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“Through the stars to health”, or Iatromathematics in Rescue of the Ailing Body. A Review of Late Medieval Sources from Kraków

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Introduction

Healthcare has always been one of the key elements of human existence. Throughout history, the prevention of all kinds of diseases and disorders has been addressed by representatives of the various fields of science. Iatromathematics, which combines medicine and astrology, is an excellent example. Its origins date back to the seventh century BC, when the term first appeared in an astrological text by Petosiris and Nechepso (Nechepso was allegedly a king of Egypt; Petosiris' relationship to him is unclear, but they are often quoted together; no one has demonstrated conclusively which historical figures correspond to Nechepso or Petosiris).¹ It was believed, according to one of the principles of monism prevalent in Hermeticism, that “as above,

¹ *The Encyclopedia of Ancient History*, eds. Roger S. Bagnall, Kai Brodersen, Craig B. Champion, Andrew Erskine, Sabine R. Huebner (Oxford: Blackwell Publishing, 2013), 4722–4723, v. “Nechepso and Petosiris”; David Pingree, “Petosiris” in *Dictionary of scientific biography*, ed. Charles C. Gillispie, Vol. 10 (New York: Charles Scribner's Sons, 1974), 547–549; Ernst Riess, “Nechepsonis et Petosiridis fragmenta magica” in *Philologus* 6, 1 (1892); cf. Karl Sudhoff, *Iatromathematiker vornehmlich in 15 und 16 Jahrhundert. Eine Studie*, Abhandlungen zur Geschichte der Medizin, Bd. 2 (Breslau: J.U. Kern [M. Müller], 1902), 28–29; Tamysyn Barton, *Ancient Astrology* (London–New York: Routledge, 2003), 26–27, 43; Pedro P. Fuentes González, “Néchépso-Pétosiris” in *Dictionnaire des Philosophes Antiques*, ed. Richard Goulet, Vol. 4 (Paris: C.N.R.S.–Éditions, 2005), 601–615.

so below.” Thus, there was supposed to be a strong relationship between the lunar world and the sublunar world, which was based on their identical components, i.e. the fact that they consisted of the same four elements: water, fire, air and earth, and their corresponding primal qualities – moisture, heat, dryness, and cold.² The theory of the unity between the macrocosm and the microcosm, in relation to the four elements, was propagated by Empedocles (fifth century BC), and expanded, with an addition of the concept of the four primal qualities, by Aristotle, who wrote: “[...] there will be four pairs of elemental qualities, namely, hot and dry, hot and moist, cold and moist, cold and dry.”³

Humoral medicine

Aristotle, and later Hippocrates and Galen, laid the foundations for the development of humoral medicine, on which iatromathematics was based.⁴ According to this concept, each element, with the properties attributed to it, was associated with one of the humours: phlegm or mucus (Greek: *phlegma*) was cold and moist, bile (Greek: *chole*) was hot and dry, black bile (Greek: *melaina chole*) was cold and dry, and blood (Latin: *sanguis, -inis*) was hot and moist. An equilibrium of the fluids in the human body ensured health (the state of so-called eucrasia was maintained), while a significant predominance of one of the humours caused illness (the state of dyscrasia). This is because it was believed to be natural for a small but significant predominance of a specific humour to condition the so-called complexion of man, i.e. his temperament. Depending on the predominance of one of the liquids in the body – phlegm, bile, black bile or blood – one was phlegmatic, choleric, melancholic or sanguine.⁵ What is more, the scheme of the four elements

² Radosław Piętka, “Mikro- i makrokosmos w starożytności od presokratyków do Ojców Kościoła” in *Makrokosmos versus mikrokosmos*, ed. Anita Magowska (Poznań: Wydawnictwo Kontekst, 2009), 38–48; Zofia Kalemba, “Wpływ koncepcji makro- i mikrokosmosu na pojmowanie choroby i człowieka chorego,” *Medycyna Nowożytna. Studia nad Historią Medycyny* 5 (1998): 1, 29–38; cf. Lyon Sprague de Camp, Catherine Crook de Camp, *Duchy, gwiazdy i czary*, transl. Waław Niepokólczycki (Warszawa: PWN, 1970), 42.

³ Arystoteles, *O powstawaniu i ginieciu*, I, 314a1–315a25, transl. Leopold Regner (Warszawa: PWN, 1981), 57; further: Magdalena Wilejczyk, *Filozofa przyrody Arystoteles – wokół koncepcji czterech elementów* (Wrocław: Wydawnictwo Uniwersytetu Wrocławskiego, 2008), *passim*.

⁴ Kenneth D. Keele, *Leonardo da Vinci on Movement of Heart and Blood* (London: Harvey and Blythe, Ltd., 1952), 55; Zdzisław Gajda, *Do historii medycyny wprowadzenie* (Kraków: WAM, 2011), 208; Glen M. Cooper, “Galen and Astrology: A Mésalliance?,” *Early Science and Medicine* 16, 1 (2011): 120–146; Owsei Temkin, *Galenism: Rise and Decline of a Medical Philosophy* (New York: Cornell University Press, 1973). Cf. Geoffrey E.R. Lloyd, *Nauka grecka od Talesa do Arystotelesia*, transl. Jakub. Lesiński (Warszawa: Prószyński i S-ka, 1998), 51–113; *idem*, *Nauka grecka po Arystotelesie*, transl. Jakub. Lesiński (Warszawa: Prószyński i S-ka, 1998), 81, 95, 138, 153.

⁵ Roger French, “Astrology in Medical Practice” in *Practical Medicine from Salerno to the Black Death*, eds. Luis Garcia-Ballester, Roger French *et al.* (Cambridge: Cambridge University Press, 1994),

and primal qualities included plants and animals, as well as minerals – the basic raw materials for the preparation of medicines. This was of enormous importance from the point of view of the medicine of the time, and therefore iatromathematics, since, according to the principle *contraria contrariis curantur*, ailments caused by the predominance of one of the humours were to be treated with medicines of opposite properties, i.e. warming, cooling, moistening and drying.⁶

Melothesia

The belief in the correlation occurring between the lunar world and the sub-lunar one resulted in the association of individual parts of the human body with zodiac signs. This was the origin of melothesia, the visualised form of which became the famous *Homo zodiacus* vel *Homo signorum*. This concept was formulated in the first century AD by Marcus Manilius, a poet, Stoic philosopher and astrologer, who presented a simple classification in the second and fourth book of his didactic poem *Astronomica*. According to it, the first sign of the zodiac – Aries – was responsible for the human head, Taurus – for the neck, Gemini – the shoulders, Cancer – the breast, Leo – the sides, Virgo – the abdomen, Libra – the hips, Scorpio – the genitals, Sagittarius – the thighs, Capricorn – the knees, Aquarius – the shins, and the last sign of the Zodiac, Pisces – the feet.⁷ In this way, the so-called Zodiac Man (*Homo zodiacus*, *Homo signorum*)⁸ was created, becoming a symbol not only of melothesia, but of iatromathematics in general. What is more, the individual organs of the human body were also assigned to particular planets (including the so-called luminaries, i.e. the Sun and the Moon, which were then regarded as planets).

Claudius Ptolemy

In his work, which was extremely important for astrologers, Claudius Ptolemy created a model, adopted by subsequent generations of scholars, of what we could

44–47; Raymond Klibansky, Erwin Panofsky, Fritz Saxl, *Saturn i melancholia. Studia z historii, filozofii, przyrody, medycyny, religii oraz sztuki*, transl. Anna Kryczyńska (Kraków: Universitas, 2009), 31.

⁶ Jan Szostak, *Farmakognozja, farmacja galenowa i aptekarstwo w renesansowych zielnikach polskich* (Warszawa: PZWL, 2006), 171–173; cf. Robert Rembieliński, Barbara Kuźnicka, *Historia farmacji* (Warszawa: PZWL, 1972), 65–66.

⁷ Marcus Manilius, *Astronomica*, II, IV, transl. George P. Goold, The Loeb Classical Library (Cambridge–London: Harvard University Press, 1977), 119, 279.

⁸ Charles Clark, “The Zodiac Man in Medieval Medical Astrology,” *Journal of the Rocky Mountain Medieval and Renaissance Association* 3 (1982): 13–38; Markham J. Geller, *Melothesia in Babylonia. Medicine, Magic and Astrology in the Ancient Near East* (Berlin: De Gruyter, 2014), *passim*.

call “extended melothesia.”⁹ He arranged the planets according to the parts of the human body. Saturn was the ruler of the right ear, spleen, bladder, mucus, and bones; Jupiter was the ruler of the sense of touch, lungs, arteries, and semen; Mars – of the left ear, kidneys, veins, and reproductive organs; Sun – ruled sight, the brain, the heart, sinews, and all parts of the right side of the body; Venus – the liver, muscles, and the sense of smell; Mercury – speech and thought, the tongue, bile and buttocks; the Moon – the stomach, the uterus, the sense of taste, as well as organs lying on the left side of the human body.¹⁰ Thus, the moon and these planets were thought to be responsible for any infirmity of the body parts and organs assigned to them. The moon and planets could also act together to cause specific afflictions. For example, Mercury in conjunction with Saturn was said to cause constant attacks of rheumatism and issues with the body fluids, mainly in the chest, throat and stomach, because such an arrangement increased the cooling effect. Saturn, on the other hand, together with Mars (two planets considered hostile to all living creatures; they were referred to, respectively, as the great malefic and the small malefic), had a more drying effect, which could result in “persistent eye diseases, scabs, abscesses, rosacea, persistent impetigo, melancholy, madness and epilepsy.”¹¹ Ptolemy also stated that Cancer, Capricorn and Pisces, and generally all signs shaped like land and water animals, were predisposed to diseases such as ulcers, psoriasis, scrofula, abscesses, leprosy and impetigo, i.e. dermatological problems. Sagittarius and Gemini were thought to be responsible for seizures and epilepsy.¹² Fortunately, some planets, especially the so-called benefics (Jupiter, the great benefic, and Venus, the small benefic, were regarded as such), had the power to alleviate ailments. According to Claudius Ptolemy:

Jupiter [...] would mitigate the effects of acute illnesses, providing useful help for people in the form of wealth and honours, and relieve chronic illnesses (together with Mercury and the help of medicines and expert doctors). Venus, thanks to the guidance of [the] gods and oracles, endows the former diseases with some beauty and charm, and facilitates the alleviation of the latter ailments with cures of divine origin; however, when she is accompanied by Saturn, this will occur on the occasion of the sick person’s exposure to the public, their loud confession or similar [actions], while when it is Mercury, [this will occur] thanks to the fact that such acute or chronic diseases are in a certain sense helpful to the afflicted and bring them income.¹³

⁹ Klaudiusz Ptolemeusz, *Czworoksiąg (Tetrábiblos)*, 3.13–14, transl., footnotes Grzegorz Muszyński, introd. Jarosław Włodarczyk, Grzegorz Muszyński (Wrocław: Wydawnictwo Uniwersytetu Wrocławskiego, 2012), 171–175.

¹⁰ *Ibidem*, 3.13.4, 171.

¹¹ *Ibidem*, 3.14.16, 174.

¹² *Ibidem*, 3.14.17, 174.

¹³ *Ibidem*, 3.14.18, 175.

Development of astrological medicine in the Middle Ages

Thus, astrological knowledge turned out to be an essential companion to medical knowledge. One could not be a good medical practitioner without knowledge of the art of astrology.¹⁴ It is enough to mention Rhazes, Averroes, Abraham ibn Ezra, Al Kindi, as well as Moshe Maimonides, who assimilated and considerably expanded the achievements of ancient medicine, which was based on the theory of liquid humours, and firmly established it in the context of astrology.¹⁵ Also, every scholar who dealt with astrology incorporated more or less extensive paragraphs referring precisely to iatromathematical issues in his works.¹⁶

Arnold de Villanova,¹⁷ Guido Bonatti,¹⁸ and Leopold of Austria recognised the parallel between the macrocosm, represented by the lunar world with all its constituent elements (planets, luminaries, stars, comets), and the microcosm, focused on the human body. They expressed it in their works, which were widely known and appreciated in scientific circles. Moreover, the combination of the medical and astrological professions was almost universal in medieval Europe.¹⁹ In the royal courts of Italy, Spain, England, France, Germany, Hungary, Bohemia, etc., medics proficient in the art of forecasting from the positions of celestial bodies were constantly present.²⁰ It was no

¹⁴ Cf. Heinrich Schipperges, *Die Assimilation der arabischen Medizin durch das lateinische Mittelalter*, Sudhoffs Archiv, Bd. 3 (Wiesbaden: F. Steiner, 1964); *idem*, *Arabische Medizin im lateinischen Mittelalter* (Berlin–Heidelberg–New York: Springer, 1976); Raphaela Veit, *Das Buch der Fieber des Isaac Israeli und seine Bedeutung im lateinischen Westen. Ein Beitrag zur Rezeption arabischer Wissenschaft im Abendland*, Sudhoffs Archiv, Bd. 51 (Wiesbaden: Franz Steiner Verlag, 2003); Danielle Jacquart, Françoise Micheau, *La médecine arabe et l'Occident médiéval* (Paris: Maisonneuve et Larose, 1990); Liana Saif, "The Arabic Theory of Astral Influences in Early Modern Medicine," *Renaissance Studies* 25 (2011): 5, 609–626, etc.

¹⁵ Gajda, *Do historii medycyny wprowadzenie*, 180–186; Emilie Savage-Smith, "Medycyna" in *Historia nauki arabskiej*, Vol. 3: *Technika, alchemia, nauki przyrodnicze i medycyna*, eds. Roshdi Rashed, Régis Morelon (Warszawa: Dialog, 2005), 161–222.

¹⁶ Charles Burnett, "Astrology and Medicine in the Middle Ages," *Society for the Social History of Medicine Bulletin* 37 (1985): 16–18.

¹⁷ Sebastià Giralt, "Arnaldus astrologus? La astrologia en la medicina de Arnau de Villanova," *Med Hist (Barc)* 2 (2003): 1–15; *idem*, "Medicina i astrologia en el corpus arnaldià," *Dynamis* 26 (2006): 15–38.

¹⁸ Guido Bonatti, *De Astronomia tractatus X vniuersum quod ad iudiciariam rationem natiuitatum, aëris, tempestatum, attinet, comprehendentes* (Bazylea: Nicolaus Prucknerus, 1550), <https://tinyurl.com/4jstjxdv>, accessed on 1 April 2014.

¹⁹ Józef A. Dobrowolski, "Filozoficzne uwarunkowania powiązań medycyny z magią (naturalną) i astrologią w XV–XVI wieku," *Archiwum Historii i Filozofii Medycyny* 49 (1986): 3, 311, goes further to claim that "in almost all universities during the Renaissance, the teaching of astronomy was assigned to those who had a degree in medicine or were studying medicine."

²⁰ Arnold de Villanova, a famous physician from the thirteenth and the beginning of the fourteenth century, personal physician to King James II of Aragon and rector of the University of Montpellier, author of the famous *Regimen Sanitatis Salernitanum*, was an accomplished astrologer. See Ludwik Zembruski, "Średniowieczny utwór Regimen Sanitatis Salernitanum w oświetleniu

different in Poland.²¹ It is also significant that the development of iatromathematics was fostered by the medieval academic teaching system, both in Salerno and Montpellier, but also in Padua and Bologna,²² as evidenced by the names of the medical faculties at medieval universities – *Facultas saluberrima medicinae et astrologicae*.²³ This process was intensified by the foundation of the Chair of Astrology at the University of Kraków.

Kraków iatromathematical writings

“Cracovia astrologis referta est” was the opinion circulating about Kraków at the end of the fifteenth century. This was due to the flourishing activities of the Chair of Astrology, unique in Central Europe, founded in the mid-fifteenth century by Mikołaj Król of Żurawica, who was involved in astrology as well as in medicine.²⁴ Students who came to Kraków to learn astrology were taught by the most brilliant minds of the time, studying the arcana of this, as it was then called, “art and science.” Since the influence of the celestial bodies was extended to all elements, without exception, of the sublunar world, and thus also to man, matters of health and illness were a constant point of reference for astrological prognoses. An excellent testimony to this is the rich legacy left by the Kraków masters.

Kraków astrologers presented iatromathematical issues in a variety of ways. They discussed theoretical considerations on cosmic influences either in a comprehensive manner, devoting short topical notes to these issues only (*Nota de astrologia et medicinae* by Andrzej of Kraków,²⁵ *De particularibus iudiciis, secundum quod faciunt ad medicinam* by an anonymous author),²⁶ or in extensive treatises (*Centiloquium de medicis et infirmis decerptum ex penetralibus astrologiae, cuius*

niektórych dawniejszych autorów polskich,” *Archiwum Historii i Filozofii Medycyny oraz Historii Nauk Przyrodniczych* 10 (1920): 1–19.

²¹ Sylwia Konarska-Zimnicka, “Wenus panią roku, Mars towarzyszem...” *Astrologia w Krakowie XV i początku XVI wieku* (Kielce: Wydawnictwo UJK, 2018), *passim*.

²² Cf. Stefano Caroti, *Lastrologia in Italia* (Roma: Newton Compton, 1983), *passim*.

²³ Dobrowolski, „Filozoficzne uwarunkowania”: 314; Hyacinthe Brabent, Salomon Zylberszac, *Le soleil dans la médecine a la Renaissance* (Bruxelles–Paris: Presses Universitaires de Bruxelles, Presses Universitaires de France, 1965), 28; Cf. Jerzy Jankowski, *Historia medycyny średniowiecznej w Polsce, Człowiek, Populacja, Środowisko*, Prace Dolnośląskiego Centrum Diagnostyki Medycznej Dolmed we Wrocławiu, t. 5, z. 26 (Wrocław: Dolnośląskie Centrum Diagnostyki Medycznej Dolmed, 1988), 49. It is worth mentioning that the statutes of the University of Bologna, drawn up in 1405, provided for a four-year course in medicine and the same number of years for practical vocational training, as well as for three years for the study of philosophy and three for astronomy with astrology.

²⁴ Konarska-Zimnicka, “Wenus panią roku, Mars towarzyszem,” 19–80.

²⁵ Andrzej of Kraków, *Nota de astrologia et medicinae*, Biblioteka Jagiellońska, msc 584, ff. 117v–118r.

²⁶ Anonymous, *De particularibus iudiciis, secundum quod faciunt ad medicinam*, Biblioteka Jagiellońska, msc 584, ff. 119r–120r.

medico, apprime cum necessarium, tum utile by Szymon of Łowicz).²⁷ Some of them included iatromathematical themes in narratives on astrology in the broadest sense of the term, setting out their reflections in short paragraphs or chapters (*Introductorium astronomie Cracoviense elucidans almanach* by Michał Falkener of Wrocław; *Introductorium astronomie* by Jan of Głogów; *Introductorium astrologie* by Waclaw of Kraków).²⁸ There were also attempts to give a practical dimension to the iatromathematical theory, and this was achieved primarily through calendars, prognostics, and astrological *iudicia*,²⁹ as well as horoscopes, especially horoscopes of illness, the so-called decumbitures.³⁰ Herbaria also played an important role (Stefan Falimirz, Marcin Siennik, Hieronim Spiczynski).

Introductions to astronomy and astrology

The basis of iatromathematical considerations lay in humoral medicine, fundamental at the time, which was combined with the principle of melothesia and the rudiments of astrological knowledge. The analysis of the nature of the planets and the signs of the zodiac, their interrelationships depending on the time and position in the sky (determined on the basis of the then current astronomical tables and astronomical/astrological observations made with professional astronomical instruments), the appearance of unusual celestial bodies such as comets, the occurrence of phenomena such as eclipses, the presence of fixed stars and “cloudy stars” (nebulae), the analysis of various points which, according to astrological rules, were supposed to influence matters of health and illness – all of this played a key role in predicting future events of a medical (and not only, of course) nature. In introductions to astronomy and astrology, these issues were explained to the reader more or less extensively, depending on the volume of the work itself.³¹

²⁷ Szymon of Łowicz, *Centiloquium de medicis et infirmis decerptum ex penetralibus astrologiae, cuius medico, apprime cum necessarium, tum utile*, Florian Ungler, Cracovia 1532, Biblioteka Ossolineum, XVI.O.550.

²⁸ Edward Grant, *A Sourcebook in Medieval Science* (Cambridge-Massachusetts, Harvard University Press, 1973), *passim*.

²⁹ Konarska-Zimnicka, “Wenus panią roku, Mars towarzyszem,” 81–136.

³⁰ Nancy G. Siraisi, *Medieval & Early Renaissance Medicine. An Introduction to Knowledge and Practice* (London: The University of Chicago Press, 1990), 122.

³¹ Michał of Wiślica, *Vsus almanach seu ephemeridum interpretatio, De iudiciis erigendis. De electionibus communibus, Canones natiuitatum*, Florian Ungler, Kraków 1532, Biblioteka Ossolineum, XVI.O. 503, pp. 27v–28v, 29v; Michał Falkener z Wrocławia, *Introductorium astronomie Cracoviense elucidans almanach, czyli kompendium wiedzy astrologicznej*, transl. and ed. Sylwia Konarska-Zimnicka, ed. Piotr Piotrowski, Biblioteka PTA, t. 6 (Warszawa: PTA, 2014), 35–41, 70–80, 52–56, 107–112.

In his *Introductorium astronomie*, Michał Falkener of Wrocław, in addition to providing information on the aforementioned topics, devoted two separate chapters exclusively to medical issues. They were entitled *On phlebotomy and blood-letting* and *On the right time for treatment*, and included paragraphs on bathing and cupping. The scholar devoted a lot of attention to these treatments, following respected authorities (Avicenna, Al-Kindi) in recognising them as effective remedies for the various ailments afflicting society at the time. The scholar advised that for phlebotomy to be carried out in phlegmatic people, the most favourable time would be when the Moon was in Aries, and he strictly prohibited, in accordance with the universally held principle of melothesia, incisions of the head at that time. When the Moon was in the sign of Sagittarius, one was allowed to let blood out of the veins on the head (however, incisions of the hip were then forbidden). The Moon in Aquarius or in the first half of Libra would favour bloodletting in melancholic patients, while the Moon in the sign of Cancer and Pisces would guarantee the success of the procedure in choleric patients.³² It is noteworthy that this scholar, quoting information on melothesia and the sign of Pisces, assigned not only the feet to this sign (this attribution had been used since antiquity), but also the toenails, probably in connection with a common ailment – paronychia (i.e. ingrowing of nails).³³

Jan of Głogów, on the other hand, as he was not a physician and medicine does not seem to have been among his particular interests, treated iatromathematical issues in a rather perfunctory manner. He admitted, however, that there was no doubt as to the close relationship between the 12 signs of the zodiac and the human body, and that therefore a *sine qua non* condition was to know the nature of the planets and the signs of the zodiac.³⁴ He included a detailed description of the planets and the signs, copying the information from his predecessors, above all, from Ptolemy.

Michał of Wiślica devoted as many as three separate chapters to this matter, entitled *Tempora flebotomiae, ventosisque apta eligere*, *Tempora pro farmaco sumendo salutaria eligere*, as well as *Pro balneis convenientia tempora servatari*. These are supplemented by another chapter discussing energies and their allocation to the planets (*Diversa corporis membra, virtutes et operationes sub felici constellatione medicaminibus appropriatis confortare*). Although the canon of knowledge presented here does not differ from the information provided by Głogowczyk or Falkener, it is noteworthy that this Kraków scholar must have treated cutting hair and nails extremely seriously, since he devoted completely separate chapters

³² Michał Falkener z Wrocławia, *Introductorium astronomie*, 53.

³³ *Ibidem*, 38, 74.

³⁴ Jan of Głogów, *Introductorium astronomie* in ephemerides, Florian Ungler, Wolfgang Lern, Kraków 1514, Biblioteka Uniwersytetu Śląskiego, st. dr. 16416 II, 2va–b, 27rb–28ra.

to these very issues (*Ad tondendos capillos idoneum tempus observare, Tempus ad resectionem unguium aptum edocere*).³⁵

It should be emphasised here that these textbooks were primarily addressed to students of astrology, and not necessarily to medical practitioners, as evidenced by the fact that the focus of the material contained in them was on astrological issues, and the medical ones were treated as secondary.

Szymon of Łowicz

The matter is somewhat different in the case of the aforementioned work by Szymon of Łowicz, who devoted equal attention to both astrological and medical issues. In his treatise, the author gave a comprehensive account of all iatromathematical topics. These ranged from the assignment of individual planets and zodiac signs to the organs of the human body as well as to the illnesses and disorders associated with them, to the discussion of horoscope charts of the medical practitioner, the patient, as well as of the illness itself and the treatments suggested thereupon. All this information was based on the medical and astrological knowledge of the time, as evidenced by the numerous references to authorities of the ancient and medieval scientific world. The author described in detail the location of the planets and the zodiac signs in the various houses of the horoscope chart,³⁶ recognising that these indications would be useful in the practice of both an astrologer and a physician. In the very first sentence, the author says that although medicine as a science was perfect, the physician had to know the secrets of astrological knowledge, for “*medicus [...] in opere suo sine astrologia non est perfectus*.”³⁷ Szymon of Łowicz described the best placement of planets for those wishing to become doctors. According to him, a good doctor was to be the one “*in cuius nativitate Mars et Venus fuerint corporaliter*,” and the “*perfectus medicus*” would be the one with these two planets in the sixth house of his horoscope chart.³⁸ According to Szymon of Łowicz, astrological factors also played a role in the case of patients. A tendency to various illnesses and ailments depended on their birth charts. For example, we read

³⁵ Michał of Wiślica, *Vsus almanach seu ephemeridum interpretatio*, 28v–29v. As an example, the scholar suggested that if one wanted to style their hair *pro decoro*, it was advisable to choose a time when the Moon was placed in a “hairy” sign (most of all, in Taurus). The advice was also directed at those who wanted to get rid of excessive hair or who suffered from hair loss. *Ibidem*, 29r.

³⁶ The houses of the horoscope chart are 12 parts into which the celestial sphere is divided. This division results from the diurnal movement of the Earth around its axis. Each part is assigned a specific sphere of existence in the sublunar world.

³⁷ Szymon of Łowicz, *Centiloquium de medicis et infirmis*, 3r.

³⁸ *Ibidem*.

that “morpheati, leprosi et cancrosi” were those in whose birth charts “the Moon is on the ascendant³⁹ with Saturn or Mars in any one of the water signs”⁴⁰ or is conjunct⁴¹ Saturn.⁴² Patients with arthritis, gout and various pains were characterised by a chart in which “Saturn or Mars will be in the sixth house, or the unfortunate lord of the sixth house will be in the twelfth house, especially if that house contains Capricorn, Aquarius or Pisces.”⁴³ Similar consideration was given to those suffering from other ailments. The time of the physician’s arrival was also extremely important, as was the time of falling ill. For if, as the Łowicz man argued, the patient’s meeting with the doctor occurred in the hour of Saturn,⁴⁴ then “morietur infirmus, aut grandes anxietates et tarditates pacient medicus in curando infirmum.” The hours ruled by Mars were similarly unfavourable. In contrast, the hours attributed to Jupiter and Venus were thought to be the most favourable. All the remaining hours were considered average. Szymon of Łowicz also stressed the importance of observing the Moon. The scholar pointed out that one should be particularly concerned about those illnesses that a person would contract when the Moon and the lord of the ascendant were in the eighth house, signifying death. In such a situation, we read, it was necessary to intensify patient care and the studious observation of celestial bodies, especially of those associated with ailing organs, or with specific diseases and infirmities.

All in all, the topics discussed by Szymon of Łowicz were numerous, as were the ailments and diseases listed, all of them conditioned by the influence of elements of the lunar world.

Astrological notes

Short iatromathematical notes, on the other hand, usually dealt with single issues and were addressed to experts in the subject who had at least a basic knowledge of iatromathematics. For example, Andrzej of Kraków, in a note dated 1449, started his considerations with a description of the horoscope chart, listing the houses, which he called corners or angles (*anguli, -orum*), according to the following division: the most important, the angular (cardinal) houses – 1, 4, 7, 10; the succedent houses – 2, 5, 8, 11; and the cadent houses – 3, 6, 9, 12. He devoted a lot of attention to the rulership of the planets over the signs of the zodiac.

³⁹ The ascendant is a point on the ecliptic that rises in a particular time and place on the Earth.

⁴⁰ I. e. Cancer, Scorpio, and Pisces; they were regarded as water signs, sometimes referred to as “rain” or “moist” signs.

⁴¹ Conjunction is an angular distance of 0 degrees between planets; sextile – 60°, square – 90°, trine – 120°, opposition – 180°.

⁴² Szymon of Łowicz, *Centiloquium de medicis et infirmis*, 5v.

⁴³ *Ibidem*.

⁴⁴ According to astrological principles, each hour was assigned to a specific planet.

The information he presented was consistent with the state of knowledge at the time. It is noteworthy that Andrzej of Kraków emphasised the importance of the location of planets in specific degrees and suggested that special attention should be paid to whether a planet was in its exaltation,⁴⁵ or its domicile,⁴⁶ what aspects it formed etc. The Kraków scholar provided guidelines on how to set and interpret the chart of an illness. Moreover, he emphasised that, although each planet was ascribed rulership over specific parts of the human body, this rulership could change depending on the placement of a given planet in various signs of the zodiac. For example, Saturn was ascribed rulership over, among other things, the spleen and the bladder; however, when it was in the sign of Gemini, it influenced all viscera, and in the sign of Libra it affected the knees. The author described all the planets, as well as the Sun and the Moon, in a similar manner, giving quite detailed iatromathematical guidelines.

Iudicia, prognostics, calendars

Iudicia and prognostics presented information on matters of health and illness in a slightly different form. Short paragraphs devoted to medical issues (entitled, for instance, *De salute et infirmitate*,⁴⁷ *De egritudinibus et mortalitatibus hominum*,⁴⁸ *De infirmitatibus*,⁴⁹ etc.) concentrated on informing the public what they should expect in the coming year, rather than presenting the scientific skills of the astrologer and the methods of obtaining particular information (although, of course, “background data,” such as the lord of the year, eclipses to occur, the positions of celestial bodies, etc., were meticulously recorded each time). The immensely popular calendars, on the other hand, reduced medical issues to indicating, by means of graphic symbols explained in the key, the best, good, average or bad days for performing particular medical procedures. The use of all this complex knowledge resulted in indications concerning the choice of the most effective time for particular treatments, above all,

⁴⁵ Exaltation (Latin: *exaltatio, -onis*) is a sign specific for each planet (with an extremum in a particular degree), where its power is supposed to be the greatest. Guido Bonatti, *De Astronomia*, col. 39–40; F. Rochberg, *Babylonian Horoscope* (Philadelphia: American Philosophical Society, 1998), 47–50; Michał Falkener z Wrocławia, *Introductorium astronomie*, 81–82, footnote 68.

⁴⁶ Domiciles of the planets are signs that are ruled by these planets.

⁴⁷ Mikołaj of Toliszaków, *Iudicium celebratissime Vniuersitatis Cracouiensis... in annum Domini millesimum quingentesimum sedecimum editum*, Jan Haller, Florian Ungler, Kraków 1516 (?), Biblioteka Kórnicka PAN, st. dr. cim., Qu. 2112, 5v–6r.

⁴⁸ Jakub of Iłża, *Judiciale pronosticon pro Christi anno 1517... calculatum*, Jan Haller, Kraków 1517 (?), Biblioteka Uniwersytetu Wrocławskiego, st. dr. 400622, 4v.

⁴⁹ Mikołaj Prokopiades of Szadek, *Pronosticon accidentium ex syderali dispositione anni Domini 1520... in Studio Cracoviensi editum*, Hieronim Wieter, Kraków 1519, Biblioteka Narodowa, XVI. Qu. 6068, 2v–3r.

phlebotomy,⁵⁰ baths, and cupping, as well as the preparation and administration of medicines. This advice, incomprehensible to modern people, was clear and straightforward and, more importantly, highly desirable to people of the Middle Ages.⁵¹

Thanks to the efforts of astrologers, a sick person in need received advice such as the following:

February. On St. Dorothy's day, the best [time] for young people and choleric patients, with the exception of saphena.⁵² Good [time] for taking pills and baths. Pisces. Saturday before [St.] Apolonia good for young people, phlegmatic patients, with the exception of cephalis.⁵³ Good [time] for baths. Aries [...].⁵⁴

In calendars, these instructions were even more specific. For example, Mikołaj Prokopiades of Szadek, in his calendar for the year 1525, indicated that in January, the following days were good for bloodletting: the 18th, 19th, 25th, 27th, and 28th. The 7th and 14th days of that month were slightly worse, but, according to the author, bloodletting was also permitted. On the remaining days, the procedure was advised against. As for cupping, he considered the following days of January: 2nd, 7th, 18th, 19th, 25th, 27th, and 28th favourable.⁵⁵

⁵⁰ Liakat A. Parapia, "History of bloodletting by phlebotomy," *British Journal of Hematology* 143 (2008): 490–495; Pedro Gil-Sotres, "Derivation and revulsion: the theory and practice of medieval phlebotomy" in *Practical Medicine from Salerno to the Black Death*, 110–155; L. Stanley P. Davidson, *The Principles and Practice of Medicine* (Edinburgh–London: E. and S. Livingstone, 1952), 452–453; cf. Beata Wojciechowska, *Flebotomia i purgowanie czyli o leczeniu w wiekach średnich* (Kielce: Wydawnictwo UJK, 2019), *passim*.

⁵¹ Bartosz Chmielnicki, "Oczekiwania pacjenta wobec lekarza w średniowiecznej medycynie europejskiej" in *Relacje lekarz–pacjent w aspekcie społecznym, historycznym i kulturowym*, ed. Bożena Płonka-Syroka (Wrocław 2005), 95–101.

⁵² Saphenous veins. As far as phlebotomy was concerned, the *saphena interior* (*inner saphenous vein*), located on the inner side of the ankle under the medial malleolus, removed blood from the organs from the liver downwards, and drew blood from the upper organs to the lower organs. It also drained blood from the prostate, testicles and uterus, and opened the veins of the cervical canal and of the anus, which was believed to cure haemorrhoids and facilitate the passing of the stool. The *saphena exterior* (*outer saphenous vein*), located under the lateral malleolus, removed and drew blood from the hip and thigh, but also from the kidneys and outer limbs.

⁵³ *Vena cefalica* – the cephalic vein, the incision of which (at the back of the head) was thought to relieve chronic headache.

⁵⁴ Jan z Głogowa, "Ad laudem celsitudinemque omnipotentis Dei, in cuius voluntate omnia sunt posita ad communem hominum utilitatem. Ego magister Johannes Glogoviensis tempora electa ad fleubothomandum et medicinarum laxativarum observanda iuxta motum Lune in duodecim signis zodiaci ad annum 1505 currentem describere institui, Jan Haller, Kraków 1504/1505" in *Polonia typographica saeculi sedecimi*, fasc. II: *Jan Haller 1505–1525*, eds. Alodia Kawecka-Gryczowa, Helena Kapelūś (Wrocław: Zakład Narodowy im. Ossolińskich, 1968), tab. 29: "Februarius. In die sancte Dorothee bona pro iuvenili, coleris, preter zaphenas. Bona in pillulis et balneo. Pisces. Sabbato ante Appolonie bona pro iuvenili, flegmaticis, preter cephalicam. Bona in balneo. Aries."

⁵⁵ Mikołaj Prokopiades z Szadka, *Naznamionowanie dzienne miesięcy nowych pełnych... lata... 1525 [Kraków, Hieronim Wietor, 1524/1525] pl°*, ed. Wiesław Wydra, Bibliotheca Paleotyporum

Annual prognostics were written in a slightly different manner. In these types of publications, the authors not only suggested treatments to be administered to patients, but, above all, focused on the dangers, indicating the expected illnesses and ailments conditioned by the positions of celestial bodies to take place in a given year (month). Mikołaj Prokopiades of Szadek, in one of his numerous prognostics, namely the one for the year 1519, predicted the occurrence of catarrh, quartan malaria, water dropsy, “corruption of the bowels,” bodily injuries, blisters on the body, dental problems, mental illnesses, as well as coughs and diseases affecting the chest and the organs within it, the head and the feet. Moreover, these ailments were said to be getting worse.⁵⁶ This same author gave inauspicious prognoses for 1526 for young men, who were in danger of dying as a result of Mercury’s influence, and for old men, who were in danger from Saturn. In addition, in 1526, illnesses affecting the head, chest, loins, knees, as well as various inflammations, asthma, sensory disorders, wheezing pain in the head, fever, etc. were to be expected.⁵⁷ In 1532, in turn, due to the influence of Saturn in the sign of Cancer, the same astrologer expected various “infectionis et mortalitatis” starting from summer until the end of winter. He added that, due to its nature, this planet would cause ailments “in pectore,” of the stomach, spleen and lungs, especially in those with a melancholic complexion.⁵⁸ The prognostics therefore indicated potential dangers, while the calendars indicated specific days to maximise the success of the treatment applied.

Herbaria

Herbaria were also based on the prevailing concept of the macro- and microcosm; suffice it to mention Stefan Falimirz’s herbarium, the first Polish-language work of this kind, in which the author devoted a separate chapter precisely to considerations concerning herbal medicine in the context of astral influences.⁵⁹ It indicated

in *Lingua Polonica Impressorum*, ed. W. Wydra (Poznań: Poznańskie Studia Polonistyczne, Biblioteka Uniwersytecka w Poznaniu, 2010), a calendar chart; cf. Tadeusz Marszał, “Mikołaj Prokopowicz z Szadka astrolog, astronom, historyk nauki, miłośnik i znawca książki (1489–1564),” *Biuletyn Szadkowski* 9 (2009): 5–36.

⁵⁶ Mikołaj Prokopiades of Szadek, *Pronosticon judiciale [!] futurorum eventuum anno Domini 1519*, Jan Haller, Hieronim Wietor, Kraków 1518–1519, Biblioteka Kórnicka PAN, st. dr. cim., Qu. 2135, 7v

⁵⁷ Mikołaj Prokopiades of Szadek, *Judicium Cracoviense astronomicum... super annum Domini 1526*, Hieronim Wietor, Jan Sandecki, Kraków 1525 (1526?), Biblioteka Jagiellońska, st. dr. cim., Vol. 96, 12v.

⁵⁸ Mikołaj Prokopiades of Szadek, *Judicium astrologicum in celebri Studio Cracoviensi... ad annum Domini 1532*, Maciej Szarfenberg, Kraków 1932, Biblioteka Kórnicka PAN, st. dr. cim., Qu. 2371, 3ra–b.

⁵⁹ Małgorzata Krzysztofik, “Elementy astrologicznej koncepcji makro- i mikrokosmosu w traktacie Stefana Falimirza O nauce gwiazdecznej,” *Terminus* 17, 1/34 (2015): 89–112; Katarzyna

which planets were responsible for specific parts of the human body and which diseases they could cause. For instance, Saturn, "the planet of great misfortune," was said to rule the right ear, spleen, bladder, and bones. When it appeared in the sky, people were threatened with pleura,⁶⁰ coryza, quartan malaria,⁶¹ plague, diarrhoea, and lichen.⁶² Jupiter, "a planet of great fortune and grace," was said to rule the liver, lungs, bones, cartilages, and the male reproductive organ. It was responsible for such diseases as *ślinogorz* (Old Polish: severe ulcerative laryngitis), "heart cramps," and sclerosis.⁶³ According to guidelines "coming from the heavens," people were advised to take up specific forms of treatment – to quote the following: "May. At this time, it is useful to let blood from the vein called mediana,⁶⁴ take liquors, eat cold meals, drink wormwood beverages. The child who will be then born can be crude but clever," or further: "November. In that time, do not let blood, unless it is urgently needed. Drink goat's milk, as it generates blood and works wonders [for the body]. Do not drink liquor. A child born then will be a good shot, as well as a good and prudent man."⁶⁵ Referring to phlebotomy and cupping, he emphasised that "when the time is good for bloodletting, it is also good for cupping," but with a significant difference – the blood should be let before the full Moon, and cupping should be performed just afterwards.⁶⁶ Similar advice was included in other herbaria published in the mid sixteenth century.⁶⁷

Conclusion

The abundance of preserved source texts and their enormous variety undoubtedly demonstrate the great popularity enjoyed by this particular form of medicine, namely iatromathematics. Treatises, notes, horoscopes, calendars, prognostics... All

Justyniarska-Chojak, "O nauce gwiazdecznej w polskich poradnikach medycznych z XVI wieku" in *Niebo. Tradycje, przekazy, inspiracje*, eds. Sylwia Konarska-Zimnicka, Paweł Tambor, Beata Wojciechowska (Kielce: Wydawnictwo UJK, 2017), 279–289.

⁶⁰ Pleura, here: inflammation of the pleura. See *Słownik polszczyzny XVI wieku*, t. 24: *Pi–Pniowy* (Warszawa: Zakład Narodowy im. Ossolińskich, 1996), 341, v. *Pleura*.

⁶¹ Quartan malaria, a disease manifested by recurrent fever every fourth day. See *Słownik polszczyzny XVI wieku*, t. 4: *Cz–Dęzysty* (Wrocław–Warszawa–Kraków: Zakład Narodowy im. Ossolińskich, 1969), 266, v. *Czwartaczka*.

⁶² Stefan Falimirz, *O ziołach i o mocy gich*, Florian Ungler, Kraków 1534, BOss. XVI.Qu.3132, cap. *O nauce gwiazdecznej*, 50v.

⁶³ *Ibidem*, 51r.

⁶⁴ *Ibidem*, 58v, the author explained it was a vein in the forearm.

⁶⁵ *Ibidem*, 47r, 48v.

⁶⁶ *Ibidem*, 58r–61v.

⁶⁷ Hieronim Spiczynski, *O ziołach tutecznych i zamorskich i o mocy ich*, Helena Unglerowa, Kraków 1542, Biblioteka Ossolineum, XVI.F.4067, p. 194; cf. Marcin Siennik, *Herbarz to jest ziół tutecznych, postronnych i zamorskich opisanie*, Mikołaj Szarfenberg, Kraków 1568, Biblioteka Jagiellońska, st. dr. cim., Vol. 8271, *passim*.

these were products of the prevailing paradigm of the time. The unity of the macrocosm and the microcosm, the belief in the powerful symbiosis of the two worlds, the lunar and the sublunar one, and, moreover, in the unity of the matter they were made of, meant that medicine based on astrological rules became one of those components of astrology which not only found a permanent place in the everyday life of the times discussed here, but, just as importantly, in the ongoing debate on astrology as such, providing strong advocacy arguments. Iatromathematics did not raise any objections, although it should be noted that not all medieval physicians found it necessary to apply astrological principles in their medical practice in a strict manner. Instead, they focused mainly on the medical side of their profession (however, it was impossible for them to completely dissociate themselves from astrology, elements of which were interwoven at least into the foundations of humoral medicine). When in 1563 Stanisław Picus Zawadzki (d. 1600), a physician, decided that astrological prognostics were not useful in a doctor's work, he provoked a public outcry to such an extent that the university authorities convened a public debate, during which the professor of medicine Feliks Łazarowicz of Sierpc strongly opposed the rejection of astrology in a physician's work and accused Zawadzki of being godless due to his disbelief in reading "events to come next with the help of astrology." This proves that right up to the end of the Renaissance, before a diagnosis was made, a treatment was decided upon, or the right procedure or medicine was applied, people looked to the sky for clues, answers, and possibly confirmation of their decisions.

SUMMARY

Healthcare has always been one of the key elements of human existence. The issue of the prevention of diseases and all kinds of ailments was taken up by scholars who represented various disciplines. Iatromathematics, combining medicine and astrology, offered excellent possibilities. The interpretation of this knowledge can be found in various astrological treatises, notes, calendars and prognostics, or strictly iatromathematical works. It is in these works that the manner and scale of the influence of the elements of the lunar world on man in the context of his health and illness are described. It is also here that a description of a rich array of diseases and ailments that affected the human body can be found. This gives us the possibility to deduce what type of diseases they were, but also how frequently they occurred. All this is placed in the context of the parallels between the macro- and the microcosm.