

[Hippocrates], *On Airs, Waters and Places* XI

Introduction

On Airs, Waters and Places deals with the relationship between environment and health, before moving onto an ethnographic account of the differences between Europeans and Asians and how these adaptations are again the result of environmental factors. Twenty-four chapters make up *On Airs, Waters and Places*, thus chapter 11 comes at the midway point. It is the final chapter of what might be called the medical section of the work, before the ethnographical section begins with chapter 12. A general introduction precedes chapters on the winds of each cardinal point, waters from springs, rains and from mixed sources, and two chapters on the effects of the seasons. The later part of the work shows parallels with Herodotus, but retains the characteristic Hippocratic style and “lacks the graceful bonhomie which is so characteristic [of Herodotus]” (Jones 1923: 66).

For an account of the main manuscripts, editions and landmark English translations, see Jones 1923, Diller 1970, Jouanna 1996, and Potter 2022. Strohmaier 2004 provides an overview of Galen’s commentary as well as suggesting how this may have impacted the transmission of *On Airs, Waters and Places*.

The question of authorship is a very substantial one, and not fully resolved. Classical references to Hippocrates are few, but a reference in Plato's *Phaedrus* (270c) potentially goes further than providing the historicity of Hippocrates, but may attribute *On Airs, Waters and Places* to his hand. Plato describes Hippocrates as the author of a true account of nature as a whole, and Lloyd shortlists either *On Ancient Medicine* or *On Airs, Waters and Places* as the 'true account' in question (Lloyd 1975: 173), but both are problematised. No single work of the Hippocratic corpus can be unproblematically attributed to Hippocrates, but *On Airs, Waters and Places* might be one for which the arguments in favour of attribution outweigh those against. For more about Hippocrates' biography and the Hippocratic question see Craik 2018, King 2020.

Greek text - as per Diller 1970

κατὰ ταῦτά τις ἐννοεῦμενος καὶ σκοπεύμενος προειδείη ἂν τὰ πλεῖστα τῶν μελλόντων ἔσεσθαι ἀπὸ τῶν μεταβολέων. φυλάσσεσθαι δὲ χρὴ μάλιστα τὰς μεταβολὰς τῶν ὥρέων τὰς μεγίστας καὶ μήτε φάρμακον διδόναι ἐκόντα μήτε καίειν ὃ τι ἐξ κοιλίην μήτε τάμνειν, πρὶν παρέλθωσιν ἡμέραι δέκα ἢ καὶ πλείονες: μέγισται δὲ εἰσιν αἶδε αἱ τέσσαρες καὶ ἐπικινδυνόταται: ἡλίου τροπαὶ ἀμφοτέραι καὶ μᾶλλον αἱ θεριναὶ καὶ αἱ ἰσημερίαι νομιζόμεναι εἶναι ἀμφοτέραι, μᾶλλον δὲ αἱ μετοπωριναί: δεῖ δὲ καὶ τῶν ἄστρον τὰς ἐπιτολὰς φυλάσσεσθαι καὶ μάλιστα τοῦ κυνός, ἔπειτα ἀρκτούρου, καὶ ἔτι πληϊάδων δύσιν. τὰ τε γὰρ νοσεύματα μάλιστα ἐν ταύτῃσι τῇσιν ἡμέρησιν κρίνεται. καὶ τὰ μὲν

ἀποφθίνει, τὰ δὲ λήγει, τὰ δὲ ἄλλα πάντα μεθίσταται ἐς ἕτερον εἶδος καὶ ἑτέρην
κατάστασιν.

Translation

Through studying and observing these things, one may know in advance more of that which is about to result from such changes. It is necessary to be watchful particularly of the greatest changes of the seasons, and not give purgative medicine wantonly or cauterize or cut open the abdomen before ten days or more have passed. What follows are the four most dramatic changes, being also the most dangerous: both of the solstices, and especially that of the summer, both the equinoxes, especially the autumnal. It is necessary also to be vigilant against the risings of the stars, especially of the Sirius, then of Arcturus, and also of the setting of the Pleiades. Since it is at these times that diseases come to a crisis. Some prove fatal, some cease, but all change in some form to another constitution.

Grammatical commentary

ἐννοούμενος present middle-passive participle, masculine nominative singular ἐννοέω 'to have in one's thoughts'. Hippocratic spelling of ἐννοούμενος, as found in Athenaeus, *Deipnosophistae* VI.2.

σκοπεύμενος A similar Hippocratic spelling of σκοπούμενος, as in Plato, *Alcibiades* 1.

καίειν present active infinitive καίω 'to kindle; to burn; to cauterize (in medical contexts)'. As elsewhere in Hippocratic corpus, and as found in Plato, *Gorgias* 480c

κοιλίην ‘any bodily cavity, especially the belly or abdomen’. Used by Herodotus II.87, in a description of Egyptian embalming practices. See Tsoucalas et al, 2016 for a brief discussion of 5th century abdominal surgeries. Tsoucalas 2018 provides further detail on one such surgery, the treatment of tumescence spleen.

ἡλίου τροπαὶ ‘turning points’, i.e. the solstices - 25 June and 23 December - the longest and shortest days of the year.

ισημερίαι ‘equality of the parts’, i.e. the equinoxes - 23 March and 25 September.

κυνός ‘the dog star; Sirius’. The heliacal rising - 19 July - marks the start of Summer in the Hippocratic world view. It also indicates the flooding of the Nile.

ἀρκτοῦρου ‘guardian of the bear; Arcturus’. The heliacal rising - 17 September - marks the end of summer. The brightest star in the constellation Boötes, and the third-brightest star in the sky.

πληϊάδων δύσιν ‘Pleiades’. A cluster of seven stars in the constellation Taurus. The cosmic setting - 6 November - marks the beginning of winter

Discussion

Chapter eleven provides advice to the itinerant doctor on the impact of the seasons. More details are provided in the Hippocratic work *On Regimen* which also goes into detail on how the year is divided (*On Regimen* 68). The solstice is understood as being the time at which “winter and summer have reached

their extremes" (Camden 2016: 173). The author of *On Regimen* describes the equinoxes 'equality of the parts', as being more gentle, but in *On Airs, Waters, and Places* doctors are warned they still pose a threat to patient health. The author stresses the importance of being aware of these cosmologically significant times of the year, but provides no detail on how they impact patient outcomes - presumably the author believed this would be obvious to their intended audience.

It is unclear if the instruction to refrain from administering purgatives or entering the bodily cavity is meant to represent specific procedures, or medical interventions in general. If the changing seasons can adversely affect abdominal surgery, do such cosmological changes not also affect procedures on the head or other extremities? The ten day waiting period after each solstice and equinox also presents problems, particularly if this is meant to apply to the movements of stars also mentioned, if so, it would mean almost 20% of the year is to be left fallow. The success of an itinerant doctor must rest on their abilities to treat disease - perhaps this section of *On Airs, Waters and Places* provides such medics with an insurance policy; some plausible account which could help them explain when things go wrong, thereby preserving their reputation - 'the procedure didn't work because the summer equinox was only a few days ago'. Having a calendar of these inauspicious days that covers much of the year, means there would always be some cosmological event the unsuccessful doctor could cite as extenuating circumstances in the event of a poor patient outcome.

Whilst the author of *On Airs, Waters and Places* has made a causal link between changing seasons and human health without adequate evidence to demonstrate such a link, the idea that some diseases and illnesses are more prevalent at certain times of the year does pass muster; hayfever and flu are both seasonal conditions. Even more strikingly, a large-scale study in Korea demonstrated that both sunshine duration and full moon are “significantly associated with fall injuries in rural areas”, and that weather changes are associated with similar injuries in both rural and metropolitan areas (Yuh et al 2021). The study suggests that the impact of the moon on fall injury frequency in rural areas could be partly explained by tidal changes which create more productive fishing opportunities, particularly for coastal and island communities - as more individuals take advantage of these opportunities during a full moon and participate the riskier activity of fishing, so the number of fall injuries is increased. No such data survives from the time of the Hippocratic author of *On Airs, Waters and Places*, but their observation that diseases can change and become more dangerous due to seasonal change, might well be well-founded. More dangerous seasonal activities such as fishing, but also harvesting, may well have led to an increase in patient numbers. Perhaps the advice to avoid purgatives and abdominal surgery should be interpreted as an instruction to not schedule what might be termed ‘elective’ procedures during these times when emergency treatments of seasonal illness and injury are likely to occupy more of a doctor's time.

As stark a warning as chapter eleven is, the author also suggests that these moments of seasonal change can also cause diseases to cease 'τὰ δὲ λήγει'. This allows doctors to use no intervention, but to watch and wait - sometimes the most effective medicine of all.

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