

TECHNICAL AND THEORETICAL PROBLEMS IN THE MEDICAL TRANSLATIONS FROM GREEK TO ARABIC (VIII-XC)

Our intention is, based on quotations from Galen found in Al-Zahrâwî's¹ *Kitâb al-Tasrîf*'s treatise XVIII², to make a linguistic comparison between the Arabic text and the previous Greek original and to test the validity of medical translations in the Near East from the eighth to the tenth centuries. We have found such a similarity between certain parts of Al-Zahrâwî and Galen, that we think it provides an ideal field for studying the transmission of the Greek science that also reached the Far West.

A quotation from Salah al-Dîn Al-Safadî³ shows that the translators at the *Bayt al-Hikma*⁴ encountered the perennial dilemma of translators: either to be faithful to the original text and translate it literally, that is to say, simply shifting the linguistic code; or to attempt a minimal interpretation of the original text, so that the text in the target language be internally coherent. Al-Safadî mentions both methods, established by translators: "The first is used by Ğuhanna b. al-

¹ He is one of the most well-known andalusî doctors especially for the western tradition. It is mainly due to the treatise XXX of the *Kitâb al-Tasrîf*, which hands on surgery and which has been used in Europe until the XVIIth century.

² All the quotations of this paper are collected from my edition of this treatise.

³ Humanist and biographer of the XIV century; the quotation is collected by Bahâ' al-Dîn al-Amîlî in al-Kaskul, I, p.388.

⁴ Litterally 'House of Wisdom', scientific institution founded in Bagdad by al-Ma'mûn.

Bitriq, b. Nâ'ima al-Himsî and others; the translator assigns to each Greek word an Arabic word that expresses exactly the same meaning, using the same procedure until the end of the text". Al-Safadî himself criticizes this method as being inappropriate for two reasons: "1) there are no Arabic words that correspond to every Greek word, 2) the peculiarities and syntactic constructions are not the same in both languages". "The second method", to continue quoting Al-Safadî, "is that of Hunayn b. Ishaq⁵ and others in addition to Al-Yawharî⁶. The translator reads a phrase, understands its meaning and translates it into an Arabic phrase that expresses the same general meaning, not taking into account if the words are equivalent". Al-Safadî considers this method to be the best. Furthermore, Al-Qiftî considers that the fact that Hunayn b. Ishaq's translations are a sort of critical résumé of the original text, adds to its value⁷.

We now shift our attention to the way specific syntactic structures are treated in two types of prescriptions, which, because of their concise form allow thorough observation: 1) those which contain very simple syntactic structures: a list of the relevant sicknesses, the name and amount of the ingredients and, at the end, a precise guide to mixing them and administering the remedy; 2) texts which contain theoretical explanations of the causes of diseases, reasons for including certain drugs and not others, the effects of those drugs, etc.

In type 1, we do not generally meet in the Arabic text any odd syntactic construction, because the structures are so simple that even word-for-word translation is correct. In type 2, in spite of Hunayn b. Ishaq's words quoted above, we must say that, in the case of Al-Zahrâwî's texts, Greek word order is scrupulously reproduced, sometimes not following Arabic syntax. Evidence of literal translation can be clearly seen in the

⁵ He is regarded as the most important mediator of ancient Greek science to the Arabs. It is mainly due to his reliable and clearly written translations of Hippocrates and Galen. Moreover, he is considered his translator par excellence.

⁶ All the names quoted *supra* were translators of Greek sources, either from Greek directly or from syriac versions.

⁷ The *Tâ'rîh al-Hçukamâ'* of Al-Qiftî exists in an epitome by al-Zawzânî edited by Lippert in Leipzig, 1903. Cf. p. 171.

fact that there is even an attempt to reproduce Greek adverbs, conjunctions and, occasionally, particles.

Terminological problems in medical texts are centred mainly in the identification of components of remedies, drugs, sicknesses, etc., adopting the following solutions: 1) translation of the Greek term by an Arabic equivalent. This solution made them study and search for the drug; 2) translation of the Greek term by a similar one or by another drug of similar effects; 3) creation of a neologism following Arabic morphological rules. This solution is frequent in texts of an abstract nature, such as philosophy, mathematics, politics, etc., but we have not found it in any of the medical or pharmacological fragments translated from Greek in Al-Zahrâwî; 4) transcription of the Greek word. (On one hand, this option is tied to questions of phonetic realization, reflecting the pronunciation of Greek from a diachronical point of view. On the other hand, we have script problems. As vowels are not written in Arabic, but maximal clarity and exactness are needed, they are transcribed from the Greek word by using a sort of *matres lectionis*. Analyzing this option from a diachronic point of view, it can be observed that it was profusely used early in Syriac translations but it fell into disuse in Arabic translations, and terms created in that way were later substituted by others modelled on Arabic morphology).

As Al-Zahrâwî was an Andalusí surgeon, we must review briefly the situation of medical texts in the West. Virtually until the mid-tenth century, medical doctors in Al-Andalus either came from the East or travelled there to learn medical science and then went back to the West to practise it.

These doctors, however, could learn at Al-Andalus with Arabic books written in Baghdad the moment the *Bayt al-Hikma* was created and started the translating school. Nevertheless, these books often were not clear enough, as they were translated from Syriac versions, before the founding of the school of Hunayn b. Ishaq. As we have already mentioned, these were extremely literal, word-by-word translations and when there was no corresponding Syriac or Arabic word, or the plant or drug was not identifiable, transcription was resorted to. As Ibn ʿul-ʿul points out in his *Tabaqât al-atibbâ'*⁸, these

⁸ Cf. Vernet, J, pp. 450-541

translations were utterly incomprehensible in the West, because there were no scholars with knowledge of Greek who could explain the terms or identify the transcribed components of drugs.

Al-Zahrâwî in his treatise preserves ten quotations from Galen. We have identified the Greek text of seven of them in Kühn's edition. To them, we must add a further quotation of a certain Asclepiades who is only known to us through quotations in Galen, a situation which was probably the same for the Arabs. The other three texts left are considered as pseudo-Galen and there is no Greek edition of them, even supposing it ever existed.

We shall approach our texts by analyzing first of all the descriptions of the simple syntactic type on the grounds of two examples considered representative patterns. Let us take description 2.28. Even though Al-Zahrâwî does not supply the title of Galen's book from which it was taken, we have identified it as XII, 600 (*De compositione medicamentorum secundum locos, liber III*) of Kühn's edition. (Within the texts, words and sequences compared are marked with superscript bold numbers — if they agree — and capital letters — if they disagree —.)

Arabic text

صفة لجالينوس لوجع الأذن وغيره: تأخذ⁽¹⁾ بصلة عظيمة⁽²⁾ فتقورها⁽³⁾ ثم⁽⁴⁾ تملأها⁽⁵⁾ زيتا⁽⁶⁾ وتسخنها⁽⁷⁾ على رماد⁽⁸⁾ معتدل الحرارة⁽⁹⁾ ثم^(A) تصب⁽¹⁰⁾ من ذلك الزيت وهو مدفتى^(B) في الأذن⁽¹¹⁾: تبرأ، إن شاء الله.

Greek text

Τὰς μὲν οὖν ὑπὸ ψύξεως μόνης γινομένης ὀδύνας τὰ θερμαίνοντα θεραπεύει τάχιστα. καὶ τινὰς τῶν ἀγροίκων οἶδα⁽¹⁾ διαγλύσσοντάς⁽³⁾ τι τῶν μεγάλων κρομμύων⁽²⁾, εἶτα⁽⁴⁾ πληροῦντάς⁽⁵⁾ ἐλαίου⁽⁶⁾ καὶ θερμαίνοντάς⁽⁷⁾ ἐν σποδιᾷ⁽⁸⁾ συμμέτρως⁽⁹⁾, ἐγγέοντάς⁽¹⁰⁾ τοῖς ὠσὶ⁽¹¹⁾.

Translation of the Arabic text:

Galen's description for ears and other pains: take⁽¹⁾ a big onion⁽²⁾ and make it hollow⁽³⁾; then⁽⁴⁾ fill it⁽⁵⁾ with oil⁽⁶⁾ and

warm it⁽⁷⁾ on cinders⁽⁸⁾ at a moderate temperature⁽⁹⁾. Then^(A) pour⁽¹⁰⁾ some of this warm oil⁽¹¹⁾ in the ear. The person shall be cured if God Almighty wills.

Translation of the Greek text:

About ear pain caused by coldness. I have heard that some countrymen⁽¹⁾ make big onions⁽²⁾ hollow⁽³⁾, then⁽⁴⁾ fill them⁽⁵⁾ with oil⁽⁶⁾ and warm them⁽⁷⁾ on cinders⁽⁸⁾ moderately⁽⁹⁾ and then^(A) they pour⁽¹⁰⁾ them in the ear⁽¹¹⁾.

This would be the pattern of a basic prescription in Greek as well as in Arabic and it is possible to translate it almost word for word because of its minimal syntactic complexity. It is checked that way, not only because of the absence of lexical problems, as the components are very common to both cultures, but also because they are quite intelligible in the version of syntactic forms.

Besides these slight deviations from literal translation, we could consider the substitution of *'I have heard that some countrymen'* by the impersonal formula *'take'* (case 1). This may be the result of the "critical résumé" that is ascribed to Hunayn b. Ishaq, which imposes on the text the preestablished patterns for prescriptions.

We can see that all the Greek words match the Arabic words marked with the same number, and that even adverbs (case 4) and conjunctions (case 7) coincide. However, in the cases marked with capital letters the two texts differ. For example, *'then'*: Arabic needs a periphrasis to express the implicit hypotaxis of the Greek participle (case A). In the Arabic text there is added *'some of this oil while warm'* (case B); we are inclined to think that it is an exegetical addition or that the two texts followed different manuscripts.

The next description (5.9) is of the same type as the above mentioned, but provided that it contains not so common ingredients it presents some terminological problems. In spite of the additional difficulty of not mentioning Galen's treatise from which the information was taken, we have identified it as XIII. 313 of Kühn's edition, book IX of the above mentioned treatise.

Arabic text

صفة ذرور نافع من بروز المقعدة⁽¹⁾ لجالينوس: يؤخذ^(A) من ثمر⁽²⁾
الطرفاء^(B) وأقاقية⁽³⁾ وعفص⁽⁴⁾ وإسفيداج الرصاص⁽⁵⁾ وعصارة
الطراييث⁽⁶⁾ ولحاء شجرة الصنوبر⁽⁷⁾ ومر⁽⁸⁾ وكندر⁽⁹⁾ من كل واحد
جزء^(D)، يسحق جميع ذلك⁽¹⁰⁾ ويذر⁽¹¹⁾ على المقعدة^(F) بعد^(G) أن تغسل⁽¹²⁾
بشراب⁽¹³⁾ عتيق^(I). نافع، إن شاء الله تعالى.

Greek text

τὸ ἡμέτερον πρὸς τοὺς προπίπτοντας ἀρχοῦς^{(1)(A)}. ἐρείκης^(B) καρποῦ⁽²⁾,
κηκίδων⁽⁴⁾, ἀκακίας⁽³⁾, ψιμυθοῦ⁽⁶⁾, ὑποκυστίδος χυλοῦ⁽⁶⁾, πίτυος φλοιοῦ⁽⁷⁾,
λιβάνου⁽⁹⁾, σμύρνης⁽⁸⁾ μινναίας^(C) ἀνὰ ξηροῖς^(H) κατάπασσε⁽¹¹⁾
προαπονίψας⁽¹²⁾ οἴνω⁽¹³⁾ αὐστηρῶ^(I).

Translation of the Arabic text

Description of some medicine powder efficient for the prolapse of the anus⁽¹⁾, from Galen: let's take^(A) the fruit of⁽²⁾ tamarisk^(B), acacia⁽³⁾, galls⁽⁴⁾, white lead⁽⁵⁾, juice of orobange⁽⁶⁾, pine bark⁽⁷⁾, myrrh⁽⁸⁾ and incense⁽⁹⁾, a portion of each of them^(D). Mash it⁽¹⁰⁾ all, spray it⁽¹¹⁾ on the anus^(F) after^(G) having washed it⁽¹²⁾ with mellow^(I) wine⁽¹³⁾. It will be beneficial if God, the Almighty, wills.

Translation of the Greek text

My remedy for those who suffer from^(A) anal prolapse⁽¹⁾: the fruit of⁽²⁾ heath^(B), galls⁽⁴⁾, acacia⁽³⁾, white lead⁽⁵⁾, the juice of orobange⁽⁶⁾, pine bark⁽⁷⁾, incense⁽⁹⁾ and myrrh⁽⁸⁾ minaiia^(C). Mash it⁽¹⁰⁾ and spray it⁽¹¹⁾ dry^H after^(G) having washed it⁽¹²⁾ with dry^(I) wine⁽¹³⁾.

We see that Greek terms are translated by exact Arabic terms (using the first solution adopted by translators), but with certain exceptions: we find initially a structure of the text similar to the previous prescription, substituting to 'My remedy for those who suffer from anal prolapse' by the more stereotyped formula 'Description of some medicine powder efficacious

against the prolapsus of the anal (case A). Heath and tamarisk (case B): the relative disagreement between the two texts can be explained by quoting Dioscorides⁹ who says that *Calluna vulgaris*, known also as *Erica vulgaris*, is the only heath that has the particularity of looking like tamarisk. 'a portion of each of them' (case D) is added in the Arabic text, and the same occurs in case F with 'on the anus', while in case H, 'dry' is present in the Greek text, but is not mentioned in Arabic. Further on, we find the same problem as mentioned in the preceding prescription [s]: Arabic needs a periphrasis, that is to say, to add 'after', to translate Greek active participles (case G). It is true that the two adjectives that determine 'wine' do not have the same meaning (case I), but we must also think that the mellower a wine the dryer; this fact should explain the difference.

There is also some explanation to be made when the two texts are mirror images: the Arabic term for "acacia" is the transcription of the Greek term. Despite that, they do not refer, strictly speaking, to the same thing: for the Greek (Diosc.) it is the tree, but for Arabs it is the fruit: this is the translators' solution number 3 quoted above (case 3). In the rest of the manuscript the Arabic translation of orobange coexists with the transliteration of the Greek term; this transliterated term, however, does not have exactly the same meaning as in Greek since it means orobange juice and not only orobange, as in the original language (case 6). Arabic needs to add the word for tree, which is not usually used, to make it distinct from pine kernel: that does not happen in Greek (case 7); the adjective 'Minnaia' which determines 'myrrh' doesn't appear in the Arabic text. This may be explained by the fact that Minnaia means in Greek 'from Yemen'¹⁰ and perhaps for Arabs, it is redundant since myrrh comes traditionally from Yemen (case 8).

Let us now study a part from prescription 2.1, of a more complex structure. First of all, we must point out that here we have the title from which it was taken. It is the Kitâb al-Mayâmir, which we have identified as XII, 626-627 of Kühn's edition of Galen, also from book III of *De compositione medicamentorum secundum locos*.

⁹ Cf. Dioscorides 1.88

¹⁰ V. Pape *sub voce* Minnaïoi, Minaïoi.

Arabic text

[...] إن كان وجع الأذن وجعا مبرحا واضمرا الأمر إلى الحياة في تسكينه فإنما تستعمل فيه بعض الأدوية التي تحذر الحس كما يفعل ذلك بمن يصيبه الوجع الشديد المبرح من أوجاع القولنج أو من قبل وجع عضو آخر من أي الأعضاء كان جملة فينبغي أن يخلط الدواء المحدد بمزلة الأفيون بلبن إمره وبياض البيض، فقد وجدتها غير مرة قد نفع كل واحد منهما بنفسه ومرة من غير أن يخلط بغيره في مواضع الأورام الحادثة في الأذن وينبغي أن يخلط مع الأفيون جنبابستر ويحتاج [إلى] أن يكون هذا الدواء ميبيا معدا قبل وقت الحاجة إليه بزمان طويل وينبغي أن يخلطها أيضا جزء الرطوبة التي يعجن بها هذا الدواء ينبغي أن أضعف من وزن الأفيون والرطوبة السواء، وأما أن يكون الجنبابستر يكون عقيد العنب إذا كان مطبوخا فهو أبلغ في تسكين الوجع من الشراب الحار. (8) وينبغي أن يسحق هذين الدوائين سحقا مستقسي فيسحق أو لا الجنبابستر سحقا جيدا ثم يلقى على الأفيون مطبوخ مثلث ويسحق به حتى يخلط تماما (9) ثم يلقى على الجنبابستر المسحوق ويسحق الجميع سحقا جيدا وتعمل منه أقراص ويحفظ بها (10) فإذا ألتجيع أخذ منها شيء فديف بمطبوخ مثلث وعمد إلى ميل فلف عليه صوفة ناعمة لينته وكحت به الأذن ممن كان يشكو وجعا فيها شديدا أو قطر فيها من الدواء على هذه الصفة فأقيمها واعمل بها. (8) وهو أن تعد الدواء الذي تريد أن تقطره وتجعله فاترا وتأمر العليل أن يلمسه وتسله عن موقعه منه حتى يخبرك أنه يحسه فاترا فإن كان من الفتورة في حد يحتمل المريض أن يكون على أكثر منه فزد في إسحانك إياه مقدار يستطيع [المريض] أن يحتمل حرارته من غير أن يتأذي بها. ثم اعمد إلى ميل فاعمد رأسه في الدواء الذي ألتجته على هذه الصفة حتى يحتمل منه شيئا وادنه من ثقب الأذن برفق وتودة ودع الدواء يشيل ويقطر من رأس العليل على مهل ويبخل في ثقب الأذن حتى يصل إلى الصماخ ولا يزال يعزل تلك مرارا كثيرة ولا يفتن (11) فإن أفاض من الدواء شيء إلى خارج فامسحه برفق من غير أن تمس الأذن ما استطعت فإذا بلغت حاجتك من التكميد فدع ثقب الأذن مملوءة من الدواء على قم الثقب من خارج صوفة لينته ناعمة واضط الأذن كليتها من بعده (11) فإن احتجت إلى معاودة التكميد على ما كنت فعلته واحذر وتجنب ما أمكنك أن تمس شيئا من أجزاء الأذن واجعل ذلك منك بيبال وتحذر فإنه باب عظيم من الأبواب التي ينبغي أن يحذر فيها العلاج الأذان إذا كان فيها وجع. فهذا كلام جالينوس نصا. فينبغي أن تمثل في جميع علل الأذان فهو أصل في العلاج وقياس عجيب واعلم أن جميع ما يأتي من سائر الأدوية مفردة كانت أو مركبة فعلى هذا القياس ينبغي أن يستعمل، إن شاء الله تعالى.

Greek text

βιαζομένης δὲ τῆς ὀδύνης ἀναγκαῖόν ἐστι χρῆσθαι καὶ τοῖς ναρκῶσι μὲν αἰσθησιν, ὡσπερ καὶ τοῖς ἐπὶ κώλῳ καὶ νεφροῖς καὶ ὄλωσ ἀπαντα πάσχοντι μορίῳ σφοδρῶς ἀλγοῦσι. μίγνυται δὲ τοῦτο τῇ γυναικείῳ γάλακτι καὶ τῇ λευκῇ τοῦ ὡοῦ, ἃ καὶ καθ' ἑαυτὰ πολλὰκις ἤρμοσεν ὠτων φλεγμοναῖς. μίγνυται δὲ καὶ καστορίῳ τὸ ὄπιον καὶ χρῆ παρεσκευάσθαι τοῦτο πρὸ πολλοῦ μεμιγμένον, ἦτοι γε ἴσῳ κατὰ τὸν σταθμὸν ἢ διπλασίῳ^(E) τῇ καστορίῳ, πρὸς μὲν τὰς σπόδροτάτας ὀδύνας ἴσῳ, πρὸς δὲ τὰς ἐλάττονας διπλασίῳ. τὸ δὲ ὑγρὸν ἔστω τὸ ἐκ τοῦ γλεύκου ἐψημα, πολὺ γὰρ ἀνωδυνώτερον τοῦτο τῶν γλυκῶν ἐστὶν οἶνων. ^(A)εὐθέως οὖν ἀπ' ἀρχῆς ἀκριβῶς λεία τὰ εἰρημένα φάρμακα τούτῳ μίγνυσθω, τὸ μὲν καστόριον προλελειωμένον ἀκριβῶς, ὃ δὲ τῆς μήκωνος ὅπως ἐν αὐτῷ τῷ ἐψηματι λελυμένος καὶ οὕτω μίχθοντα τὰ τρία λειοῦσθω καλῶς^(A). ^(C)εἶτα ἐπὶ τῆς χρήσεως ἀνιέσθω πάλιν ἐψηματι μέχρι τοσαύτης συστάσεως, ὡς ἐγγεῖσθαι δύνασθαι διὰ τῶν καλουμένων ὠτεγχύτων, ἐπὶ λύχνῳ χλιανθέντων. ἐγὼ δὲ οὐκ ἐγγέω τοῖς περιωδυνούσιν οὐδὲν φάρμακον, οὐδ' ἐκμάττω δι' ἐρίου, τῇ πείρᾳ τοῦτο διδασχθεῖς^(C), ὡς ἀμεινόν ἐστι μῆδ' ὄλωσ ψαύειν τοῦ πόρου τοῦ ἀκουστικοῦ κατὰ τὸν καιρὸν τῆς ὀδύνης. ἀλλὰ διὰ μηλωτίδος ἀμφισθεσίσης ἐρίῳ μαλακωτάτῳ πυριῶ τε τοὺς περιωδυνώντας, ^(D)ἐμβάλλω τε τὸ φάρμακον ὡδί πως ἐτοιμασθὲν, κεχλιασμένον ἐν ὠτεγχύτῃ μετρίως οὕτως, ὡς πυνθανομένωννῆμῶν τοῦ κάμνοντος, εἰ χλιαρὸν αὐτῷ σαίνοιτο καὶ εἰ ἐπι δύναται φέρειν αὐτὸ, θερμότερον γενόμενον μέχρι τοσοῦτου προσάγειν τὴν θερμασίαν, ὡς μηδέπω λυπεῖν^(D). βάπτων οὖν εἰς τὸ οὕτω παρεσκευασμένον φάρμακον τὴν μηλωτίδα κατὰ τὴν ἀρχὴν τοῦ πόρου μετρίως ἐπιτιθεῖς, ἀπορεῖν εἰς τὸ βάθος ἐπίτρεπε καὶ μετὰ ταῦτα πάλιν αὐθις καὶ αὐθις καὶ πολλὰκις βάπτων τὸ αὐτὸ τοῦτο ποιεῖ, μῆδὲνα διαλείπων χρόνον. εὐδηλον δ' ὅτι τοῦτου γινομένου πάντως ^(E)καὶ ἀπορυήσεται πρὸς τοῦκτος πληρωθέντος ὄλου τοῦ ἀκουστικοῦ πόρου. τοῦτο τοῖνον δέχου μετρίως, καθ' ὅσον οἶόν τε μὴ ψαύων τοῦ ὠτός. ἐπειδὴν δὲ καλῶς πυριάσης, ἐάσας τὸν πόρον, ὃς ἐπληρώθη τοῦ φαρμάκου, μαλακὸν ἐπίθεε ἐξῶθεν ἐριον αὐτῷ τε τῷ στόματι τοῦ πόρου καὶ μετὰ τοῦτο παντὶ τῷ ὠτί^(E). καὶ ἐὰν δεήσῃ πυριάσαι πάλιν, ἀτρέμα βαστάξας τὸ ἀντεπικείμενον ἐξῶθεν ἐριον αὐθις ὁμοίως πυρία φυλαττόμενος ὡς οἶόν τε μῆδ' ἄλλου τινὸς μέρουςτου ὠτός ἀψασθαι. καὶ τούτῳ γε πρόσσεχε τὸν νοῦν ὡς μεγίστῳ παραγγέλλματι τῆς τῶν ὠτων ἐπιμελείας.

Translation of the Arabic text

[. . .] when there is a terrible pain in the ear and it is necessary to relieve it in any way. And we certainly use in it some of the remedies that reduce sensation as it is with those who suffer strong and terrible pain as that of colic or of any other type. It is convenient that the soothing remedy that takes the place of opium should be mixed with woman's milk and egg white. We find that those remedies sometimes are beneficial both together, some others not mixed with the other in the case of ear infections. It is convenient to mix opium with castor. This remedy needs to be prepared and ready a long time before the moment it is needed, either in even proportions or since the measure of castor is smaller ^(E) than that of opium, it is convenient that the humidity required is required to knead this remedy should be from boiled raisins. It is better than warm wine to soothe the pain. ^(a)It is convenient that these two remedies should be thoroughly mashed, first the castor and then add three times as much of boiled opium. Mash until well mixed, afterwards pour on the mashed castor, and mash it thoroughly ⁽⁸⁾, ^(A) then make pills out of it and preserve ^(A). When you need it, take a part and mix with three as much of the concoction, take a brush for applying collyria, roll around it a piece of soft and sprung wool, and apply in the ear of the person suffering from strong pain, or insert in it the remedy after this prescription. Try to understand it and do it this way: ^(B) prepare the remedy you intend to insert, leave it to get lukewarm, order the patient to touch it and ask him about how it feels to him, until he says than he feels it lukewarm, and should it be in the limit of lukewarmness that the sick person can stand, or if the limit is higher, go on warming it until the patient can resist the heat without feeling pain, than take a brush for collyria and dip its head in the remedy obtained with this prescription until it retains a certain amount, apply it in the orifice of the ear with care and let the remedy flow and drip from the head of the brush slowly and enter through the ear orifice inside to each the hearing conduct. Continue doing this several times without getting careless ^(B). ⁽¹⁾ When some of the remedy falls out, wipe it off carefully touching the ear the least. If you have great need of applying fomentations, leave the ear full of the remedy and put it in the outer mouth of the orifice a piece of soft and sprung wool, covering the whole ear afterwards ^(1'). If you

should have to apply fomentations again as previously done, try not to touch any part of the ear. It is certainly one of the most important chapters to me and it is important that the remedies for the ears be grounded on it, when there is pain.

Translation of the Greek text.

When there is pain it is necessary to use remedies that reduce sensation, as when there is pain in the colon, the kidneys or all over. Mix this with woman's milk and white of egg, things that often are good by themselves for ear inflammations. Mix opium with castor, it being necessary to prepare them a long time before mixing them: even proportions for strong pain and twice^(E) the castor for less pain. The humidity² should be a concoction of raisins, that are much more innocuous than sweet wines. The mix the remedies:^(a) mix the three parts well, thoroughly mixing first the castor and then dilute the juice of the poppy in the concoction^(a). ^(c) For application boil it again until it gets consistent enough to be injected with the so-called ear-syringe, which has to be maintained lukewarm by means of a lamp. I do not inject those who have a general pain, nor smear with wool, in accordance with my experience^(c), but with a probe covered with most soft wool it is applied on the ear of the person suffering from strong pain.^(D) I apply the remedy warming it moderately, asking the patient if he feels it to be too hot; and if he can stand it, I warm it until the highest degree of warmth is reached that it is not painful^(D). Dipping the probe in the remedy thus prepared let it flow from the mouth of the hearing conduct to the deep part and again until you do it several times. Go on dipping without delay. It is clear that acting so, when the hearing conduct is filled, ⁽¹⁾ some will fall out, wipe it off carefully touching the ear as little as possible. After applying the fomentations keep the hearing conduct full of the remedy and from the outside apply a soft wool on the mouth and then another on the whole ear ⁽¹⁾. Should it be necessary to apply fomentations again, take off firmly the wool placed outside, without touching the ear. For that is, pay attention to this, the most important recommendation for the care of the ears.

Additionally in this text we can find parallels of all the cases mentioned for the preceding texts — for example the sequence between 1 and 1'. Now, so as not to enlarge on the matter, we shift our attention only to certain points of the Arabic

translation that show that the effort to be faithful to the original Greek text is so powerful that the results in Arabic do not allow complete comprehension.

We shall try to show that sometimes the translation of the Greek text results in stilted Arabic, as happens in the parts between a and a'. The inflated Arabic of this paragraph, points to the conclusion that its version could well have been made at an earlier time, before the school of Hunayn b. Ishaq or could have been made at this school, but from a previous Syriac translation and without collating the Greek original.

At other times, however, the text does not exactly fit its original Greek text, even diverging from it at certain points, for example the ones between A and A', and between B and B', in which the Arabic text adds more information or gives more details than the Greek text. The opposite happens in texts between C and C', and D and D'. We should remark that it is very interesting that those cases that in the Greek text we can find Galen's own experience, written even in first person, have disappeared from the translation into Arabic. Can we assume that this is again the so-called résumé of Hunayn b. Ishaq trying to make the text drier and more scientific? We also have to pay attention to case E, in which we find an Arabic word for measuring the quantity of opium, '*smaller*', that has the opposite meaning to the parallel word in the Greek text, '*twice*'. We have to suppose that to make a mistake like that in medicine can be very dangerous. This is the only case that such a thing has occurred in the excerpts by Galen quoted in this treatise, so we shall consider it as an isolated case.

The great enterprise of Arabic transmission can be characterized by making a synthesis of knowledge inherited from Classical Greece, the East, that is to say Persia and India, and the specific Islamic element concerned. The importance of the Greek texts (or those attributed to them) appears not only as a means of reconstructing the texts, but as an enrichment of the classical heritage with a vast scientific and philosophical literature that influenced human thought from the Middle Ages to our day. The validity of those texts to fill in lost originals or existing gaps is shown in the great effort made to achieve a reliable duplicate of the originals. This is so even when we very often observe that of the two mentioned methods the first has prevailed, causing linguistic incorrections that sometimes affect the intelligibility of the text.

Our samples verified that very different transmissions as Al-Zaharâwî in Islamic Cordoba in the tenth century, or the one studied by Kühn in the nineteenth century from Greek medieval manuscripts can be quite similar. This fact demonstrates the importance given in ancient times to fidelity in the transmission of knowledge. The texts here briefly examined constitute a sound test in showing how some interesting material shed light upon manuscript transmission and translation techniques from Greek to Arabic.

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