-wood and place it in a cup [made] of malega, and put in the other powders with the brazil-wood, and pour urine over them until they are covered. And let them stand thus three whole days, always stirring them with a stick 5 or 6 times each day. And then pass it and strain it through a linen cloth above a trough made of gypsum or chalk-stone. And let it soak in the [6v.] trough, and when it is dry, scrape it very well with a spatula, and keep it carefully from the air. And when you want to work with it grind it with hum water.

Chapter 9. In order to make another rose color, take brazil wood, as much as you need, and scrape it very fine and place it in a small new pot. And place in the pot lye of vine branches, so that the brazil wood is covered with it. Put it on the fire and heat it enough for the lye to take up the substance of the brazil wood. And take two part alum and at least a half a part of chalk and grind each one well by itself. And then mix it and grind it together, and make, as you already know, rose out of alum.

Chapter 10. In order to make very fine [7r.] red lead, take white lead, as much as you wish, and grind it and sift it, and toss it in a broad bowl or bowls. And take it to a glazed furnace, and leave it stand for twenty-two days. And after these days take it out of the furnace, and you will find very good red lead. In this way you will make as much as you wish.

Chapter 11. In order to make very fine verdigris, take very thin leaves of copper foil and moisten them in very hot and strong vinegar. And put them in a pot leaning on its side, and smear the mouth of the pot with honey and cover it with potsherds, and bury it under the manure of large animals, and let it stand there for thirty-one days. And after these days take the pot out and you will find verdigris, and scrape it with a spatula. And [7v.] if you want to make more, repeat as directed, and you will have good verdigris.

Chapter 12. On another kind of verdigris. Take a bowl and half-fill it with well-putrid urine, and take a brass basin, very well washed from bottom to top, and place it above the bowl so that the urine does not come within two
fingers' distance of the bottom of the basin. And the bottom of the basin should be smeared with good honey, the basin should be half-filled with that same urine, And above it place another bowl upside down, and above the bowl place coverings for pack mules, and pour the urine from the basin into the bowl underneath. And look at the bottom of the basin and you will find the honey that you placed there has become verdigris. And scrape it with a spatula and [8r.] keep it in paper. And if you wish to make more green, smear the bottom of the basin with honey and do as you did before, and this way you will make as much as you wish. And for tempering this green, when you want to work with it, grind it very well beforehand and place in it a little bit of well-ground saffron, and temper it with gum-water, so that the devil will not then remove the color.

Chapter 13. In order to make fine carmine, take a large new pot that holds four açumbres of water, and fill it with human urine. And mix it for days, and make it very clear all the while so that it gives off foam. And once it is very clear and skimmed, take a [8v.] large bowl and place rye-straw over it, and above the straw a linen cloth. And on the cloth place ashes of vine branches, two parts, and a third part quicklime, and place a pot underneath. And throw on the lye the strained urine that you strained through fried meat and continue straining it until the pot is full of this strained lye, in such a way that there are four açumbres of it there. And place it on the fire until only two fingers of it are left, and on the fire put another pot full of clear urine with the strained lye and heat both. And into the pot of clarified urine with the strained lye toss one pound of lac, and heat it gently, all the while stirring it with a slightly forked stick. And when the lac is melted, strain it with a linen bag, and place a basin underneath; whatever remains in the [9r.] bag, place it in the pot of strained lye, which you have kept on the fire with gentle heat, until it is melted, stirring with a piece of wood. And then strain it separately with the bag containing the powder. Thus you can make carmine of two kinds, though first you must clarify the urine.

Chapter 14. For another kind of carmine, take a pot of clean and tepid water in such a way that you can dissolve a pound of alum, and take one açumbre of this alum water. Pour half of it into a pot and the other half into another pot, and stir it with a stick. And then let it clarify, and when it has settled continue pouring off the water that is floating. And when it is so clear that you cannot remove any more water, place them in separate linen bags and hang them up [9v.] so that they drip over separate pots or bowls. And that which is strained, if any, remove it and return it to the bag, and do so until it comes out clear. And once it is clear, make small particles like chick peas and place them
to dry in the sun, which should be gentle, and if the sun is strong place a sheet on top of them. And once they are dry, keep them as do with them what you will.

Chapter 15. To make vermilion, take five pounds of quicksilver, that is mercury, and place it in a bottle or large glazed bowl, and take a pound of very fine virgin sulphur. And pour the powdered sulphur over the quicksilver little by little until it is well incorporated, always stirring it with a dog’s foot that has its hair and wool, until the fire turns to ashes. [10r.] And once the fire has thus died down, place it in two new pots that are made like bottles, broad below and narrow above. And seal them, leaving only a small hole through which the vapor will escape. And place the pots on the fire on their holders and cover them well with clay, and place a bowl over the holes. And when you see the smoke coming out red and not malodorous, place a thin spit in it. And if anything sticks to the spit, remove the pots from the fire and let it cool. And once it is cool break the pots and you will find the vermilion made. With these measures you ill made as much vermilion as you wish: for a terça of mercury take five pounds of sulphur, and for five pounds of mercury take one pound of sulphur. And regulate the first in such as way that it does not [10v.] burn, and keep the fire moderate, neither quick nor slow. On this note, if by chance the vermilion burns, break the pots and grind it and incorporate it and mix it with another measure of mercury and sulphur, and place them in other pots and proceed as described. And pay attention to the vapours that escape, thus you will never ruin anything.

Chapter 16. In order to place gold on a sword or a knife, take the ends of carbonized ashes and place them in the forge until they are very red. And then remove them and place them on a board, and pour two handfuls of ground salt over them, and grind it all together. And then add two ounces of sal ammoniac [and] a half-ounce of verdigris, and knead it all very well with strong vinegar. And first have the sword or knife cleaned. [11r.] And, as if you were writing, place some of these ashes where you wish to make letters or designs. But first have it smeared with vegera boli and with azarcoanboli. And if it is winter time, let the sword or knife stand two days without cleaning. And if it is summer, let is stand one day, then wash and keep your weapon, for it is already adorned.

Chapter 17. In order to dye bones and sticks whatever color you wish, take a piece of box-wood or any other kind of wood, and boil it in olive oil three times. And then remove it and pour powder from ground sulphur over it, and let it stand for three days. And then clean it and it will be black outside and in.
Chapter 18. In order to color bones [11v.] red, take lac, as much as you need, and dissolve it in very strong vinegar, together with a quart of sal ammoniac. And then boil the bones or the wood in this mixture until they turn red and the color sticks, for this dye appears read inside and out.

Chapter 19. In order to color box-wood or another wood a beautiful black that resembles jet, take iron filings and copper filings and plain salt and litharge [of silver] and litharge of gold, which is found in arsenic, an ounce of each one, and place them in very strong vinegar for thirty days. And then boil them until half the vinegar is gone, and then take vitriol and temper it in water until it is a little thick. And put [12r.] the wood and the bones in it many times, taking it out into the sun each time. And you will see that it will become black inside and out, and this color will never disappear from the wood or the bones.

Chapter 20. In order to make bones or handles a green color like that of verdigris, take verdigris and sal ammoniac, two ounces of each, and grind them in very strong vinegar. And place in this the bones or handles in such a way that they are covered by the vinegar and the powders. And leave them to settle until they become a green that pleases you. And for better results boil them in a copper kettle, and if in this dye you place any kind of wood it will turn a very beautiful green.

Chapter 21. On filed bones to make chess pieces. When you want to make bones [12v.] with fire or without fire, and to make many, if you wish to do so, take cow bones on which there is no meat at all, or ivory bones, and file them well with a file until they are filed like iron filings or sawdust. And place these filings in a glazed pot with very strong vinegar, and be sure the pot is well covered and encased with clay around the outside. And then take five ounces of cuprous oxide and weighted garlic in the amount of one ounce, and heat them in four ounces or more of red vinegar. And cover those bones with this vinegar, and stir them well with this concoction. And put it one the fire until they melt, and when you see that they are melting and coagulate like lead, and you want them to remain white, take [...]

[13r.] [Chapter 24... ] rags, sunflower juices, and grains. And once you have ten or twenty rags, or one that is large, full of juice, take a bowl or ceramic pot full of human urine and place it on top of two crossed staves, which should not touch the urine. And place the rags stretched out on top, and let them stand there for nine or twelve days, stirring the urine four or five or six times a
day, and turning the rags from one side to the other until they are colored not of urine. And the more putrid and fetid the urine is, the better the color it will make. And once they are colored with the vapor of the urine, place them in the sun until they take on the color of mulberry. When the rags are well colored and dried, keep them well away from winter air. When you want to illuminate or work with them, [13v.] take a well-washed retort or a shell and with scissors cut a bit of the sunflower rag, and place it in a conch shell or retort and pour gum-water on it. And once the rag is well soaked with it, stir it well and you can work with it immediately; for if it stood there more than one day, it would immediately spoil and lose its color. And thus each year you can make as much as you wish.

**Chapter 25.** Whoever wishes to work with gold or other colors, and how they should be made and mixed, it should be done this way, which is already well tested. First, when you wish to apply gold, take ochre and white lead, as much of one as of the other, and a little chalk, and mix all these things together and grind them thoroughly and very well with egg-white [14r.] that is very thin and light. And if it very stiff, add water to it and grind it well, and if it is very light and egg-white to it. And test this on a piece of parchment. On the place where you wish to apply the gold, apply this concoction with a brush, and before it dries place the gold upon it. And then burnish it very well with a swine's or horse's tooth.

**Chapter 26.** In order to temper blue, take egg-yolk in such a way that no albumen goes with it. Then grind this blue very well in a ceramic bowl, and take this egg-yolk and mix it with the blue. And grind it all together very well, and once it is well ground, place this blue in a pitcher and add water to it, and place your hand and mix it with your finger many times. And as soon as you see this water appear above the blue, and once you have stopped mixing it, then [. . . 14v. . . ] sunflower. And it should be very pure, and very clean, free from all impurities. And as soon as this is done, temper it with gum-water and then write with it. But before you add water, be sure that the water has well dried from the blue. And if you wish you can add egg-white [or] brazil-wood to give it a better color.

**Chapter 27.** If you wish to make good rose-color, take brazil-wood, as much as you want, and scrape it well over a conch or retort, then add alum to it. And once you have done this, take the urine of a chaste man and add pour it over the brazil-wood and the alum until they are well-covered, and let them stand thus for three days. And then take a piece of chalk and throw some of its powder over this brazil-wood until it seems that there is as much of one
[15r.] as of the other. And then let this concoction stand for a day or two. And then take this rose-color and grind it with gummed egg-white, and write with it. If you wish to make indigo, put blue in it, and if perhaps you wish to make a black color, put black in it. And if perhaps you wish to turn white color black, add black to it and white and take brazil-wood and place it in a white cloth and strain it over chalk. Know that the principal colors are ten: blue, oripiment, and vermilion, green, Sufi carmine, sunflower, saffron, red lead, white lead, brazil-wood. When you want to thin egg-white add the sap of a fig tree to it, and thin it very well, clear as water, for you work.

[15v.] Chapter 28. If you wish to make green and to temper it, add vinegar and green and egg-yolk and grind it all together. There should be three parts green and a fourth part yolk. And if you wish to turn it another color, add saffron to it, and if you wish to turn it another color, mix ceruse into it, and it will appear green and white in the shade.

Chapter 29. If you wish to temper blue, add water and grind it with it a little, and once the water has dried off, if you wish to turn it another color, add ceruse, that is Leo, and egg-white. And if you wish to turn it sky-blue, add three parts ceruse to one part blue.

Chapter 30. If you want good carmine, take carmine, water, and half as much egg-yolk, and grind it all together. And you want the color to resemble blood, add to it a third part of blue.

Chapter 31. If you wish to temper saffron in order to write with it, add egg-white and do not grind it nor mix anything else with it. And if you wish to put it in another similar color, add oripiment, well ground with egg-white. If you wish to shade with it, add well-ground blue, as much as a third part and no more.

Chapter 32. If you wish to temper oripiment, temper it with water and with egg-white. And then remove this water from it and work with it, for it needs no other preparation.

Chapter 33. If you wish to temper black indigo, take gum-water and egg-yolk and grind it all together. And if you wish to temper or work [with it], add white to it until it resembles the color of clouds.
Chapter 34. Take blue and temper it with gum-water and with egg-yolk, and pour carmine or brazil-wood over it to shade it.

Chapter 35. If you wish to color with light blue, shade it with pure blue. If you wish to color with carmine, shade it with carmine or with brazil-wood or with vermillion. And if you wish to color with light indigo, shade it with pure green. And if you wish to color with red lead, shade it with carmine or brazil-wood or red. And if you wish to color with vermillion, shade it with brazil-wood or carmine. But all colors can be shaded with black.

[17r.] Chapter 36. Take saffron and gum and egg-white tempered with all these things, and place it all in the spot or letter that you wish to make. And take the leaf of gold and very neatly and carefully, in a house without wind and without people, so that you do not speak, and a bandage or a rag over the mouth and nostrils, so that you do not breathe on the gold, which is tied around the head. And place it over the above-mentioned items and let it stand for one hour in the daytime. And then take a little cotton and place it gently over this leaf, and whatever must remain for the letter, let it stand, and remove the rest. And once you have done this, get hold of the burnishing iron and burnish it very well with a swine’s tooth.

Chapter 37. The mixtures of colors as follows. Whoever wishes to makes a color like blue or carmine, take [17v.] a half blue and a half carmine, and third part white. And if you want it redder, put more carmine, and if you want it whiter, put more white. And when you want to pain or illuminate, take blue and carmine, a half each, and mix it all with gum-water and egg-white, and you can paint or illuminate. And put more temper in it for it to be very light.

Chapter 38. If you wish to apply gold to a book, take boiled parchment water, which is good and strong and apply it with a brush once or twice in the place where you wish to apply it. And then grind chalk in vigorously boiling water and put in it a little saffron and apply it three times where you want to apply the gold. And once it is dry apply as much as you wish, and apply the gold [18r.] with cold gum-water. And then burnish it vigorously with a swine’s tooth.

Chapter 39. If you wish to properly burnish gold or silver, polish the burnishing iron well and then open your mouth and breathe upon the gold warmed with a clean hand. Be sure the burnishing iron is hot. And cover the gold with an old linen cloth, and then burnish it another time over the cloth,
heating the burnishing iron once again, over the cloth, and breathing with an open mouth.

**Chapter 40.** If you wish to make glue, take two pieces of parchment and wash them very well, and then place them in a new [old] pot, and heat them vigorously until they are well boiled. And once the first water has disappeared, add more water into it, and as soon as you wish to try [it], take a little of it and place it in your palm. And place one hand with the other, and if your hands grip, it must be that your glue is well made.

**[18v.] Chapter 41.** If you wish to make ochre, take red, tempering [it] as much as you please, and mix it with yellow that is good. And if you see that it is very colored put a little black, and it will be good, and if it becomes too black-colored put a little at first and then put more, as much as the other.

**Chapter 42.** If you wish to make varnish, take a pound of nobra grease (or two pounds, or as much as you wish to make), and take a pound of grease and two of linseed oil and place each one in its own pot. The pots should be new. And cook each one vigorously and be sure than neither water nor anything else fall into them, and heat them at your discretion. And when you think that the grease is cooked take a clean piece of wood and stir the grease with it. And whatever [19r.] sticks to the wood, scrape it off with a knife and put it into the pot, and continue to test it until it does not stick. And always stir it with that piece of wood, and once you see that it is thin and does not stick to any there, take a hen’s feather and put it in the pot of oil. And if you see that the feather is swelling, assume that it is cooked, and take it from the fire. And pour it over the grease, always mixing it. And when it is thin and fine, then it is done. And if you want to make gold color from that varnish, separate half or as much as you want to make, and strain it from what remains at the bottom of the pot. And then take an ounce or two of aloe, or as much as you wish to make, grind it well in a mortar. And take the powdered aloe and place it in the varnish, and with the pot on the fire, let it boil. And then take a little foil and place it [19v.] on a board, and apply some of this gilding to the tin or silver foil. And if you see that it is good, remove it from the fire, and if not, place more powdered [aloe] until it is well gilded. Remove it from the fire and gather it up, and thus it will remain good.

**Chapter 43.** Take two large pieces of bran and place them to soak in a glazed shell, and as soon as they are soaked, strain [them] through a clean folded cloth. And with this water apply it where you wish, and gold over it. And burnish it to taste with a swine’s tooth.
Chapter 44. If you wish to make good rose-color, take brazil-wood and grind it in a mortar, until it is well ground. Sift it, and take a little virgin lime and place it in a glazed earthenware bowl with water until the water becomes clear, and with this water grind the brazil-wood, [20r.] and put in it a little alum, temper it with gum, and write with it.

Chapter 45. If you wish to make good green, take a blue-green lily and take alum water, and wet the rags in the alum and then in the juice of the lily and do as you did with the sunflower [juice] and urine.

5. Commentary

f. 1r.

1 שְׁכָרְפְּיוֹתִינָם

se.komeinça

'begins'. ModPg. começar < CUM+INITIARE. This is one of the numerous instances in which n appears where the modern orthography has <m> or Ø (e.g. לינפיו 'clean', תנפרדועי tenprado 'tempered'). Indeed there is only a single instance of a nasalizing context spelled with ד m (see note line 436). Blondheim also uncritically interprets the digraph yy as the Castilian-style diphthong <ie> in this and other forms in his transcription (e.g. bein 'well'). It should be noted, however, that the orthography alone does not strictly preclude this reading, since y may stand for any non-low front vowel.

3 בְּאוֹרָו SHEI

oro sol

Blondheim (1930: 119) states that sol 'sun' is the name given by medieval alchemists to gold. Other such glosses within the text include אסטניאנו estanyo 'tin' and גְּבוֹר gubiter (line 9), ג'וגז azoge 'mercury' and ג'וגזן גְּבִיתו fuquitibo (line 10) or ג'וגזן ובּו prata 'silver' and ג'וגזן אסטיניאלו estinalis luna (line 80).
aluminar
'iluminate'. ModPg. aluminar 'light (up), give off light' < *allūmināre has clearly shifted in meaning, with the sense here taken over by a more recent importation from Latin, ModPg. illuminar < illumināre. The form used here has been relatinized, with its etymological /n/ restored.

kabidoar
'capitalize'. The more recent formation capitular < MedL. capitulare evidently replaced this word. The form used here could reflect either a verb formed on the basis of cabido < capitul, or perhaps a semi-latinizing spelling similar to kolorar (see note line 353).

komo te.este libro dišer e m'ndar adiante
'as this book says and guides you forward'. The clitic pronoun te (object of dišer e mandar) appears at the head of the clause (see a similar phrase in line 6). It is tempting to construe the a that is affixed to diante 'forward' (< denante < de inante) as a still-independent periphrastic future auxiliary on which both verbs depend, a phenomenon found elsewhere in the medieval language (Williams 1962: 207). Yet ModPg. adiante is attested early enough to here constitute the adverb on its own, and the š s spelling of the stem-final consonant in dizer points to the form here as a future subjunctive (ModPg. disser < dixerit) rather than a future indicative (ModPg. dirá, whose shortened stem probably originated in Vulgar Latin; Williams (1962: 222) does note that of the long infinitive was used with infixed pronouns, e.g. dizer-me-ha, until the fourteenth century).

ka si o fizeires
'because if you do (so). ka < qua (re), replaced in the modern language by porque (cf. Fr. car), and distinct from ModPg. ca 'here' < eccu hac. The diacritic p to indicate /f/ occurs inconsistently in the text.
tebéra prol
'gain advantage'. Future subjunctive of ter (ModPg. tiver < Latin perf. subj. TENERIT). Most etymological dictionaries derive prol < *prode < PRODEST, though it was possibly influenced by PROLES 'growth, progeny' (hence 'advantage, gain').

kraro
'clear'. Although the initial cluster is relatinized in ModPg. claro, here the form occurs without latinizing interference. Nevertheless, krara do ovo 'egg white' and klara occur together in a single sentence in chapter 27, and the variants klarifikar (line 176) and krarifikar (line 181)'clarify' also occur in consecutive chapters.

no almofaríš ko o azoge
'in the mortar with the mercury'. Although both of the terms here are Arabic loanwords (ModPg. almofariz < al-mihras and azougue < az-zuq), the <z> in the modern spelling has a different source in each. Yet the fact that the letters of the Hebrew alphabet have cognates in the Arabic alphabet allows the scribe to capture the etymological distinction not maintained in the Roman-letter spelling, by using צ s and ז z respectively. ModPg. com 'with' < CUM occurs here without the final consonant, which does appear elsewhere in the text. Based on this instance, the variation does not seem to be a function of whether the following segment is a vowel.

sal armeniko ides anoštar
'sal ammoniac' (ammonium chloride), paraphrased by the loanword (ModPg. nochatro) based on Ar. an-nušdar (Blondheim ignores this gloss in his translation). This word has caused some confusion among etymologists. Franca (1994) and others list the word as the attested but now-obsolete almoxatre, while Ferreira (1999) derives nochatro from nusdar. Corriente (1999) cites the ultimate source of the Arabic term as Pahlavi anōš ātaxš 'eternal fire'. The paraphrase marker ides 'that is',
which occurs throughout the text, is Latin *ID EST*, one of a very few words in the text with diacritic vowels; the others are *alfer* (line 54), *azarkoanboli* (line 219), *pinça* (line 314), and one occurrence of *fuste* '(wood) stick' (line 174).

16 **א項ה רורדהמ**

*buah rodoma*

'a bottle'. This word appears in various guises in the text: *ua aredoma, d.aredoma, ko.a arodoma*. Most etymological dictionaries indicate *redoma* 'glass sheath' as being "de origem obscura/incerta/controversa," though some cite Ar. *ra∂ûma* as the source (Silvera Bueno 1967 suggests more specifically a Mozarabic dialect variant).

18 **רמא די דְּנִיוֹד הַלָּאֵר**

*ğeah de çiniz’h do lar*

'full of ashes from the hearth'. Words spelled in ModPg. with <ch> such as *cheio* < *PLENU* are most often spelled in this text with the Hebrew [ŋ] augmented by a diacritic (presumably meant to indicate [ŋ] or [dʒ], which have since deaffricated). ModPg. *cinza* 'ash' < *CINITIA* (da Cunha 1982 suggests *CINISIA*), derived from *CINIS*.

f. 2r.

23 **כראה**

*koah*

'with the (f.)'. Although this preposition is normally spelled with an overt final [ŋ], on occasion the scribe drops the nasal letter and fuses it to the following article or pronoun. In the modern language this preposition is always written separately (spelled com), but orthographic fusion does occur with other prepositions, e.g. *na < en+a, nesta < en+esta*. In this text (and throughout the corpus) *en* is usually written out in full (e.g. *en uah, ModPg. numa, en akel, ModPg. naquele*), though some contractions do occur (e.g. line 410 *enesta, line 410 en’sh*), and are generally more frequent in *O libro de mağıka*.

24 **אגרארס אֶל פְּאָמָא דְּרַואָר**

*ağaras un pao de oro*

'you will find an ingot of gold'. ModPg. *achar* 'find' < *AFFLARE* 'sniff out'. The fricative, which derives from a non-sibilant Latin sound, is
spelled here by 'ג. Mod Pg. pão ‘bread’ < PANE here retains more of its original meaning of 'loaf' (of bread) by extension to 'ingot' (of iron).

26  פָאֶז אֶה אֵל טָע אֵל קֹלְה רַל פּוֹל
faze ko.ele tu ah prol
'do with it what you will'. This is probably an incorrect division of the possessive adjective tua (this is in fact the phrase cited by Blondheim to illustrate how the scribe "stupidly divides common words"), with prol as direct object of faze.

27  אֵסְטֵה אוּר דִּיֵּן אוּר מַוסִיקו
este oro disen o oro musiko
'this gold is called aurum musicum (bisulphide of tin)'. As in medieval Spanish, disen takes a direct object, in the sense of ModPg. chamar 'call'. musico < MedL. musicaicum 'mosaic'.

30  קֻליָיָא
kulyar
ModPg. colher 'spoon' < COCHLEÆRE. The text contains several instances of words where an expected /e/ or /i/ appears as /a/, e.g. fuëgatibo 'quicksilver' in the following line (but fuëgitivo elsewhere), as well as other instances of kulyar in this chapter (cf. ModSp. cuchara). By contrast, the three-letter system leaves the identity of the vowel in the first syllable (apart from its backness) ambiguous.

f. 2v.

32  אַלוֹמָפָאריֶש
almofaris
'mortar'. As opposed to line 11 above, the etymological identity of the final consonant is obscured by the scribe's use here of the "standard" sibilant letter š.

35  סֹולְטָמָה מְנֵנֵי
solta mente
'freely'. A syncopated form of the past participle of SOLVERE (*SOLTUS < SOLUTUS) serves as the basis for ModPg. solto 'free' and soltar 'let go'. The modern language does not seem to have preserved the adverbial use of this word.
fomègé
'smokes'. ModPg. *fumigare < fumigare. As preceded by *ata ke 'until', the verb is properly in the subjunctive; yet the /g/ of the stem is not maintained as it is be in ModPg. *fumigue but is instead softened by the front vowel, as indicated by the diacritic on ą g.

vezęș
'times'. This is another sibilant-rich word that occurs in many variant spellings. The use of ą s in the final position is especially rare elsewhere in the corpus (but note the use of the letter's final-position form).

kal bißa
'quicklime'. ModPg. *cal 'lime' is not the reflex of classical CALX, -CIS but rather derives from VLat. *calis, a derivative of the classical accusative (Houaiss 2001). Note the spelling of *viva, in which both instances of /v/ are spelled using ą, albeit in one case missing the diacritic to signal the fricative reading, even though using ą would not yield any of the potential ambiguities (cf. chapter 3 § 2.3.2)

çarada
'sealed'. ModPg. *cerrar < SERARE. This is another instance in which a word in the text appears with ą, representing /a/, where /e/ is expected (cf. note line 30).

des amanyaah
'from morning'. This preposition no longer occurs in the modern language as an free-standing word (cf. ModFr. dès 'from'). It also occurs frequently in the text in the combination ą des.ke 'as soon as' (cf. ModPg. manhā). The hiatus left by the deletion of intervocalic /n/ is spelled here in as much detail as the orthography affords, with two ą as well as ą for word-final /a/.
eskebralyar
'break'. ModPg. quebrar < CREPARE, with r-metathesis also preserved in the modern form (cf. chapter 7 § 2.3). The verb formed here is prefixed by EX- and suffixed by -ALIA, a noun-forming affix with a collective meaning, i.e. based on a noun *kebralyla 'broken-off parts'.

avondar
'cover (with water)' < *ADFUNDARE, with an unexpected progressive voicing of the root-initial consonant. Only nominal forms of this root are found in Modern Portuguese, e.g. fondo 'bottom'. The use of double-
\textsuperscript{n}wav to represent a CV syllable is extremely rare (cf. \textsuperscript{n}cervo above). Indeed it is highly unconventional in this writing system to see any doubled letters other than \textsuperscript{s} and \textsuperscript{v}. It is conceivable, of course, that as in contemporaneous Roman-letter orthographies, the double-letter spelling in fact indicates a voiceless segment (cf. Domincovich 1948).

alfer
Given as a more specific name for \textsuperscript{f}olys de \textsuperscript{g}upiter 'tin leaves', this is one of five words in the text with diacritic vowels added (see note line 13). In this context it appears to have little semantic relation to either alferes < Ar. al-f\textsuperscript{a}ris 'horseman' or alfir, a variant of al\textsuperscript{f}im < Ar. al-f\textsuperscript{l} < Pers. pil 'elephant', the chess piece usually represented as the bishop in the modern Western form of the game. It is also possible that it is a metathesized form of \textsuperscript{m}ar\textsuperscript{k}el \textsuperscript{l}ivory without the unetymological \textsuperscript{m}- < Ar. \textsuperscript{a}zm 'bones' (cf. note line 253).

brunyar
'burnish, polish'. ModPg. brunir, borrowed from French, itself based on a Germanic loanword. This form shows not only an unexpected \textsuperscript{s} a in the final syllable (unless the verb has simply been treated as belonging to the first conjugation), but also an unetymological palatal /\textsuperscript{n}/ (although not in all occurrences, e.g. line 63 brune-o 'burnish it').
MedL. BRUNUS is attested in Isidore of Seville (6th c.) and the glosses of Reichenau (8th c.), so the verb here could be a native formation based on *BRUNIARE.

grude de ċervo
'stag's glue'. ModPg. grude < CLUTINE, with the l > r seen also in the initial clusters of other words, e.g. krara < CLARA. ModPg. cervo < CERVUS, with rare use of ŋ, though etymologically justified, to represent CV syllable (cf. נונדרא אנדאר below).

desače
'dissolves'. This could be considered an ad hoc borrowing from Castilian, as shown by the lack of any consonantal segment following the prefix des- (ModPg. desfazer, ModSp. deshacer 'undo'). More native forms רמשיאמש רמשיאמש desfeito (line 56) and רמשיאמש רמשיאמש desfaga (line 65) do also occur. This and several other more obvious "errors" could point to a copyist of Castilian extraction (see chapter 7 § 4.3).

karoço de pesego
'peachstone'. Note that the sibilant resulting from assimilation (ModPg. pêssego < PERSICU) is not in this instance spelled with the Hebrew letter ס, which normally serves this purpose. The ס in karoço is indeed not the reflex of a simple Latin /s/, though the etymology of the word is not certain. Most dictionaries cite VLat. CARUDIUM, based on Gk. karydion (a diminutive of 'hazelnut'), though Houaiss (2001) also suggests a form *coroço based on COR, CORDIS 'heart' as the source.

resprandecente
'glowing'. ModPg. resplandecente. This form as used here shows not only the morphology associated with the Latin iterative ending -ESCERE, but also the unrestored PL > pr in the second syllable.
konfação
'concoction'. While ModPg. confecção is probably borrowed from French, this is the more native development of CONFECTIO, as shown by the lack of obstruct in the palatalization of the -CT- cluster. The form also displays the /a/ for expected /e/ that occurs throughout the text. In other occurrences it also occasionally lacks the * representing /y/ in the final syllable (e.g. line 62).

onde puğeres
'where you place (it)'. Note that the sentence immediately preceding uses u < UBI as the locative pronoun (cf. Fr. où), a form that appears elsewhere in the text but that has since disappeared from the language.

enõuto
'dry'. ModPg. enxuto < EXSUCTU, past participle of EXSUGERE (the related EXSUCÂRE yields ModPg. enxugar 'dry (v.)' and the semantic doublet of this adjective, enxugado). The unetymological /n/ could have developed by confusion with similar words beginning with en-.

gabari
'peccary'. ModPg. javali 'boar' < Ar. ġabalī, an abbreviation of ħinzîr ġabalī 'mountain swine' (Silvera Bueno 1965 cites the form with r as archaic). Many of the techniques in the text call for a dente de porko 'swine's tooth', and it is possible that the intended reference is not in fact different here.

pasa mentre
'gently'. Most of the adverbs in the text, indeed in the Judeo-Portuguese corpus as a whole, occur with the -mente orthographically separated. This is the only occurrence in this text with the intrusive /r/ that occurs frequently in medieval Ibero-Romance, probably under the influence of DUM INTERIM > MedSp. (do)mientre > ModSp. mientras(s) (Penny 1991: 118).
sesa
'size'. A pore-filling ingredient of certain glutinous materials. Like the English term, the Portuguese word is probably borrowed from OIt. *sisa 'painter's glue', an aphetic form of *assisa, which ultimately derives from the past participle of *assidere 'seat, settle'.

koyro de kongrio
'conger-eel skin'. Unlike ModSp. *cuero, ModPg. *couro < *coriu has given way to *pele in the general sense of 'skin, hide', retaining only the meaning of 'leather' (cf. Fr. *cuir). The form is spelled here with an /oj/ diphthong, a variation also seen in *kousa 'thing' (cf. ModPg. *coisa; see chapter 7 § 2.5).

frolino
'florin'. A monetary denomination named for the lily pictured on the coin, and a term ultimately based on *flor- 'flower'. The form here shows the l-r metathesis that has occurred in words such as ModPg. *milagre < *miraculu (cf. chapter 7 § 2.3). It is listed among a set of metallic objects that may be used for applying color, including the *dobra and *eskudo, two other medieval denominations, or an *anel 'ring'.

akra do obo
'egg-white'. Although *krara (de ovo) '(egg) white' appears throughout the text and the form here is likely a simple scribal error, it is possible that this is an instance of /l/ having been deleted after l-r metathesis seen elsewhere (cf. frolino above), i.e. clarum > *kralo > *krau > kra. However, other forms such as *mau < *malo < *malum, which preserve a diphthong, might argue against this. Note the "unetymological" spelling of ovo with ב, a strategy that avoids writing three consecutive ".

pretado
'fried' (lit. 'blackened'). Most Portuguese etymologists derive ModPg. *preto 'black' from *pretu, a regularized past participle of *premere
'press' (replacing PRESSUS). Corominas (1980), however, describes this etymology as "increíble," citing the paucity of similar models (e.g. Fr. assiette 'plate; seat (on a horse)' < *AD+SEDIITU, replacing SESSUS as the participle of SEDERE 'sit'), and describes Sp. prieto 'dark; tight' as a back-formation from apretar 'grip, press' < APPECTORARE, based on PECTUS 'breast(bone)'.

72

بيع يالني
esfriga-o
'rub (it)'. ModPg. esfregar < *EXFRICAE, replacing the more evolved EFFRICAE with an assimilated prefix.

74

ف مويليارا
se tolyara
'will disappear'. ModPg. tolher 'take, rob' < TOLLERE. This form again shows /a/ for a modern form with /e/ (cf. note line 30).

f. 4v.

77

اكري
akre
'ultramarine'. Blondheim capitalizes this word in his translation and inserts his own gloss for this shade evidently meant to resemble blue.

78

فوراكوس
furakos
'holes'. If the lack of diacritic on the initial consonant is deliberate, then it is in fact a bilabial stop /p/, suggesting a word akin to ModPg. buraco 'bore'. However, forms with a diacritic, i.e. furako, also occur (e.g. line 197). In fact this form is cited as a variant in da Cunha's (1982) entry for buraco, though the etymology of the word is listed as being "de origem controvertida." Alternatively, the word could be related to It. foro 'hole', based on FORARE 'pierce'.

79

ك رنيمباي أك ماكلورا دي كروس
ke venyao en manera de krus
'that they come in the form of a cross'. 3rd pl. pres. subj. of vir 'come' (ModPg. venhão < VENIANT), used here in the sense of 'be arranged'. Note the use of the "basic" sibilant letter in krus (ModPg. cruz < CRUCE), even though the sibilant does not represent Pg. /s/ < Lat. /s/.
aberest liminas destenališ lun
'take leaves of tin, (that is) Luna’. The verb haver, which in the modern language is restricted to only a few auxiliary functions, is used here in the very lexical sense of 'take'. The 'i in the first syllable of liminas 'leaves' is unexpected, especially given that laminas occurs just below in line 88, a reversal of the usual pattern seen in this text where $ occurs for expected /e/ or /i/ (cf. chapter 7 § 2.6). A word akin to 'sterling' (Blondheim’s translation) appears to be the sense of estenališ, since it is glossed by prata 'silver' immediately following. Blondheim capitalizes Luna but does not translate it.

84
atapa
'close, seal'. ModPg. tapar is based on a noun tapa 'cover, lid' < Gothic *tappa. The initial a-, which occurs on several other verbs in the text, may therefore in this instance may be construed as a denominal verb-forming prefix.

85
soterada
'buried’ < *sub+terrata. Although the modern language uses enterrar 'bury', the sub- prefix occurs in more recent Latin borrowings such as subterrâneo 'underground’. A variant form $ son is used as an independent preposition in line 138.

f. 5r.

87
arapa-o
'scrape (it)’. ModPg. raspar < Gothic *hrapôn, but again with a prosthetic a-. Note the orthographic ambiguity posed by the enclitic pronoun: although there is no question as to its pronunciation, it is not clear whether the $ should be construed as representing the verb desinence or the diacritic that indicates the vocalic value of ą.
paleta de palo
'wooden spatula'. The modern term *paleta*, though akin to native *pá*
'shovel' < *PÁLA*, is in fact borrowed from It. *paletta* 'little shovel'. The
form *palo* does not appear in Modern Portuguese, and is most likely a
latinizing spelling of ModPg. *pau* (cf. note line 170).

komo uberes gisado
'as you (will) need'. Although occurring only once, this appears to be
an idiom *aver gisado* (in future subjunctive, ModPg. *houveres*), along the
lines of *ter mester* 'need', rather than a past-tense form of *guisar* (based
on *guisa* 'manner', based on a Germanic loanword *wisa*).

a.terça parte
'the third part'. The feminine definite article is often procliticized
graphically, probably due to its similarity with the Hebrew פ ha-, which
is obligatorily written adjoined to its noun. This shorter form of the
ordinal number (from TERTIA, vs. ModPg. *terceira* < TERTIÁRIA) can still
be found in some fixed expressions, e.g. *terça-feira* 'Tuesday'. Corre
(n.d.) has in fact suggested that the Portuguese practice of naming the
days of the week as a sequence of ordinals is due to the influence of
Hebrew, through the usage of New Christians in post-1497 Portugal.

ite debes asaber
'likewise you should know'. *ite* < *ITEM* is a Latinism that occurs
throughout the text (as with *ides* noted above, the final consonant, if it
was indeed pronounced, is not written). Despite ModPg. *saber* <
*SAPERE*, the diacritic on ɔ seems to indicate that [ɔ] or [v] is intended,
and may represent another Castilianism. Haury (1989) in fact cites
deeves de ssaber [sic] as a recurrent syntactic formula, so it is possible that
the prosthetic *a*- has a similar function here.

estuber
'stand'. This future subjunctive form of *estar* (which also occurs
transitively throughout the text in the sense of 'let stand, leave') does
not derive from classical STETERIT, but is based rather on a stem formed analogically from haver (Penny 1991). Note the ambiguity in the spelling of the vowel in the second syllable (cf. OSp. preterite estove).

longad"h mente
for a long time'. The first element clearly derives from LONGU (in fact, an alleged *LONGATA < *LONGARE), for which Recuero (1977) does list a variant longo alongside luengo 'long' in Judeo-Spanish. Note the orthographically separate -mente.

f. 5v.

kabidar-t-as
(you will) be aware of (it). Although this verb means what modern cuidar does, it does not derive from COGITARE like the modern verb, but rather from an iterative *CAVITARE, derived from an original participle *CAVITU (from CAVERE ‘beware, guard’). Machado (1967), by contrast, considers the syncopated classical participle CAUTU as the innovated form with respect to the participial source of the verb used here.

Although Blondheim transcribes the 3rd sg. copula with an acute accent as <é> to distinguish this from the homographic conjunction e, I have not added this layer of interpretation to my transcriptions, since no such distinction is made in the Hebrew-letter manuscript. With regard to the copula, Williams (1962) states that the -s (< EST) fell "because of the relation of this form to the 2nd singular es by analogy with the relation between 3rd and 2nd singular of the present tense of all other verbs." Since es here is unlikely to be 2nd person, this conservative variant could be construed as a synchronic allomorph used before vowels.
komo k′rdeo
'like a thistle'. ModPg. cardo < CARDU, with early vowel coalescence in the final syllable. The *y in the spelling, along with Blondheim's translation as 'violet', suggest that this is an adjective, perhaps < *CARDEU 'of thistle' on the model of vidro/vitreo (VITRUM / VITREUS) 'glass/vitreous' (note that the text does feature Fitro 'glazed' < *VITRATU, ostensibly based on a verb *VITRARE 'glaze').

para o konoçeres
'so that you recognize it'. This is the so-called inflected infinitive, ModPg. conoceres < imperfect subjunctive CÔGNÔSCERES.

deco koahda da vides
'lye of vine branches'. One of only two occurrences of non-final ḫ h, though it is most likely due to the scribe having revised what he first wrote as koa (based on coar 'strain' < COLARE) to more correctly write the intended koada < COLATA. Blondheim translates this term as 'lye' (ModPg. lixivia, which does not occur in the text), a strong alkaline solution leached from wood ashes.

eskreve o ke kiseires
'write whatever you wish'. Blondheim translate this as 'write wherever you please', interpreting the relative pronoun as u < UB (cf. Fr. où). This form has been replaced in the modern language by onde (see note line 61), and though it does occur elsewhere in the text, the presence of the ke following makes that interpretation unlikely. Note the spelling of eskreve with an unetymological ṣ for /v/ < Lat. /b/
rapa-o miudo
'scrape it until very fine'. ModPg. *miúdo* < *MINÚTU* used adverbially.

pon-o adeparte
'put it aside'. As opposed to the structure in line 102, this *ade-* cannot be construed as a form of *aver*, and may represent a particle of some kind in this adverbial structure.

pedra ume
'alum'. ModPg. *alume* has been relatinized based on *ALÚMEN*. The medieval forms *alumbre* and *ahume* cited by da Cunha (1982) show two possible outcomes of the development of the word after syncope of the second syllable, and both are found in the text. The former, however, must be considered a Castilianism, since the */mn/* clusters resulting from syncope were not subject to epenthesis in Portuguese (e.g. *LUMINE* > Sp. *lumbre*, Pg. *lume*). Although the modern form is masculine (as in line 179), it is possible that the form here is the result of a reanalysis of *ahume* as a feminine form plus the corresponding definite article.

maleg'h
'bowl'. Blondheim notes that "in modern Portuguese *malega* means a soup-bowl such as is used by country people. Apparently here it is used as a name of the wood of which such a bowl is made" (1930: 123).

pedra kri
'chalk'. Probably borrowed from French (modern *craie* < *CRETA*), since the complete lenition of the */t/* in the Latin term would not be expected as the native outcome. The synonym *gíz* (ModPg. *giz* < *GYPSUM*) occurs just before, and is the more frequent term used in the text.
leave it soak in a trough'. ModPg. deixar, the product of an apparently spontaneous change l > d in leixar < LAXARE (also found in the ModSp. cognate dejar), also occurs in the text. For 'soak', the modern language uses the prefixed form embeber < IN+BIBERE. ModPg. pia 'sink, trough' < PILA, with the regular deletion of intervocalic /|/.

'scraper'. Non-final ֜ is extremely rare in all Judeo-Romance writing, used almost exclusively as an allograph for ֚ in final position. Its presence here is probably due to the scribe having erroneously written the definite article ֚ a (cf. note line 104).

'a pot'. The native doublet ola 'clay pot' < OLLA of this Castilian loanword does not occur in the text (Ferreira 1999 lists it as a now-archaic regionalism). Note the of ֜ n in un'̷h, which like the <m> in ModPg. uma may simply be due to orthographic convention.

'mix it'. This word alternates through the text with its near-doublet meçer < MISCEF, whose participle MIXTUS served as the basis for the noun MIXTURA that gave rise to the denominative misturar used here. Both of the Portuguese verbs are often spelled with the sibilant ֚, since in both cases the sound is not the result of an inherited Latin /s/. A third term used occasionally is meçkrar/mezkrar (ModPg. mescrar < MISCULÆ; cf. ModIt. mescolare). Note how the use of ֚ here may be considered haplological, standing for both the /a/ of the verb desinence as well as the diacritic before the ֚ of the enclitic object pronoun /o/.
alvṭyalde

'white lead'. The modern form *alvaiade* < Ar. *al-bay∂d* does not contain the second /l/. Corriente (1992: 50) suggests that the liquid in this and several other words (e.g. *alcalde* 'judge, governor' < *al-q∂di* and *arrabalde* 'suburb' < *ar-rab∂d*) may reflect the preservation in early Andalusian Arabic of the lateral feature from older *d*, a segment known in Semitic philology as an "emphatic lateral" (see Steiner 1977; it may also be transcribed as <z> or <$s$>). The lateral feature is also seen preserved in Modern South Yemenite Arabic *abyal* 'white'.

tigela

'bowl'. ModPg. *tigela* < *TEGELLA* < *TEGULLUM* 'head-covering, straw bonnet', based on *TEGULA* 'tile', which more directly yields the doublet *telha* (Houaiss 2001).

az∂rkao

'zircon, red lead'. ModPg. *zarcão* < Ar. *zarq∂n*. The term also occurs at the start of this short chapter with its nasal consonant preserved in the spelling, i.e. *z∂rk∂n*. Yet the fact that it occurs with only vowel letters in the last syllable suggests that the nasal consonant had generally disappeared from speech (a number of other words feature this same variation, often in close proximity to one another; cf. note line 189). The initial a- may in this case reflect the preservation of the Arabic definite article, which assimilates fully to coronal consonants (although the word does occur elsewhere without the initial vowel).

azinya bre

akoçtadαh
'on its side'. Although the stem costa appears in many forms in the modern language, the sense of 'leaning, lying' has been taken over by other words (e.g. inclinar-se). Unlike some of the other instances, the prosthetic a- here quite likely derives from an etymological prefix AD-.

soterah son o estirko
'bury (it) under the manure'. Blondheim misconstrues soterah son as a single word that has been misdivided by the scribe, i.e. a noun based on SUBTERRATIONE, which he translates as 'burial earth'. If this were the case, however, we would expect the nominal suffix to be spelled with מ. In fact this is the same preposition attested in the Brotherton Passover text (ch. 6 § 3), namely OPg. so < SUB with an -n added by analogy with non, nin, etc.

mea-lo-as
'half-fill', with the object pronoun interposed between the stem and desinence. ModPg. mear < MEDIARE. Both da Cunha (1982) and Ferreira (1999) refer to this verb as a "popular form" as compared to ModPg. mediar, and in fact the former is the expected outcome, while the latter is a conservative form or more recent borrowing (it first appears in the fifteenth century, spelled <medear>).

urinas bein pudres
'very putrid urine'. The form pudre, deriving from the basic adjective PUTER, PUTRIS has been replaced in the modern language by pútrido, which is based on the participle of the verb formed from the same basic adjective, PUTRERE 'become rotten'.

bacio de latun
'brass basin'. ModPg. bacio < *BACCNUM < Gk. bacchinon, though da Cunha (1982) cites a feminine form in -a from the fourteenth century.
Although never spelled with initial v, this word also occurs in the text with the diacritic on b which presumably indicates a fricative pronunciation. ModPg. latão < OFr. laton < Ar. lāţiţin 'copper', itself probably borrowed from a Turkic language (cf. Turkish altyn 'gold').

147
enbroka
'place upside down'. Although this term is not preserved in the modern language, cf. ModSp. embroca 'poultice' < EMBROCHA, a loanword from Greek.

148
enšalmos
'coverings for pack mules'. ModPg. enxalmo is borrowed from Sp. enjalma < OSp. salma < SACMA, a Greek loanword (Ferreira 1999).

150
azinabre
'verdigris'. This variant lacks any indication of a palatal /n/ (cf. note line 135), a variant not mentioned in the etymological dictionaries. It may, of course, be simply due to a scribal error omitting the double-ë following ë.

f. 8r.

155
nao ah diablo kelyë tolya preş a akolor
'there is no devil who [could] then take the color'. Blondheim takes preş to mean 'worth' (as in ModPg. preço < PRETIU). Yet the word is more likely akin to ModFr. après 'after', which derives from the expression AD PRESSUM 'near', used here without the prepositional element. The diacritic in the spelling of 'devil' (ModPg. diabo < DIABOLUM) shows the vernacular lenition of /b/ to /v/, but not the deletion of /l/ (cf. posto < popoo < POPULU), just the opposite of the modern semi-learned form.
158

kuatro açumbres de aguah
'four açumbres of water'. ModPg. azumbre < Ar. al-ţumn 'eighth (part)' (based on tamāniya 'eight'), probably a Castilian borrowing as signalled by the epenthesis of the mn cluster. According to Houaiss (2001), this liquid measure used in Moorish Spain was equivalent to two litres and 16 millilitres, while Corominas (1980) describes it as "la octava parte de una cántara."

160

lebantaren eskuma
'give off foam'. As opposed to ModPg. espuma < SPUMA, this word is based on MedL. schuma, a loanword from Frankish *skūm (the ultimate source of English scum). See also eskumado 'skimmed' in the same line, which Blondheim translates more wordily as 'no longer gives off foam'.

f. 8v.

161

palya de çenteo
'rye-straw'. ModPg. centeio < CENTÉNU, so called because each plant produced 100 grains per stalk (da Cunha 1982). The spelling of the penultimate syllable with a single * y likely indicates a monophthong, in contrast to the diphthong found in the modern form.

163

zinça de vides
'ashes of vine branches'. Although the orthography of sibilants is quite variable in this text, given earlier çinza it is difficult to see this "metathesis" as anything other than a scribal error.

164

baril’h
'lye ashes'. ModPg. barrilha < Sp. barrilla, with the expected palatal segment not spelled as such (cf. note line 150), so perhaps this is an archaic native form. Although it is the only occurrence of this term, in context it refers to an item already known to the reader. Note that a form akin to the modern term lixívia 'lye' does not occur in the text.
165 

\text{vayo koando} 

'continue straining it'. An idiom (see also note line 181) using a form derived from \text{VADERE} (whose conjugated forms become associated with the infinitive \textit{ire} 'go') and a present participle, in this case of ModPg. \textit{coar} < \text{COLARE}.

169 

\text{komo de kada} 

'as of each'. Blondheim reads this phrase as a scribal error for an intended \textit{kon a-dekoada} 'with the strained [item]', a reference to the lye mixture.

170 

\text{pao forkado} 

'pitchfork' (lit. 'forked stick'). ModPg. \textit{pau} < \text{PALU} 'stake, post', although a latinizing form \textit{palo} occurs elsewhere (e.g. line 88). ModPg. \textit{forcado} denotes 'pitchfork' on its own.

171 

\text{deretuda} 

'melted' (also in line 173). Although the participle of ModPg. \textit{derreter} is the regularized \textit{derretido}, this form shows the Late Latin tendency to form participles in -\text{UTU}.

\text{f. 9r.}

174 

\text{fuste} 

'(wood) stick' < \text{FUSTIS}. One of the handful of words with diacritic vowels indicated, perhaps because it has a more technical sense or specific reference here than in its other occurrences, or perhaps because the scribe sees it as a Latinism along the lines of \textit{ides} 'that is', which is similarly vocalized.

175 

\text{frol} 

'powder'. Apparently a metaphorical extension based on its principal sense of 'flour' (which has been taken over by ModPg. \textit{farinha}), with \textit{l-r} metathesis (cf. chapter 7 § 2.3).
linpa e teba
'clean and tepid.' Like ModPg. pútrido (see note line 143), ModPg. tépido has been relatinized based on Latin TEPIDUS (itself derived from the noun TEPOR, -ÓRIS 'gentle warmth'). The form used here shows the vernacular outcome with deletion of intervocalic /d/.

aume
'alum (water)', here showing the intermediate form with the intervocalic /l/ deleted but the initial syllable preserved (cf. ume earlier in the same line, and note line 113).

bolbe-o
'stir it'. ModPg. volver < VOLVERE '(cause to) turn', whose derivative 'VOLVITARE yields the more common modern term voltar 'return'. Note that the diacritic indicating the fricative form of ᶃ is used only on the second of the two, though both are unetymologically representing /v/ < Latin /w/. Indeed, the use of ᶃ is the strategy used frequently to avoid the ambiguous double-ṳ spelling in spelling /vo/.

krarifkar
'clarify, purify'. Like other forms with initial /kr/, this word alternates with a conservative, or more likely remade form with initial /kl/, e.g. klarifiakadas in line 169 above.

vae vertindo
'continue pouring'. The spelling of the form derived from VADIT (ModPg. vá 'go') in this expression is conservative enough to indicate the hiatus from the lenited /d/ and its later-deleted syllable.

ensenyos sakos
'in separate bags'. ModPg. senhos < SINGULOS, which also yields the doublet sendos.
kolga-os
'hang them' < COLLOCARE (cf. Sp. colgar). The modern language uses pendurar 'hang' < *PENDULARE, a verbal diminutive based on PENDERE.

pelveiri nyos komo er vanços
'small particles like chick peas'. ModPg. pó 'dust, powder' < *pulu < VLat. *PULVUS < classical PULVIS, -ERIS. The ultimate source of the diminutive form used here is the classical plural PULVERA, which da Cunha (1982) claims was borrowed in Portuguese from Castilian pólvora, itself borrowed from Catalan.

uah saban
'a towel' < SABANA, plural of SABANU, a Greek loanword. Note that it remains feminine here despite the apocope of the final vowel.

para fazeres
'in order to make'. Another inflected infinitive, derived from the Latin imperfect subjunctive (in this case < FACERES).

vermelyon
'red'. ModPg. vermelho < VERMICULU (diminutive of VERMIS 'worm') is the basic term for this color. The form here is one of several variant spellings that occur in this chapter: בְּרֵמְלִיוֹן ber melyou (line 203), בְּרֵמְלָאוֹ ber melao (line 207). The latter is especially curious, since it does not contain the double-““ indicating palatal l, but does seem to indicate a nasalized vowel in final position, albeit a different one from the preceding form in line 189. It is likely that the nasal ending reveals those forms to be borrowed from OFr. verm(e)illon, whereby that form of the word refers to a more specific shade of red, namely 'vermilion'. Note that in reference to the color of the smoke, as opposed to the substance being produced, the form used is וְרֵמְלִיוֹן vermelyo.
Argentina vivo
'quicksilver'. ModPg, mercúrio or azougue (only the latter is found in the text). For silver itself, Modern Portuguese uses prata 'silver' (which also occurs in this text). It has not retained a direct reflex of the term used here (which also occurs in line 386), but only a more recent formation argento-vivo < ARGENTUM VIVUM (cf. argente vivo in O livro de mağiaka).

f. 10r.

Ançãas de guso
'broad below'. ModPg, amplo is the relatinized doublet of ModPg, ancho < AMPLU. The modern language has not preserved guso < DE ORSU (but cf. OIt. giuso, ModIt. giù 'down').

Kosa
'thing'. ModPg, coisa < CAUSA. Although the modern language has chosen the <oi> variant, forms with the diphthong <ou> occur throughout the medieval language. Indeed, O livro de mağiaka contains numerous occurrences of kousa/kousa. What is rarer is a form such as this Spanish-like variant lacking the diphthong altogether, again pointing to Castilian interference in the text's transmission.

Kileires ental gisa o fogo
'reduce the fire in this manner'. If the verb here is akin to ModPg, quilher < *(TRAN)QUILLARE 'to calm', it may in fact be a Castilianism, since cases of geminate -LL- appearing as -lh- in Portuguese are considered to be borrowed (Williams 1962: 74; also cf. note line 123). Although fogo < FOCU occurs as expected, a non-Portuguese diphthong is clearly spelled a few words onward in fuego.
'as has been mentioned', with e 'is' < EST. Blondheim's translation 'as I have mentioned' assumes that ḫ e < HABEO (ModPg. hei), and that this is a present perfect form of dizer. Yet this would constitute the only instance in the corpus of a modern-style periphrastic tense (cf. chapter 7 § 1.2). The phrase is more likely a syntactic Latinism on the model of DICTUM EST, which carries a past rather than present sense.

'pay close attention'. As noted above, ḫ ṭ y'y y may be intended to indicate a diphthong, i.e. non-Portuguese bien. There are several other spellings that may also be interpreted as similar non-Portuguese diphthongs, especially those that alternate between monopthongs and diphthongs (e.g. fogo~fuego above), which may be due to the influence of a Spanish copyist at some stage of the text's transmission. The expression here is akin to Spanish parar la atención 'fix (one's) attention' (with parar < PARARE 'stop; prepare'), though it is also worth noting the plural use of mentes 'minds'.

'you will never ruin anything'. ModPg. nunca < NUMQUAM. The final ḫ -ao here may be a hypercorrect spelling for a nasal segment that had deleted well before nasalized vowels had emerged. Blondheim's translation of os eraras (lit. 'ruin them') as an intransitive 'go wrong' must be due to English influence, since an overt object pronoun precedes the verb, which is also used transitively elsewhere (e.g. line 6 nunkao os eraras 'you will ruin everything').

'ends of burnt charcoal'. Blondheim translates braço as 'branches', obviously seeing it as a metaphorical use of 'arm' < BRACCHIU. However, the term is more likely akin to French braise or Italian brace 'embers' (cf. chapter 6 § 4.4), borrowed from West Gmc. *brasa. The
sense of ModPg. *carvão* < *CARBÔNE* has narrowed to 'coal', but here it indicates the "carbonized" charcoal. Note also the very uncharacteristic use of  ה for the plural morpheme -s, no doubt due to its presence earlier in the word.

215

לָנָכַ֥א-לְיָם
lança-lye
'toss (in) to it'. ModPg. *lançar* 'throw' < *LANCEARE*, based on *LANCEA* 'spear'. This word occurs frequently in the text, meaning 'add' here (hence the dative), and simply 'put' or 'place' in other cases.

דָא נָשָׁתָר ... דָא זִיָּאְבֵרֵּם
da nošatar ... da zinyabre
'of sal ammoniac ... of verdigris' From the perspective of ModPg. *azinhavre*, this would appear to be an instance of incorrect word division. However, it is also possible that this division reflects the scribe's awareness of the Arabic etymologies of these two words, since the a- in both cases derives from the Arabic definite article.

217

פוֹאֶנְדְּשַׁה סְנַרְאָרָה
doen destäh çinrada
'place (some) of these ashes'. The form related to ModPg. *cinza* 'ash' is a participle *CINERATA* (used in a collective sense), based on *CINERARE*.

218

א קִינְרֵשׁ סָאָאוֹר לָמְרַאְיָם
u kiğeres fazer letras
'where you wish to make letters'. The  ה spelling for the stem-final consonant of the future subjunctive of this verb (ModPg. *quiseres* < *QUAESIVERIS*, after shift to the second conjugation), alternates throughout the text with analogical  ש (as well as  ש on occasion).

f. 11r.

219

כּו נֵיגֶרֶא בּוֹלֶי אָּו קּוֹ נּאְרִקַּבְּוִלְּכִי
devagere boli e kon azarkoanboli
Appearing with diacritic vowels added, these two terms remain untranslated and of unknown origin.
that you not clean (it). This initial a- appears on linpar repeatedly in the text on this and other verbs. Although the verb is lacking a clause-internal object, it is unlikely that this prefix is a clitic object, given that a number of non-phonological processes could give rise to prosthetic a (cf. Williams 1962: 112-113).

'for it will remain adorned'. ornada is most likely a misspelling of ornada 'adorned' < ORNATA, the same confusion of letters as that seen in inbenro 'winter' (ModPg. inverno < HIBERNU) one line above. Curiously, it is the exact counterpart to the opposite error in O libro de mañika, where orneda is the form spelled for 'honored' (ModPg. honrado < HONORATU).

'madeira'

'wood'. The modern form madeira is feminine, deriving from the neuter plural MATERIA. The form here is masculine, deriving from the singular form MATERIU. Note also the lack of diphthong in the spelling (cf. note line 161).

'powdered sulphur'. Pg. alcrevite < Ar. al-kibrit (now archaic according to Franca 1994), with the characteristic r-migration seen in other Portuguese words, e.g. trevas 'darkness' < TENEBRAS, preguiça 'laziness' < PIGRITIA. This loanword also appears (via Turkish) in Romanian chibrit 'match'. In this text it occasionally replaces the native enšofre (ModPg. enxofre, from enxofrar < *INSULFRARE).

f. 11v.

'alakar'

'dark red resin'. ModPg. laca < Ar. lakk, ultimately Sanskrit lक्स (cf. English shellac). The OED cites lacquer as borrowed from the alternative
Portuguese form *lacre*, similar to the form used here, which Silvera Bueno (1966) suggests may have arisen by *r*-metathesis in yet another attested variant, *lúcar*.

**kuanto uberes meester**

'as much as you need'. Fut. subj. *houveres* < HABUERIS, used as a main verb of possession with object *meester* < MINISTERIU (with a vowel hiatus clearly indicated by the spelling א), in the sense of Fr. *avoir besoin* (ModPg. *ter mister* 'need, must', also expressible by *haver de*). Both expressions may be considered syntactic Latinisms, in the sense of OPUS EST 'must be done'.

**est'ăh feiçao**

'this mixture'. An unprefixed form based on *FACTİONE*, but used in the sense of *konfaçion* 'concoction' that occurs elsewhere.

**azeviège**

'jet black'. Both da Cunha (1982) and Houaiss (2001) cite as the etymon of ModPg. *azeviche* the specifically Andalusian Arabic form *az-zabiğ*. By contrast, Penny (1991) derives the Castilian cognate *azabache* 'jet' from classical Arabic *az-zabīq*. Since this text tends to have /a/ where /e/ is expected and not vice-versa, the classical Arabic form is probably the immediate source of the form used here.

**almartake e fezes de oro**

'litharge of silver (lead monoxide) and litharge of gold'. Corriente (1999) cites the Spanish pair *almárta/almartega* 'litharge' as deriving from Andalusian Ar. *al-mārtaq* < classical Ar. *martak* (the word may be related to ModPg. *almadraque* 'pillow, mattress' < Ar. *al-matrah* 'rug', with *r*-migration in the form here). Replaced in the modern language by *litargério*, a Greek loanword. I have followed Blondeheim in translating *fizes* as 'litharge' as well, though it may be akin to ModPg. *fezes* 'dregs' < *FAECES*, plural of *FAEX*. 
azarnefe
'arsenic'. ModPg. arsêñico is the more recently-formed doublet of arzenefe < Ar. az-zirni, both based on Gk. arsenikôn, though Corriente (1999) lists classical Arabic zirnîq (with the Andalusian variant azzirnîx) as deriving from Pahlavi zarr nêk 'fine gold'. The form here shows r-migration relative to the Greek form, though Ferreira (1999) lists arzenefe as a variant, which itself shows r-migration relative to the Arabic and Pahlavi sources.

azeğe
'vitriol' (an acid of metal sulfate). ModPg. azechê 'iron sulfate' < Andalusian Ar. azzâğ < classical Ar. zâğ (Corriente 1999). This term has largely been supplemented by the Latinate vitríolo.

f. 12r.

mangos
'handles'. A masculine or neuter form *MANICU (> It. manico) based ultimately on MANUS 'hand', which survives only as the term for a component of a cereal thresher (the fruit name mango is a Spanish loanword; the feminine MANICA does yields ModPg. manga 'sleeve'). In translating it as 'stick', Blondheim seems to have misconstrued it as a figurative reference to the stirring device.

cadeira de kobre
'copper kettle'. While the modern language uses chaleira '(tea)pot', the term here is akin to Sp. caldera < CALDARIA, based on CALIDUS 'hot', (though the scribe has apparently forgotten its letter 1). ModPg. cobre derives from a popular and abbreviated variant of classical AES CYPRIUM 'Cyprus bronze' (da Cunha 1982)

pera fares aşedreç
'to make chess pieces'. An apparently syncopated form of the inflected infinitive form of fazer (ModPg. fazeres). ModPg. xadrez < Ar. aš-šîtrânî (via Persian, ultimately from Sanskrit). Like ModSp. ajedrez, the form
here has kept the initial a- of the Arabic definite article. Note that like the modern spelling, none of the sibilants are spelled using the unmarked letter ﺱ, indicating that the final sibilant was not reanalyzed as a plural morpheme.

f. 12v.

253  ﺎًلْفِئْسَةَ ﺮَوُ ﺮَاْهُمَإْيل
osos de marfil
'elephant bones'. ModPg. marfim, a loanword basd on Ar. (‘azm) al-fil 'elephant (bones)', refers only to 'ivory', having been replaced by elefante. It is the animal rather than the material that is the likely referent here, given that such bones are offered as an alternative to ﺎًلْفِئْسَةَ ﺮَوُ ﺮَاْهُمَإْيل osos de vaka 'cow bones' in line 252.

254  ﺷِدْرَوْأَهُمَإْ نِ ﱢرْأَيْرِبَر
seraduras de madeiro
'sawdust', lit. 'wood sawings'. Note again the masculine gender of madeiro (vs. ModPg. madeira).

257  ﰀلَ فَادِيْدا
dal fadida
'(some) cuprous oxide'. Corriente (1999) lists the cognates Cat. alfadida and Sp. alhadida as derived from an Andalusian variant of classical Ar. hadidah 'piece of iron' (cf. Moroccan Ar. ḥidia ḥomra 'copper oxide'), used here as a synonym of azinyabre 'verdigris'.

261  ﺷِ فَوْنْدِيَرِي
se fundey
'melt'. ModPg. fundir < FUNDERE. A subjunctive form ﺷِ فَوْنْدِيَرِي se fundao occurs earlier in the following line, but the extra syllable here does not appear to have any motivation in this present-tense form.

264  كُوْلِيُّنْ كُومُ عْبَرِي
koaly̲n komo ġunbo
'coagulate like lead'. ModPg. coagular is a relatinized doublet of the coalhar (used here in fut. subj.), whose regular development is shown by the vocalization of the -GL- cluster that resulted from syncope.
rgaos
'grain'. It is difficult to see this as anything other than a confusion of the first two consonants in the ModPg. grão 'seed' < GRĀNU. Linguistically-unmotivated errors such as these (cf. note line 123) could suggest that the scribe is not transliterating the text for the first time but is working from a pre-existing Hebrew-letter manuscript.

f. 13r.

algidar o testo
'bowl or vessel'. Because the Hebrew-letter manuscript contains little punctuation, it is unclear whether the native term testo < TESTU is a gloss for or a practical alternative to the borrowed algidar < Ar. al-ḡidr.

vidos domees
'human urine'. For vids (lit. 'evacuates') cf. ModFr. vuide < *VOCITU from classical VOCIVUS/VACIVUS, an adjective that does yield ModPg. vazio 'empty'. The more frequent term in this text is urinas, though meğados (ModPg. mijada).

mais fedegosos
'more fetid'. ModPg. fedegoso < *fetosu < *F(O)ETICU, a variant of FOETIDU 'of ill smell', the adjective that yields ModPg. fétido. Both are Vulgar Latin forms derived from the basic adjective FOEDU 'filthy, ugly'.

kuanto melyor kolor farao
'so much better the color will (the urine) make'. The ԁ in kuando in line 250 immediately above is best interpreted as a scribal error for what should be kuanto, so that the phrase is an equivalence with the kuanto here: "the more fetid and putrid the urine..."
bafo dos vidos
'veapor from the urine'. Most dictionaries claim an onomatopaeic origin for bafo 'breath', with the earliest citation given as a sixteenth-century attestation of abafo (da Cunha 1982). A form of this word also occurs as a verb (bafegê) in line 365.

morado
'mulberry'. The Latin name for this fruit was MÔRUM, but the adjective here derives from *MORATU (cf. ModSp. mora 'mulberry', morado 'purple; bruise [n.]'). The modern Portuguese form amora derives from the basic Latin form, with accretion of the definite article.

f. 13v.

tesoyras
'scissors'. ModPg. tesoura < TÔNSÔRIA. Like koisa above, the form here shows an alternate spelling of the reflex of Latin /ö/ as compared to the modern orthography. Indeed, the development of r + yod has led to a number of similar alternants, e.g. CORIUM > coiro/couro 'leather', AUGURIUM > agouro/argoiro 'foreboding' (cf. chapter 7 § 2.5). The unexpected e in the first syllable may be due to contamination from tesouro 'treasure' < THESAURU (a Greek loanword), which may have exhibited the same oifou variation as well.

botado
'spoiled'. ModPg. botar 'strike, push' < OFr. boter (ModFr. bouter 'expel, push'), borrowed from Frankish *botan. Used here with a slight extension of meaning, in that the color is "pushed out."

komo se deven afazer e ameçkar
'how they should be made and mixed'. Note the placement of the reflexive pronoun before deven, indicating that this verb may have at least transitory status as an auxiliary. Note also the prefixed a-, which
does not otherwise occur on these verbs, but given its frequency in the text may well represent a complementizing particle.

§yyb ywm y' wXyywm
'muito e mui bein'
'thoroughly and very well'. ModPg, *muito* \(<\) MULTU, also the source of the apocopated form, which has disappeared from the language (cf. ModSp. *muy* 'very'), but which is the preferred form in the Judeo-Portuguese corpus and is found frequently in medieval Portuguese.

f. 14r.

§w'ys'#p §wq
kon façion
'concoction'. Although there is no call for this word division, the final form † n leaves no doubt that it was intentional on the part of the scribe.

§yg'#bl'd
dal‹ba‹gen
'(some) egg-white, albumen'. ModPg. *albume* \(<\) ALBUMEN. Like the classical and relatinized modern terms, the form used here is based on the adjective *ALBUS*, -A, -UM 'white' \(/>\) alvo, alva (cf. note line 315). It may be a native development of *ALBAGINE* (cf. *imagem* \(<\) IMAGINE, *origem* \(<\) ORIGINE). Like most ModPg. words in -agem, however, it may be borrowed from French or Provençal (e.g. *viagem* 'voyage' \(<\) Pr. *viatge* \(<\) VIATICU). Thus it could be a similar loanword based on *ALBATICU* 'whiteness', or else an analogical extension of the borrowed suffix.

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atalmiaḥ
'ceramic bowl'. Corriente (1999) lists a variant Portuguese *altamia* derived from Andalusian Ar. *ḥaltamiyya* 'of ceramic' \(<\) classical Ar. *ḥantam* 'sealed'.

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f. 14v.

303  דיתו

dit'h  'mentioned'. Blondheim mistranscribes (but correctly translates) this word as an indecipherable מפש <mth>.

305  כוניה

kong'h  'conch, shell'. Also mistranscribed (but correctly translated) by Blondheim as קורנה <qorgh>.

318  מְרֵים קָובֵירוֹמָּשוֹ

tres kobertos  'well covered'. This adverb does not survive in Modern Portuguese (cf. Fr. très 'very' < TRANS).

f. 15r.

313  קור אינדיה

koor indiah  'blue color'. The hiatus from deleted /1/ in color is fully spelled out here. As a color term, Modern Portuguese has replaced native indio < INDICUS with índigo, borrowed from Castilian (da Cunha 1982).

314  פִּינַ הַ נִּגְרָ א

p'inja negra  'black color'. One of the handful of words with vowel pointing, perhaps because this is a more technically-specific term for 'color' that the scribe deemed more obscure than the usual קאַר koor.

315  אוֹלָ א

alva  'white' < ALBA. This word has been replaced in the modern language as the basic term by branco, a loanword from Germanic. The masculine form אוֹלָ alvo occurs in the following line, and is one of a very few forms in the corpus where double-ו serves to represent a CV syllable
rather than a single consonant (most of which are in this text, e.g. cervo and avondar above).

317 kores principais
'principal colors'. Note that many of the "basic" color terms that follow are transparent loanwords, with only azul, vermelyon, and verde serving as basic color terms in the modern language. It is possible, then, that these are not meant as the basic words of the language per se, but rather of the art or trade, or perhaps that they are the main ingredients for making the dyes described in the text.

318 k'ren çuf'ý
As opposed its usual omission, the lack of orthographic /a/ in karmin could be construed as an etymological spelling, since the term is borrowed from Arabic, through MedL. CARMINUS, a contraction of CARMESINUS, itself from Ar. qirmizî (cf. ModPg. carmesim 'crimson' < Andalusian Ar. qarmazê). The word does, however, occur in line 175 with no nasal consonant in final position, an alternation similar to that seen in ModPg. alume(n). As Blondheim notes, çufii makes eleven terms, and most likely modifies karmen, possibly referring to a reddish wool (Ar. suf 'wool') perhaps worn by members of the Sufi sect of Islam.

319 açafrao
'saffron'. ModPg. açafrao < Ar. az-zaʕfarūn (ultimately of Persian origin), with agglutination of the Arabic definite article. As opposed to other words with etymologically nasal endings, this term consistently appears in this text, as in its modern form, with no final consonant.

319 la krara do obo
'the egg white'. Although it is the only occurrence of this un-Portuguese l-form of the definite article, this could be taken as further evidence Spanish interference in the text's transmission.
'pour (in)to it'. In contrast to ModSp. *echar* < *IACtēRE* 'throw', a frequentative based on *IACERE*, Modern Portuguese has not preserved a reflex of this verb per se, though it is reflected in *jejto* 'manner, skill' < *IACTU* as well as in the numerous words containing -je(c)t-.

*lege* dela *figeira*
'sap of the fig-tree'. ModPg. *leite* < *LACTE*, used figuratively to describe the white sap of this tree (ModPg. *seiva*). The spelling with ʁ rather than a diphthong suggests that the form may be another Castilianism (cf. ModSp *leche*).

*f. 15v.*

*destep'ra-o*
'temper'. The form here lacks both an explicit /e/ vowel in the penultimate syllable (unless the spelling intends to indicate a syncope), as well as any indication of /n/ or nasalization before the /p/ (normally spelled with ʁn). It does, however, spell out the nasalized verb desinence with vowel letters only.

*brankete*
'ceruse, white lead pigment'. This term, clearly based on a form of *branko* 'white', appears in the next chapter (line 331) spelled with כ instead of ג. If this form can be considered the "error," then it would constitute the only instance in which ג represents a fricative/affricate, which is common practice in other medieval Judeo-Romance writing.

*leo*
'Leo'. As indicated by יד 'that is' < İD EST that precedes it, this is a gloss for *brangete* (though Blondheim misconstrues it as a verb plus clitic pronoun, i.e. 'thin it'), though it may also refer to gold, the metal associated with this sign of the Zodiac. Note that unlike in O
 libro de maģika the word appears in a vernacular spelling with no nasal consonant (leon in O libro de maģika, ModPg. leão).

 Moran A Ṣinlislempere
 tornar ençeceleçtre 'to turn (it) sky-blue'. ModPg. celestial is a relatinized form of the word used here to describe a shade of blue. The form here may show the l-r dissimilation that affected words even in classical Latin such as SOLARIS 'solar' for *SOLALIS and REGULARIS 'regular' for *REGULALIS (but cf. filial < FILIALIS), though it may also be formed by analogy with terrestr (cf. celeçtriais in O libro de maģika, where the adjective suffix -al is added to the analogically-formed stem).

f. 16r.

 Nima D R Aovim
 ġema de obo 'egg-yolk'. ModPg. gema < GEMMA 'bud; gem'.

 Nava Māsš
 nou mais 'no more'. ModPg. não is usually spelled in the corpus with a final consonant (i.e. nοn, though ناο nao does also occur), but here it is actually written with a vowel spelling more typical of a form with a hiatus from deleted /l/ or /n/, e.g. koor 'color,' boa bou 'good'.

 Nima Ṣalil
 negro anil 'black indigo'. ModPg. anil < Ar. an-nil (via Persian and ultimately from Sanskrit nili 'indigo').

f. 16v.

 Miya Mały-sti
 matiza-ly-o 'shade it'. Though da Cunha (1982) states that ModPg. matizar is "de origem incerta," Corominas (1980) claims that the word ultimately derives from Greek lammatizein, based on lamma, which referred originally to a belt and fringe of different colors.
kolorar
'(to) color'. Modern Portuguese has the doublets *corar* and *colorir*, the former showing the regular development of *côlorâre*. Da Cunha (1982) lists *colorir* as first occurring in 1548 (probably based on an Italian borrowing). The form used here is a semi-cultismo, retaining the *-ar* conjugation of the evolved form but restoring the etymological /l/.

pêro as kôres tod's
'but all colors'. Spanish-like *pêro* < *PER HOC* (attested with other uses in medieval Portuguese), later replaced by *mas* < *MAGIS*.

f. 17r.

çendal
'bandage'. Ferreira (1999) cites ModPg. *çendal* 'fine cloth' (an alternative here to *pano*) as a term of Arabic and Greek origin, derived via VLat. *CENDALU*. Corriente (1999) suggests that it is based on Ar. *sandal*, with contamination from Lat. *SUNDUS*, itself based on Gk. ἑυδόκησα.

bafeģe
'breathe'. Present subjunctive of a verb formed on the basis of *bafo* 'breath' + *-ejar* < *-IZARE* (later spelled *-IDIARE*, where *-DI-* represented the affricated segment), a Latin verb-forming suffix first used with verbs of Greek origin, which also yields ModPg. verbs in *-ear*.

meçkramentos das koores
'color mixtures'. The only occurrence of this alternative to *misturas* based on *meçkrar* < *MISCULARE*, a verbal diminutive of *MISCERE*.
f. 17v.

375

**perfil**

'paint'. Based on OPr. *perfil* (ModPg. 'contour, profile'), this word seems to have a more general meaning here than its etymological sense of '(paint a) profile'.

379

**l'bro**

'book'. One of the rare instance of an implicit vowel other than /a/, in this case /i/ (cf. note 317).

**aguah das k'rtas koğa**

'boiled parchment water'. *kartas* seems to be used in the sense of *pergaminos* 'parchment leaves'. The adjective here is related to *cozer* 'boil' < *COCERE* < *COQUERE* (a more regular past participle *kózido* occurs in line 414) but appears to be based on an apocopated form.

381

**poer**

'put'. This infinitive is generally spelled with a monophthong, much like its modern form *pôr*, but it is spelled here and one line further down with the hiatus from the deleted /n/ spelled out.

382

**mete i**

'put there'. The use of this locative pronoun derived from *ibi* (> Fr. *y*) has not been preserved in Modern Portuguese.

f. 18r.

388

**eskentado kon mano linpa**

'warmed with a clean hand'. ModPg. *aquecer* '(to) heat < CALÉSCERE, an inchoative based on *CALÉR* 'be hot', which is also the ultimate source of this form, based on *ex + quente* 'hot' < CALÉNTEM. Note the intervocalic in *mano* (ModPg. *mão*), a conservative or Castilian-style spelling.
'above'. A single occurrence of this alternate formation based on \textit{PER+CYMA} (borrowed from Greek), rather than the usual \textit{ençima} < \textit{IN+CYMA}.

'through'. The provection of \textit{d-} > \textit{t-} in the Ibero-Romance forms may be due to the absence of native Latin words with initial \textit{dr-} (Houaiss 2001).

'cloth' < VLat. *DRAPPU (Sp. \textit{trapo}, It. \textit{drappo}, Fr. \textit{drap}), probably of Celtic origin. Yet it does serve a grapho-tactic purpose, allowing the scribe to avoid repeating the same sequence of two characters -\textit{â}- when it is not serving as a digraph.

'a pot (that is) old and new', though this makes as little sense as Blondheim's implausible translation of \textit{velya} as 'watch it'. Perhaps the copyist has added another's marginal correction into the text proper.

'your glue'. The scribe has probably forgotten the \textit{u} in what should be \textit{tua}. Note that this is the only instance in which the possessive construction occurs in its modern form, with both the definite article and possessive adjective.

'mix it with yellow'. The modern language uses \textit{amarelo} < *\textit{amarellus}, a Hispanic Latin diminutive of \textit{AMĂRUS} (da Cunha 1982), which has replaced this borrowing of OFr. \textit{jalne} < \textit{GALBINUS}, a Germanic loanword.
Blondheim's hesitant translation 'as much as the other' suggests that he correctly identifies al < *ale < *ALID < ALIUD (Ferreira 1999).

braniš
'vearnish'. ModPg. verniz is probably borrowed from OFr. verniz or OIt. vernice, both of which derive from MedL. VERONICE, itself based on Greek bernikê. The form here, which occurs twice in the chapter, shows the /a/ for expected /e/ characteristic of this text (cf. § 1.2), though it occurs as ירני braniš in line 420, with /e/ and a more etymologically-justified initial consonant.

garas'h de nobra
'nobra grease'. Since graça occurs in the next line, the form here has an unnecessary extra syllable. The term nobra is untranslated by Blondheim, and seems unrelated to nobre 'noble'.

de granvagar
'vigorously'. Although it does so here, Portuguese does not generally apocopate forms such as segundo 'according to', primero 'first', or grande 'great' as Spanish does in certain contexts (cf. ModSp. según, primer, gran). The second element in this adverb seems akin to vigor but with an unexpected ס a in both syllables.

f. 19r.

nin uah de ay
'not one of (them) there'. Since forms such as nenyua occur elsewhere, it is likely that nen uah occurs here without indication of a palatal n because it is split by a line break (although, as noted above, other words occur without a palatal spellings where one is expected).
ralo e fermo\'so
'thin and fine.' *ralo* is a dissimilated doublet of *raro*, both derived from *RARUS* (cf. It. *rado* 'sparse'). ModPg. *formoso* < *FORMOSUS*, although as da Cunha (1982) points out, the variants *fremoso* and *fermo\'so* (the latter used throughout this text) dominated in the medieval language.

morte\'iro
'mortar'. Although the Arabic loanword *almofariz* is more frequent in the text, this is the relatively more native term, ultimately derived from *MORTARIU* but borrowed from It. *mortaro* (da Cunha 1982). Fr. *mortier* is the source of the homonym associated with weaponry.

\textbf{f. 19v.}

roseta
'rose-color'. ModPg. *roseta* (diminutive of *rosa*) refers either to a small rose, or to an arrangement of ribbons in the shape of a rose and worn as an ornament. Blondheim leaves the word untranslated, since it would appear to refer here simply to rose-color.

mole-o
'grind it'. The only occurrence of this frequently-occurring verb spelled conservatively with ل for the deleted /l/.

\textbf{f. 20r.}

alumbre
'alum'. This is the only occurrence of a nasalizing context spelled with ﮫ m preceding a labial consonant), which is the standard modern graphy (the more expected spelling *alunbre* does occur earlier in the same line; also cf. note line 113).