

**Instruments and Organs (ὄργανα)
in the Philosophical Part of Hippocratic *Regimen***

1. Οἱ δὲ ἄνθρωποι ἐκ τῶν φανερῶν τὰ ἀφανέα σκέπτεσθαι οὐκ ἐπίστανται· τέχνησι γὰρ χρεώμενοι ὁμοίησιν ἀνθρωπίνῃ φύσει οὐ γινώσκουσιν
Men do not understand how to observe the invisible through the visible. For though the arts they employ are like the nature of man, yet they know it not (*Regimen* I 11, p. 486 Li, p. 134, 21-22 J-B, transl. Jones).

2. Ἐγὼ δὲ δηλώσω τέχνας φανεράς ἀνθρώπου παθήμασιν ὁμοίας εἰούσας καὶ φανεροῖσι καὶ ἀφανέσι.
But I will show that arts are visibly like to the affections of men, both visible and invisible (c. 12, p. 488 Li, p. 136, 5-6 J-B).

3. Κεραμεῖς τὸν τροχὸν δινέουσι, καὶ οὔτε ὀπίσω οὔτε πρόσω χωρεῖ, καὶ ἀμφοτέρωσε ἅμα τοῦ ὅλου ἀπομιμεῖται περιφορῆν. ἐν δὲ τῷ αὐτῷ ἐργάζονται περιφερομένῳ παντοδαπά, οὐδὲν ὅμοιον τὸ ἕτερον τῷ ἑτέρῳ ἐκ τῶν αὐτῶν τοῖσιν αὐτοῖσιν ὄργανοισιν. Ἄνθρωποι ταῦτα πάσχουσι καὶ τἄλλα ζῶα· ἐν τῇ αὐτῇ περιφορῇ πάντα ἐργάζονται, ἐκ τῶν αὐτῶν οὐδὲν ὅμοιον τοῖσιν αὐτοῖσιν ὄργανοισιν, ἐξ ὑγρῶν ξηρὰ ποιέοντες καὶ ἐκ τῶν ξηρῶν ὑγρά.
Potters spin their wheel, which shifts neither forward nor backwards, yet moves both ways at once, therein copying the revolution of the universe. On this wheel as it revolves they make pottery of every shape, and no two pieces are alike, though they are made from the same materials and with the same *organa*. Men and animals too are in the same case. In one and the same revolution they make all things, without two being alike, from the same materials and with the same *organa*, making dry from moist and moist from dry (*Regimen* I,22, p. 140, 11-16 J-B).

4. Οἰκοδόμοι ἐκ διαφόρων σύμφορον ἐργάζονται, τὰ μὲν ξηρὰ ὑγραίνοντες, τὰ δὲ ὑγρά ξηραίνοντες, τὰ μὲν ὅλα διαιρέοντες, τὰ δὲ διηρημένα συντιθέντες· μὴ οὕτω δὲ ἐχόντων οὐκ ἂν ἔχοι ἢ δεῖ. Δίαιταν ἀνθρωπίνην μιμέονται· τὰ μὲν ξηρὰ ὑγραίνοντες, τὰ δὲ ὑγρά ξηραίνοντες, τὰ μὲν ὅλα διαιρέουσι, τὰ δὲ διηρημένα συντιθέασιν. Ταῦτα πάντα διάφορα ἐόντα συμφέρει.
Builders out of diverse materials fashion a harmony, moistening what is dry, drying what is moist, dividing wholes and putting together what is divided. Were this not so, the result would not be what it should. It is a copy of the diet of man; moistening the dry, drying the moist, they divide wholes and put together what is divided. All these being diverse are harmonious (*Regimen* I,17, p. 138, 9-13 J-B).

5. [Σιδήρου ὄργανα]* Τεχνῖται** τὸν σίδηρον πυρὶ τήκουσι*** πνεύματι ἀναγκάζοντες τὸ πῦρ. τὴν ὑπάρχουσαν τροφήν ἀφαιρέονται, ἀραιὸν δὲ ποιήσαντες παίουσι καὶ συνελαύνουσιν· ὕδατος δὲ ἄλλου τροφῆς ἰσχυρὸς γίνεται. ταῦτα πάσχει ἄνθρωπος ὑπὸ παιδοτρίβειω· τὴν ὑπάρχουσαν τροφήν πυρὶ ἀφαιρεῖται ὑπὸ πνεύματος ἀναγκαζομένῳ. ἀραιούμενος κόπτεται, τρίβεται, καθαίρεται· ὕδατων δὲ ἐπαγωγῆς ἄλλοθεν ἰσχυρὸς γίνεται.

*Σιδήρου ὄργανα secl. Diels-Kranz, Joly-Byl : Σιδήρου ἐργάται corr. Wilamowitz apud Fredrich

**τεχνῖται Jones ("perhaps we should read τεχνῖται"), Joly : τέχνησι θ (del. Wilamowitz Fredrich) τέχνης M

****farie (ferrarie Diels) artis hominis ferrum consumunt* Lat.

5b. Σιδήρου ὄργανα. Τέχνησι τὸν σίδηρον πυρὶ τήκουσι πνεύματι κτλ.

Iron tools. By their arts, craftsmen melt the iron with fire, constraining the fire with breath; they take away the nourishment it has already; when they have made it rare, they beat it and weld it; and with the nourishment of other water it grows strong. Such is the treatment of a man by his trainer. By fire the nourishment he has already is taken away, breath constraining him. As he is made rare, he is struck, rubbed and purged. On the application of water from elsewhere he becomes strong (*Regimen* I,13, p. 136,15-20 J-B).

6. [Μουσικῆς ὄργανον ὑπάρξει δεῖ πρῶτον, ἐν ᾧ δηλώσει, ἃ βούλεται.] Ἀρμονίης συντάξεις ἐκ τῶν αὐτῶν οὐχ αἰ αὐταῖ, κτλ

Des compositions musicales sont diverses, tout en provenant des mêmes (notes)...

Μουσικῆς ... βούλεται Μ θ [*De musicis. (rubr.) seclusimus*] *Musicum organum sic debet esse ut quod vult illud significet* Lat. (Deroux-Joly): *secl.* Fredrich, *Hippokratische...* (p. 118), Joly-Byl || ἀρμονίης θ Jones Joly-Byl: ἀρμονίη Μ *concerto sermone* Lat (*concentu harmonie* Deroux-Joly) || συντάξεις Μ : σύνταξις θ *et coniecturam* Lat. (*coniectione* Deroux-Joly).

6b. Μουσικῆς ὄργανον· ὑπάρξει δεῖ πρῶτον ἐν ᾧ δηλώσει ἃ βούλεται ἀρμονίη· συντάξεις ἐκ τῶν αὐτῶν οὐχ αἰ αὐταῖ, ἐκ τοῦ ὀξέος, καὶ ἐκ τοῦ βαρέος, ὀνόματι μὲν ὁμοίων, φθόγγῳ δὲ οὐχ ὁμοίων. τὰ πλεῖστον διάφορα μάλιστα συμφέρει, τὰ δὲ ἐλάχιστον διάφορα ἥκιστα συμφέρει· εἰ δὲ ὅμοια πάντα ποιήσει τις, οὐκ ἔνι (θ: οὐκετι Μ *om. Lat*) τέρψις· αἰ πλεῖσται μεταβολαὶ καὶ πολυειδέσταται μάλιστα τέρπουσιν.

Instrument of music. It must be a means through which what harmony means will be clear. Chords coming from the same elements are different, from the high and from the low, alike in name but not alike in sound. Those that are most diverse make the best harmony, those that are the least diverse make the worst. If somebody makes everything similar, it would fail to please; it is the greatest changes and the most varied that please the most (*Regimen* I,18, p. 138,14-18 J-B).

7. Ἄλλ', ἢ δ' ὅς, οὐκ ἄλλας αἰτεῖς λείπειν ἢ ἄς νυνδὴ ἐγὼ ἔλεγον. Οὐκ ἄρα, ἦν δ' ἐγώ, πολυχорδίας γε οὐδὲ παναρμονίου ἡμῖν δεήσει ἐν ταῖς ᾠδαῖς τε καὶ μέλεσιν. Οὐ μοι, ἔφη, φαίνεται. Τριγώνων ἄρα καὶ πηκτίδων καὶ πάντων ὀργάνων ὅσα πολύχορδα καὶ πολυαρμόνια, δημιουργοὺς οὐ θρέψομεν. Οὐ φαινόμεθα. Τί δέ; αὐλοποιοὺς ἢ αὐλητὰς παραδέξῃ εἰς τὴν πόλιν; ἢ οὐ τοῦτο πολυχорδότατον, καὶ αὐτὰ τὰ παναρμόνια αὐλοῦ τυγχάνει ὄντα μίμημα; Δῆλα δὴ, ἢ δ' ὅς. Λύρα δὴ σοι, ἦν δ' ἐγώ, καὶ κιθάρα λείπεται [καὶ] κατὰ πόλιν χρήσιμα· καὶ αὖ κατ' ἀγροῦς τοῖς νομεῦσι σύριγξ ἂν τις εἴη.

—Then, I said, if these and these only are to be used in our songs and melodies, we shall not want multiplicity of notes or a panharmonic scale? —I suppose not. —Then we shall not maintain the artificers of lyres with three corners and complex scales, or the makers of any other many-stringed curiously-harmonised instruments? —Certainly not. —But what do you say to flute-makers and flute-players? Would you admit them into our State when you reflect that in this composite use of harmony the flute is worse than all the stringed instruments put together; even the panharmonic music is only an imitation of the flute? —Clearly not (Plato, *Republic* III, 399c5-d9, transl. B. Jowett).

8. μάγειροι ὅσα σκευάζουσιν ἀνθρώποισι διαφόρων, συμφόρων, παντοδαπὰ συγκρίνοντες, ἐκ τῶν αὐτῶν οὐ ταυτά, βρῶσιν καὶ πόσιν ἀνθρώπων. εἰ δὲ πάντα ὅμοια ποιήσει, οὐκ ἔχει τέρψιν· οὐδ' εἰ ἐν τῷ αὐτῷ πάντα συντάξειεν, οὐκ ἂν ἔχοι ὀρθῶς.

Cooks prepare for men dishes of ingredients that disagree while agreeing, mixing together things of all sorts, from things that are the same, things that are not the same, to be food and drink for a man. If the cook makes all alike, there is no pleasure, and it would not be right either if he were to compound all things in one dish (*Regimen* I,18, p. 138,18-21).

9. —But see the inexperience of to-day's cooks! Some are cooking in the same dish fishes which are absolutely opposite (...). What could be agreeable, when a specific taste is mixed with its contrary, and non consonant savours are interlarded? (...) —You are not a cook, but a *harmonikos!* (Damoxenus, *Fragm.* 1 Kassel-Austin, v.)

10. κρούεται τὰ κρούματα ἐν μουσικῇ τὰ μὲν ἄνω, τὰ δὲ κάτω. γλῶσσα μουσικὴν μιμεῖται διαγινώσκουσα* μὲν τὸ γλυκὺ καὶ τὸ ὀξύ τῶν προσπιπτόντων, καὶ διάφωνα καὶ σύμφωνα. κρούεται δὲ τοὺς φθόγγους ἄνω καὶ κάτω, καὶ οὔτε τὰ ἄνω κάτω κρουόμενα ὀρθῶς ἔχει οὔτε τὰ κάτω ἄνω. καλῶς δὲ ἡρμοσμένης γλώσσης, τῇ συμφωνίᾳ τέρψις, ἀναρμόστου δὲ λύπη.

*γλῶσσα μουσικὴν ... διαγινώσκουσα θ [a seclusimus] *lingua musicam imitatur [imitatum cod.]*, *sciens* Lat. (Deroux-Joly) Jones : γλῶσσα μουσικὴ ... διαγινώσκουσα M γλῶσσαν μουσικὴ ... διαγινώσκουσαν Koller, Joly-Byl

The notes struck while playing music are some high, some low. The *glossa* copies music in distinguishing, of the things that touch it, the sweet and the acid, the discordant from the concordant. The *glossa* strikes high- or low-pitched sounds, and it is well neither when the high notes are struck low nor when the low are struck high. When the *glossa* is in perfect accordance with harmony, pleasure comes from the accordance, but when it is not in accordance, pain (*Regimen* I,18, p. 138,21-26).

11. δῆλον δ' ἐστὶ καπὶ τῶν αὐλῶν. τὰ γὰρ ἔχοντα τῶν δευτέρων τὰς γλώττας πλαγίας μαλακωτέραν μὲν ἀποδίδωσι τὴν φωνήν, οὐχ ὁμοίως δὲ λαμπράν· τὸ γὰρ πνεῦμα φερόμενον εὐθέως εἰς εὐρυχωρίαν ἐπιπίπτει, καὶ οὐκέτι φέρεται σύντονον οὐδὲ συνεστηκός, ἀλλὰ διεσκεδασμένον. ἐν δὲ ταῖς σκληροτέραις γλώτταις ἢ φωνὴ γίνεται σκληροτέρα καὶ λαμπροτέρα, ἂν πίεσι τις αὐτὰς μᾶλλον τοῖς χεῖλεσι, διὰ τὸ φέρεσθαι τὸ πνεῦμα βιαίτερον
This is true also in the case of flutes. For those which have a sloping reed in their mouthpieces produce a softer sound, but not one equally clear; for the breath travelling strikes directly into the wide open space, and is no longer under tension and compressed but scattered. But in the case of tighter fitting reeds the voice becomes harder and clearer, because the breath travels with more violence ([Aristotle] *On things heard* 801 b 33-42, transl. W.S. Hett)

11b. δεῖ δὲ καὶ τῶν αὐλῶν εἶναι τὰς γλώττας πυκνὰς καὶ λείας καὶ ὁμαλὰς, ὅπως ἂν καὶ τὸ πνεῦμα διαπορεύηται δι' αὐτῶν λεῖον καὶ ὁμαλὸν καὶ μὴ διεσπασμένον
The reeds of flutes should also be strong, smooth and even, so that the air that passes through them may also be smooth, even and not scattered (802 b 20, transl. W.S. Hett).

12. τούτῳ δὲ καὶ ταῖς φωναῖς συμβήσεται· τᾶ μὲν ὑπὸ τῷ ἰσχυρῷ τῷ πνεύματος φερομένῳ μεγάλῃ τε εἶμεν καὶ ὀξέῃ, τᾶ δὲ ὑπ' ἀσθενέος μικρᾷ τε καὶ βαρέῃ. ἀλλὰ μὲν καὶ τούτῳ γὰρ καὶ ἴδοιμες ἰσχυροτάτῳ σαμείῳ, ὅτι τῷ αὐτῷ φθεγγαμένῳ μέγα μὲν πόρσωθέν κ' ἀκούσασιν· μικρὸν δέ, οὐδ' ἐγγύθεν. ἀλλὰ μὲν καὶ ἐν γὰρ τοῖς αὐλοῖς τὸ ἐκ τῷ στόματος φερόμενον πνεῦμα ἐς μὲν τὰ ἐγγύς τῷ στόματος τρυπήματα ἐπιπίπτει διὰ τὰν ἰσχύνην τὰν σφοδρὰν ὀξύτερον ἄχον ἀφήσιν, ἐς δὲ τὰ πόρσω, βαρύτερον· ὥστε δῆλον ὅτι ἂ ταχεῖα κίνασις ὀξὺν ποιεῖ, ἂ δὲ βραδεῖα βαρὺν τὸν ἄχον. (...) ἀλλὰ μὲν καὶ ὁ γὰρ κάλαμος, αἱ καὶ τις αὐτῷ τὸ κάτω μέρος ἀποφράξας ἐμφυσῆι, ἀφήσει <βαρέαν> τινὰ ἀμῖν φωνάν· αἱ δὲ καὶ ἐς τὸ ἡμισυ ἢ

ὀπόστον <ὄν> μέρος αὐτῶ, ὅξυ φθεγγεῖται· τὸ γὰρ αὐτὸ πνεῦμα διὰ μὲν τῷ μακρῷ τόπῳ ἀσθενὲς φέρεται, διὰ δὲ τῷ μειονος σφοδρόν.

The same thing will also happen with vocal sounds. The one carried by a strong breath will turn out to be loud and high, the one by a weak one, soft and low. But indeed we can see this fact from this strongest sign, that we can hear the same man speaking loudly from far off but speaking softly not even from near at hand. But indeed also in flutes, the breath moving from the mouth and falling into the openings near the mouth produces a higher sound because of the great force, but that falling into the holes further away, produces a lower sound (...). But also indeed, a reed, if someone, having blocked the lower part of it, blows in it, he will, you know, produce a low sound. But if he blows into the half or whatever part of it, it will sound high. For the same breath is carried weakly through a long distance and strongly through a shorter distance (Archytas, Fragm. 1, text and transl. Huffman).

14. If one snatches his *glotta* off, as those of *auloi*, he will not have anything left! (Aischines, *Against Ctesiphon* 22)

14b. Demades compared the Athenians to *auloi*: if one snatches their *glotta* off, there is nothing left (Stobaeus, *Flor.* IV 69).

15. ἔνδον δ' ἐν αὐτῷ τῷ πόρῳ τοῦ λάρυγγος ἔγκειται σῶμα τῷ σχήματι μὲν αὐλοῦ γλώττη παραπλήσιον, ιδιότητι δὲ τῆς οὐσίας οἷον οὐκ ἄλλο τῶν κατὰ τὸ σῶμα

Inside in this conduct of the larynx there is a body similar to the reed of the pipes, but different from any other part of the body by its peculiarities (Galen, *De usu partium* 7, III 353 Helmreich)

15b. ἔοικε μὲν αὐλοῦ γλώττη, μάλιστα κάτωθεν τε καὶ ἄνωθεν αὐτὸ θεωμένῳ. λέγω δὲ κάτωθεν μὲν, ἵνα συνάπτουσιν ἀλλήλοις ἢ τ' ἀρτηρία καὶ ὁ λάρυγξ· ἄνωθεν δέ, κατὰ τὸ στόμα τὸ γεννῶμενον ὑπὸ τῶν ταύτην περάτων τοῦ τ' ἀρυταινοειδοῦς χόνδρου καὶ τοῦ θυρεοειδοῦς. ἄμεινον δ' ἦν ἄρα μὴ τοῦτο τὸ σῶμα ταῖς τῶν αὐλῶν γλώτταις εἰκάζειν, ἀλλ' ἐκεῖνας τῶδε. καὶ γὰρ καὶ πρότερον οἶμαι τῷ χρόνῳ καὶ σοφώτερον τοῖς ἔργοις ἢ φύσις τῆς τέχνης ἐστίν. ὥστ', εἴπερ τουτὶ μὲν τὸ σῶμα φύσεως ἔργον ὑπάρχει, τέχνης δ' εὕρημά ἐστι τὸ κατὰ τοὺς αὐλοῦς, ἐκεῖνο τούτου μίμημα ἂν εἴη, πρὸς ἀνδρὸς εὕρημένον σοφοῦ γνωρίζειν τε καὶ μιμεῖσθαι τὰ τῆς φύσεως ἔργα δυναμένου. ὅτι μὲν οὖν χωρὶς τῆς γλώττης ἄχρηστος ὁ αὐλός, αὐτὸ δείκνυσι τὸ φαινόμενον.

It (i.e. the *glottis*) looks like the reed (*glotta*) of the *aulos*, especially when one looks at it from below or from above. By from below I mean the point where the *arteria* and the larynx join together; by from above the orifice that is opened at the extremities of the arytenoid and thyroid cartilages. It would be better to compare not this part of the body to the reeds (*glottai*) of the pipes, but these to this part. As a matter of fact, I think that nature is earlier and by its works wiser than art, so that if this part of the body is a work of nature and this part of the pipes a discovery of *techne*, the second one should be a copy of the first one, found by a clever man, able to recognize and to imitate the works of nature. Pipes without reeds are useless, as is shown by evidence ((III 561 Helmreich)