Ve Hius Valens

1. Translation
2. Notes to the Translation
3. Glossary
4. Astronomical Commentary
5. General Commentary
6. Namudar, etc.
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Vettius Valens

Translation

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Vettius Valens

Anthology[1]

Book I

[Beginning missing]

①

<1. On the nature of the stars.> *)

*) < > to be restored
[ ] to be eliminated.

The all-seeing Sun, the fiery beginning and the intellectual light, the instrument of spiritual sensation indicates for the birth kingship, leadership, mind, sense, form, movement, height of fortune, divine injunction, judgement, recording, business, popular dignity, father, lord, friendship, honored person, honored pictures statues and family trees, pontificat of the country, <leading of the> place; it rules of the parts of the body the organs of the head, the right eye, the ribs of the heart, the movement of breath and sensation, the nerves; of substances gold, fruit of grain and barley; it is the choise[2] of the day, wine[1]-colored for the appearance, sharp for the taste.

1) yellow according to Rhetorius (cf. p. 418 ad 1,13).

The Moon which is made from the refraction of the light of the sun and which procures spurious light indicates with respect of the origin for man, life

body, mother, conception, <appearance,> countenance, performance, companionship or legal marriage, rearer, elder brother, housekeeping, queen, mistress, needs, fortune, city, gathering of the masses, profits, expenses, home, voyages, living abroad, wanderings; namely it does not offer (itself) on a straight (way) through Cancer. Of the parts of the body it rules the left eye, the stomach, the breasts, bladder, spleen, membrane, marrow, thence it produces also suffering from dropsy; the property of substances of silver and glass. It is the choise of the night, light green for the appearance, salty for the taste.

(2) Saturn makes those born under him counting trifles, malicious, full of care, bringing themselves into disrepute, solitary, deceitful, hiding the deceit, harsh, downcast, having pretending looks, dry, wearing black robes, importunate, of sad countenance, miserable, sculptures, plying waterside trades. He also makes them of low position, sluggish, inactive, hindering business, long lasting in trials, reversing affairs, hiding, joined together, bonds, sorrow, accusations, tears, orphanhood, captivity, exposure; he makes tillers of the soil and husbandman by his ruling the earth, he produces tenants of possessions and farmers and forced actions, he makes great ideas and famous dispositions, and offices and administrators of strangers and fathers of strange children. Of substances he

rules lead, wood and stone; of the limbs of the body he rules the legs, knees, nerves, blood, the heat, the bladder, the kidneys, and the hidden interiors. He is indicative of mischief how much there is combined from chilliness and moisture, as suffering from dropsy, pains of the nerves, gout, coughing, dysentery, tumours, ruptures, sickness of daimonic posession, unnatural lust, foulness. He also produces no marriage and widowhood, orphany, lack of children. He produces ~~forcable~~ violent death in the water or by strangling or imprisonment or dysentery. He also makes calamity with speech. It is the star of Nemesis, the choise of the day, like castor in appearance, astringent in taste.

Jupiter indicates children, offspring, desire, love, recommendations, friendship of great men, ease, salary, ~~honour~~ ~~possession~~ big presents, abundance of fruit, justice, first place, government, judgment, leadership of priests, arbitration of disputes, confidence, inheritance, brotherhood, partnership, adoption, confirmation of the good ones, avoidance of the bad ones, freeing from imprisonment, freedom, deposit, needs, husbandry. Of the limbs of the body he rules of the outside the ~~parts~~ thighs, the feet, whence he furnishes the running to the athletes, of the inside parts seed, wombs, liver, the right parts. Of substances he rules tin. He is the choise of the day, gray of appearance or better white, sweet of taste.

Mars indicates violence, wars, robbery, screaming, outrage, adultery, removal of possessions, banishments, flights, giving over of the children to strangers, captivity, seduction of wives, (3) cutting up the foetus in the womb, sexual intercourse, marriage, removal of the good ones, fraud, empty hopes, violent deeds, piracy, plundering, rupture with friends, anger, battle, reproach, hatred, lawsuits; he causes also violent murder, and cutting and bloodshed, infliction of fever, ulceration, pustules, burnings, imprisonments, torture, manliness, false swearing, wandering, dignity upon bad ones, and through fire or through iron those who work artisans, workers in hard material[3]. He produces also leaders of expeditions, and captains, warriors, leadership, hunts, chase, fall from height of from a quadruped, weak sight, madness. Of the parts of the body he rules the head, the seat, the genitals, from the interiors, blod, the ducts of the sperma, the gall, excrements secretion of r, of the hinder parts, of going back, of laying oneself backwards. He also has the hard and severe. Of substances he rules iron and fashion of cloth through r and wine and pulse. He is the choise of the night, he is red of appearance, but pungent of taste.

Venus is desire and love, she indicates mother and rearer; she makes priesthood, friendship, intercourse, gymnasiarchs, wearing of golden ornaments, wearing of a wreath, merriment, r gains of the newly begun, purchasing of fashion, dealing towards the good, marriages, clean arts, goodness of voice, singing, sweetness of melody, beauty of form,

painting, mixing of colours and embroidery, purple dying and parfumes, the forefathers of those or their masters, workers or dealers in the business of smaragds and jewellery, ivory working; she indicates by her zodiacal boundaries and parts spinners of gold thread, decorators with gold, barbers, those who love cleanliness and who are fond of toys. She also gives the office of agoranomos, measures, weights, commerce, workshops, licences, seizing, laughter, gaiety, fashion, hunting of water(-animals). She also gives helps from kingly women or households and she procures uncommon ideas, cooperating with these deeds. Of the parts of the body she rules the neck, the face, the lips, the sense of smell, and the frontal parts from the feet to the head, the parts for intercourse, from the inside the lung. She is capable of nurishing others and of lust. Of substances (4) she rules highly priced stones and coloured fashion, of the fruits olives. She is the choise of the night, while of appearance, very greasy of taste.

Mercury (children rearing of ?, letters, cross examening, logic, brotherhood, interpretation, embassy, number, account, geometry, commerce, youth, toys, theft, community, message, ships crew, profit, inventions, succession, contest, wrestling, declamation, sealing, sending a message, bring to a standstill, to be hung, to test, to hear, to be artful. He is the giver of intelligence and judgement, the

lord of brothers and younger children and of everything which belongs to the market and he is the maker of the fanking <art>; properly he makes temple-builders, moulders, sculptors, physicians, grammaticians, lawyers, retors, philosophers, architects, musicians, seers, diviners, augurs, interpreters of dreams, braiders, weavers, methodical people and those who are at the head of warlike and strategic works and who make an attempt with paradoxa and with methodical (problems) by means of computing or false reasoning, people who play valiantly and actors and who provide their lives <by> exhibition, besides wandering and roaming and unsteadiness. (He makes) Those who are skilful in the heavenly phenomena and those who became searchers, through enjoyment and cheerfulness (doing) excellent work striving for glory[1] and for the sake of profit. Thus it is a star with power of much inquiry and through changes of the zodiacal signs[4] or the produces, the combinations of various forms of the stars: business, for some knowledge, for others broker-business, for some service, for others commerce or teaching (of the principles) of saving, for some also of cultivating or of the office of temple service or of state property and he is bestowing authority or letting beforhand, or contracting work or demonstration [or] set the time or put forward public offices or also keeping guard or wearing linen of the gods or vanity of the rulers. He will bring all those who are irregular with their fortune and much-distraught to their ends except that he also will make it worse for those with a malificient zodiacal sign or parts of them to turn around this star. Of the parts of the body he rules the hands, the shoulders,

1) Following the reading proposed in the apparatus to p. 4, 20.

the fingers, the joints, the stomach, the sense of hearing, the wind-pipe, the bowel, the tong. Of substances he rules (5/2) copper and all currency, of giving or seizing; because the god is public.[1]

1) For appearance and taste cf. the addition p. 418 ad 5, 2.

The benevolent (stars) which are suitably and nicely located bring to an end their own according to their proper nature and the nature of the zodiacal sign helping to decide each stars testimony and simultaneous presence. Those which are unfavourably situated are indicative of obstacles; similarly also the maleficient (stars) which operate suitably are indicative, and which give goddes according to (their own) condition of bigger positions and success, bringing no advantage they produce banishments and accusations.

After these are in this way classified we must speak about the nature of the 12 zodiacal signs.

Every star is the lord of its own substance with respect to the cosmos, with respect to sympathy and antipathy and mutual influences through their mixture with each other ..... which by connection and separation and elevation[5] or also by hemming in[6] and guardianship and shooting of rays and the approach of the despots[7], the moon is established as the lord of foresight, the sun of light, Saturn of ignorance and necessity, Jupiter of judgement and wreath and eagerness, Mars of action and distress, Venus of love

and desire and beauty, Mercury of law and of intercourse and of faith. Whatever stars they are of their own effect.

<2. On the nature of the 12 zodiacal signs.>

Aries is the house of Mars, a male zodiacal sign, tropical[8], dry, authoritative, fiery, free, ascending, half-vocal, good, changeable, administering, public, political, unprolific, servile, culmination of the cosmos[9] and responsible for judgement, double coloured, since sun and moon cause white leprosis skin-eruption; it is also independent, ecliptical. Those born in it will therefore be according to the predominant law radiant, famous, commanding, just, hating knavery, free, authoritative, rash in judgement, boastful, irregular, showing off, haughty, threatening, ♎ quickly changing, inventive; if the predominant (stars) fall favorably and if they are of fortunate testimony then originate kingly persons, powerful persons, those who have power of life and death.

Aries is of nature watery, charged with thunder, bringing hail; from the first degree until equinox[1] raining, bringing hail, windy, destructive; from the average[4] to 15° temperate <and fruitful, the following (degrees) causing fevers and very pestilential> for fourlegged animals; the zodiacal sign has 19 bright stars[6] and towards the belt[5] 13 bright ones, but 24 bright ones[2], 27 faint ones, 28 rather bright ones, 48 dimm ones; simultaneously rise[3] from the

1) Cf. astron. comm. ad 6, 5.

4) i.e. equinox.

5) i.e. the zodiac (?)

6) Cf. astron. comm. ad 6, 8 ff.

2) Kroll "alignid deesse videtur" – perhaps one entry should be cancelled.

3) Kroll: cf. Boll, Sphaera p. 67.

northern (constellations) the first (stars) of Perseus, the last and left ones of Heniochos, from the south from Cetus the (stars) in the neck and from the boundary, from the north-west the feet of Bootes are setting, from the south the last of Lupus.

The following climats were placed under Aries: the preceding (stars), Babylonia; the head Elymais[1]; the right (stars) Persia; the left (stars) Coele-Syria and the neighbouring places; at the binding of the face Babylonia; towards the breast Armenia, under the shoulder Thracia, towards the belly Cappadocia and Susiana and the Indian Ocean and Rypara[2]; the hind parts Egypt and the Persian Ocean.

1) = Elam

2) Kroll: mare mortuum putat Wuensch. Lit. filthy, dirty.

Taurus is female, solid, lying in the spring change, bony, mutilate, rising with the hind parts, but setting straight; this greatest part lies in the invisible cosmos. It is, however, fine (weather). The part from 1° to 5° holds the place of the Pleiades (and is) mean and destructive, pestilential, bringing thunder, earthquake, ~~lightning~~ thunderbolts, flushes of lightning producing; the following 2 degrees are fiery, misty. The right (stars) toward Heniochos are temperate, cooling. The left ones mean, turbulent, sometimes chilling, sometimes scorching. The head until 23° of well tempered air, causing pestilence and distruction of animals; the following ones destructive, mean, pestilencial. It has 27 stars[3], from the north (7) simultaneously rising with the last ones of Heniochos, the remaining ones from south of

3) Cf. astron. comm. ad 6, 30.

of Cetus and the first of Eridanus. Of Venus, Moon, Demeter, besides Mars, Mercury. From the north Bootes is setting until the belt and <the legs> of Ophiouchos until the knees, from the south <is simultaneously rising> Orion holding the sword in the right hand stretched forth, holding with the left the so called herald's wand, girded around the middle of the body. It is the zodiacal sign of the cosmos which brings wealth, earthy, rustic, agricultural, freedman, prone to vice, unprolific, half-vocal and voiceless, good, unchangable, industrious, ineffectual, indicative about foundations, property. The ecliptical part lies in the north towards the height of the rising (stars). Those who are born are good, industrious, working hard, preservative, fond of pleasure, generous, some husbandman, planters, builders; if sometimes also benevolent (stars) incline towards this place or a favorable governing (star) prevails, there will originate high priests, gymnasiarchs and those worthy of pedigrees, and of purple pictures and of statues, leaders of temples, famous ones (and) illustrious.

The subordinate climats are: towards the head Media and the neighbouring places; <to the breast Babylonia; to the (stars) to the right of Heniochos, Skythia;> the Pleiades, Kypros; to the left (stars) Arabia and the surrounding places; towards the shoulders Persia and the Caucasian boundary; under the bulge begin ....[1]; under the loin Aethiopia; under the forehead Elam; under the horns Karchedonia; the middle parts

[1] Kroll conjectures Sarmathia.

Armenia, India, Germany.

The Twins are male, double-bodied, musical, the house of Mercury, bearing upwards, aery, becoming feminine, freedman, barren, popular; some of those born become friends of learning, practicing letters and education, poetical, friends of the mouses, theachers of singing, practiced in managment, giving security on good faith; but there originate also interpreters, businessmen, critites of good bad and, prudent men, curious people, initiats of obscura. And so far as sometimes the ruler of the place is ~~known~~ to ~~rise~~ accomplish according to its own nature good or bad or more or greater, such ~~to~~ also ~~will accomplish~~ each single zodiacal sign will accomplish ~~with a-spect of the ruler~~ according to the described figure of the ruler of the place (8) effectiveness or ineffectiveness, such that we dont need to describe the same. They also bring fine weather; in particular the (first) 3 degrees means destructive; from 3 to 7 very moist; mild temperature is from 7 to 15; ~~dampened~~ <the> southern (stars are) very moist; the outermost mixed; it has 21 stars[1]. It lies in the west wind. ~~In front of~~ Attached to it ~~lies~~, according to the Sphaerics,[2] ~~is~~ the tail of Cetus touching toward the southern part. ~~[illegible]~~, from the parts which happen to be towards south within the southern ~~drawing~~ outline is the Satyr[3] touching with the club, from his northern parts he begins looking backwards, to him the club. Towards the southern part lies Lyra. He entered the southern ~~drawing~~ outline, being the middle of north wind and south wind. Under his feet at the southern outline for the cosmos visible to us

1) Cf. astron. com. ad 8, 5.

2) Kroll: cf. Boll, Sphaera p. 59.

3) Cf. astron. commentary ad 8, 8.

is the so called Dog at the right foot. He is cut from the south pole from the hind part as far as the head (and) he is ascending perpendicular to the pole. He is simultaneously rising towards south with the end of Eridanus and Orion. There belong to them Apollon, Heracles, Hephaistos, Hera, Kronos; towards north is setting Bootes, Ophiouchos, except of the head and half of the Crown.

The following climata are subordinate to the Twins: in front India and the neighbouring places and Celtia; the breast Cilicia, Galatia, Thracia and Boiotia. In the middle Egypt, Libya, Rome, Arabia, Syria.

Cancer brings fair weather; at the part of the two first south-easterly stars (he is) mean, destructive, shocking, causing earthquake; from there until 10° he makes the air very ~~wet~~ moist, scorching, having the waters coming down and the corresponding rainstorms; the right (stars) are mean and destructive. Towards south he rises simultaneously with the Hare and the (stars) preceding the Dog and Prokyon. He has 4 stars.[1] (It belongs to) Ares, Hermes, Zeus, Panos,[2] Aphrodite. Towards north is the head ~~of~~ Bootes setting and Engonasi and Aquila and half of the Crown. It is the house of the moon, female, tropical, the horoscope of the cosmos, 9) slavish, heading down, voiceless, watery, good, changeable, popular, belonging to the masses, political, prolific,

1) Cf. astron. comm. ad 8, 29.

2) Pan ?

living a double life. Those who are born here will be loving fame, popular, very changeable, cheering[1], fond of pleasure, fond of company, popular. (People) who are unsteady of opinion, different talking different meaning, of half work {or} not persisting in much,[2] (people) who become wanderer and foreigners.

1) Repeated? Cf. apparatus. ad 9, 3

2) Cf. apparatus ad 9, 5.

To Cancer are subordinate: preceding Bactria, on the left Zacynthos, Acarnania; behind, Aethiopia, Schine. Towards the head the lake Maeotis, {and} the surrounding nations the Read (Sea) and the Hyrkanian Sea and the Hellespont and the Libyan Sea and Britanica and the island Thule; towards the feet Armenia, Cappadocia, Rhodos, Kos; finally towards the mouth of the Crab are Troglodytia, Ionia, the Hellespont.

Leo is male, the house of the sun, free, fiery, temperate, intellectually, kingly, steady, good, leading upwards, changeable, solid, leading, political, originative, inclined to anger. Those born there are famous, good, unchangeable, just, hating knavery, unrestrained, hating flattery, benefactors, ... the thoughts. If the ruler of the place happens to be in a cardinal point or also with beneficiary (planets), then there originate distinct (people), honored ones, tyrannical ones, kingly. He is scorching, the (star) in the breast is fiery and stifling. He causes to 20° stifling, pestilence for animals, in the climats and places subject to him, the right is movable, fiery, the south moist, the more lower parts destructive for everything, the middle and the left temperate. Leon has .... stars. According to the Sphaerics there

rises simultaneously towards north the left arm of Bootes, towards south the stern of Argos and (the rest) of the Dog and of Hydra, whose tail bounds to the claws of <Scorpius, whose head to the claws of> Cancer. Above of him lies the little bear, according to the drawing it lies beside the head of the Dragon, (10) which Ophiouchos is lifting [towards the krater]. [1] Towards north is Delphin, Lyra, Zeugma, Cygnus except the bright star towards its rump and the head of the Horse. [2]

1) Cf. apparatus ad 10,1.

2) Pegasus.

Leo are subordinate the following climata: (to the stars) in the head Celtica and the adjacent places; in front Bithynia; right Macedonia and the adjacent places; left Propontis; feet Galatia; towards the stomach, Celtica; shoulders Thracia; flanks Phoenicia, Adrias, Libya; (to the stars) in the middle Phrygia, Syria; (in the) tail Pisinos.

Virgo is the house of Mercury, female, winged, of human shape, dainty; she is standing like the figure of Dike, double-bodied, barren, fruitman, sterile, leading downwards, earth-like, common, half-voiced and without voice, bodily, indeterminate, changeable, practicing a handicraft, of double nature; those born (there will be) good, modest, mystical, full of care, living life colourful, managers of others, faithful, good businessmen, secretaries deriving their subsistence from words or computing, very critical, industrious, initiates of secrets, first consuming, in the middle supplying.

Libra is the house of Venus, male, tropical, of human shape, leading upwards, airy, womanish, producing sound, good, changeable, diminishing of resources, in the nadir for the cosmos[9], popular, ecliptical, producing fruit, wine, olives, aromatics, weights, measures, work-people. Those born (then will be) good and just (but) slandering, desiring the goods of others, moderate, loosing the first produced and getting into vicissitudes, living anomalously, presiding over measure or weight or prosperity[1].

1) I.e. the position of aediles or ἀγορανόμοι (cf. apparatus).

Scorpios is the house of Mars, female, solid, moist, fruitful, causing destruction, leading down, voiceless, slavish, unchangeable, responsible for stink, fit for taking away property, ecliptical, prolific. Those born then will be deceitful, oppressed, rapacious, murderous, traitors, unchangeable, taking away property, secretly plotting, thieves, false swearing, desiring others, privies of murder or poison or bad deeds, hating their own family.

The Archer is the house of Jupiter, male, fiery, leading upwards, vocal, very wet through Argo, good, winged, changeable, double-bodied, of double nature, riddling, unprolific, half finished, leading, kingly; those born then will be good, just, magnanimous, critical, generous, loving of brothers, loving of friends; the first (stars) diminish ..... later they provide (again), they prevail over hateful, lovers of wisdom, helpful, famous, secretly weaving their actions.

Capricorn is the house of Saturn, female, tropical, earthy, causing destruction, ~~without~~ sterile, leading downwards, chilling, voiceless, slavish, responsible for evil, brutal, servile, riddling, of double nature, very moist, half finished, hunchbacks, lames, setting of the cosmos,[9] indicative of hardship and work, stone cutters, farmers. Those born then will be bad, of different sort, playing good and simple minded, hard-working, full of care, sleepless, laughter-loving, plotting against great works, making unfortunate mistakes, mischievous, liars, blameworthy, shameful. It is also beneficiary both ways[1]; in particular the first (stars) are destructive, the second very moist, raining, moving[2], the middle ones fiery, the last-ones destructive. It has .... stars. According <to the> Sphaerics rises towards north Cassiopeia, <and the> right part of Pegasus; towards south the hind parts of the Centaur are setting and the legs of Hydra until Crater. There are the gods: Aphrodite, Moon, Demeter, Hermes. Northwards is nothing.

To Capricorn are subordinate the following climata: towards east and south all. At the ribs the Aigaean sea and surroundings and Corinth; at the belt Sikyon; at the north the Great sea; at the tail Iberia; at the head the Tyrrenian sea; at the stomach .....[3] and neighboring nations. Middle Egypt, Syria, <Caria>.

The Aquarius is on the sky a male sign, solid, of human shape, very moist, single; it is voiceless, very cold, (12) free, leading upwards, womanish, unchangeable, bad,

1) Cf., however, the apparatus ad II, 18.

2) Cf. the apparatus ad II, 19

3) Cf. apparatus ad II, 29.

sterile, responsible for hardship caused by struggle or for burden and work in hard material, industrious, popular; those born there will be sorcerer and hating ~~their~~ own family, unchangeable, self-willed, deceitful, treacherous, keeping everything secret, hating mankind, atheists, accusers, betrayers of faith and truth, jealous, penurious, sometimes, however, generous through the influx of water, licentious; it is altogether very moist, and very moist in the first part, the upper one fiery, the lower one mean and useless, It has .... stars. According to the Spherics, Andromeda is raising simultaneously toward north, and the [some part of the right (stars) of] remaining (stars) of Pegasus. Towards ~~south~~ the ~~northern~~ southern of the Fishes except the head. Hera, Heracles, Phaethontos, Kronos. Towards north <nothing> is setting. Towards south the rest of Kentaurus and of Hydra until Corvus. [The following climats are subordinate to Aquarius.] The sign lies in the SW wind, it lies near to the climate of Egypt and the cities around, from its southern parts until Pselchis and Diakaschoinos and Sykaminos, from the SW parts until the Ammoniac land and the cities around, from the parts of the East-wind until the Red Sea which it touches. From the northern parts until the region of Sebennytos and the estuary of Heracleotis.[1] According to the Spherics lies towards the north pole, the so-called river Eridanus, and the great Fish touching the tail of the Fish. In the northern regions

1) For the geographical sections associated with ♒ and ♓ cf. Cumont [8] Klio 9 p. 268 f.

within the north pole is the so called Bird [1] above which Sajitta extends, whereas Arctos, the so called Dog tail [2], looks toward north.

1) = Cygnus.
2) = Ursa minor.

The following climats are attached to it: in front Syria; in the middle Euphrates and Tigris, Egypt and Libya and the neighbouring rivers of Egypt and the Indus river; in the middle of the Ursa Tanais and the other rivers from ..... [4] which flow below the foot towards south and the west-wind.

4) Cf. note of Boll quoted p. 418 ad 12, 30.

13 The Fishes are female on the sky, all moist, very moist; double bodied, prolific, lichen-like, covered with scales, sinewy, hunchbacks, leprous, of double nature, reckless, much moving, leprous, in opposite position to each other, one being south, the other north; it is very moist, leading downwards, slavish, easy to change, prolific, double bodied, sociable, mutilating, responsible for wandering, colorful; those born there will be unstable, ambiguous, falling from bad into good, erotic, servile, licentious, prolific, popular. They are altogether cooling, windy; in particular their first (stars) are temperate, the middle ones very moist, the end destructive and mean. It has .... stars. Towards north are simultaneously rising the remaining (stars) of Andromeda and the rest of Perseus .... those in the right and the Triangulum below [3] Aries, towards south <the> head of the Southern Fish. Of Poseidon, Ares, Hermes, Aphrodite, Zeus. Towards south is setting Ara and the remaining (stars)

3) Apparatus ad 13, 12: above (Boll).

of Hydra, none towards north. It lies in the N-wind. It is attached to the climate of the Red Sea having several islands with it, which lie near India and the so-called Indian ocean; in its E-wind parts it has Parthia and the Indian country which it touches and the Eastern Ocean, from his northern parts the Scythian country; from its SW-parts it touches the coast of Myosormos, the port of Orthos and the cities around. Nearby lies, according to the Spherics, cutting towards the northern parts, below the north pole, Aquila and in part Sagitta, towards the north pole, not far distant, is the so called Pegasus towards the north pole.

It keeps aloof from the other[2] sections the north pole which lies in the middle of all of them, having with it Arctos, the so-called Dog-tail carrying it from north towards farther east, sometime also from the south, the second one, the so called little (14) Arctos, whichever in the middle of the night rises, those the so called Arctophylax is holding .....[1] who is invisible according to the distribution of the two Arctos; one lies towards north, the other towards south.

In particular the following climata are subordinate. In front, Euphrates and Tigris. In the middle, Syria, Red Sea; [in front] central India, Persis and the surrounding places, the Arabic Sea and the Red (Sea) and the river

2) Accepting ἄλλων from p. 419 ad 13,27.

1) Doubtful; cf. apparatus ad 14,2 and Liddell-Scott s.v. περίτασις (p. 1390 a) ad locum.

Borysthenes. .... toil..... the union towards east and of the east-wind and north-wind stars; the southern Thracia, the middle the ~~island~~ sea of the Borysthenes and Asia and Sardes.

<3. On the terms.>[11]

The 6[1] first-degrees of ♈ belong to ♃, well tempered, strong, fruitful, beneficiary; the 6 of ♀, gay, skilful, radiant, perfect, clean, of healthy complexion. Those[2] belonging to ☿ are ambiguous, changeable and well grown, sluggish, windy bringing hail, bringing lightning and thunderstorm. The 5 of ♂ are causing destruction, fiery, unsteady, ... of malificient people who are slipping down and ..... The next 5 of ♄ very cold, solid, sorcerer, diseased.

The first 8 of ♉ (belong to) ♀ fruitful, prolific, wet, leading downwards .... cross-examining ....[3] The next 6 of ☿ intelligent, prudent, malevolent, having little seed, short-sighted, causing death. The next 8 of ♃ high-minded, manly, fortunate, ruling and beneficiary, magnanimous, benevolent, friendly. The fourth (group) of 5 of ☿ ♄ barren, without descendency, eunuchs, vagabonds, blameworthy, theatrical, joyless, toilsome. Finally the 3 of ♂ male, tyrannical, fiery, difficult, murderous, sacrilegious, very bad, but not without distinction, besides causing destruction and not lasting long.

15 The first 6 of ♊ of ☿ mean, calm, intelligent, skilful, capable of knowledge, practical, famous in song, prolific.

1) This is evident the correct reading; cf. apparatus to 14, 13 and Tetrabiblos I, 20 p. 96 (Robbins).

2) Ruelens ⟨8⟩ according to Tetrabiblos l.c. 1).

3) Cf. apparatus ad 14, 22.

The next 6 of ♃ ambitious, mean, famous, prolific, well-fed, beneficiary. Third, the 5 of ♀ flowery, musical, capable of attending, creative, wearing crowns, popular, merry, fertile. The fourth 7 of ♂ toilsome, without brother, with too few children, staying at home, resourceful, destructive, crude, busy. The last 6 of ☿ in the whole of ♄ well tempered, controlling, acquisitive, intellectual, knowing much, famous, excellent in sagacity, successful in great (things), very honoured.

The first 7 of ♋ of ♂ bring thunderstorm .... stirred by others, inconsistent, of contrary purpose, like madman, prolific, poor, destructive, and finally mean. The next 6 of ♀ are prolific, blameworthy, very moist, changable, artful, popular, and all mixed. The following 6 of ♀ are strict, rapacious of public property, leading, tax-farmers, popular, resourceful, bringing wealth. The fourth 7 of ♃ are kingly, autocratic, honored, litigious, high minded, tempered, commanding and in the whole good. The final 4 of ♄, which is in the whole water, are very moist, and poor of their own and finally deficient.

The first 6 of ♌ belong to ♃, experienced, male, autocratic, in everything, and leading, practiced, prominent, having nothing mean. The next 5 of ♀ are more tempered, at ease, wise, devoted to enjoyment. The third 7 of ♄ are much experienced, timid, natural, well-grown, narrow-minded, mystical, having many children, insensitive of hidden things, barren, and without issue. The next 6 of ♀ well hearing, popular, professorial[1], tending to make[2] learned, intelligent.

1) Cf. apparatus to 15, 27 and Liddell-Scott s. v. σχολαστικός.

2) Cf. Liddell-Scott s. v. ἀφηστικός.

And they are also barren, of people of olden times. Finally the 6 of ♂ very mean, protidigious, destructive, feeble, making sluggish, blameworthy and unlucky.

The first 7 degrees of ♍ belonging to ☿ are very proud, controlling, wise, able, making assignments about great actions, very intelligent and in all noble and outstanding; only with respect to sexual pleasure they are not fortunate, in the whole for the whole ♍, mostly, however, these degrees and <those> of ☿; these are for blameworthy, those of ☿ for those who go wrong[1] in everything; the (16) most prominent they will give up in education. The next 10 of ☿ are blameworthy, sinning against marriage, come to grief because of it, successful with the theater; with respect what happens very blameworthy, especially if ♄ is in aspect; if ☿ (is in aspect) adultery, if ♃ a multitude of faults as agreed, nay more condemnations; if the ☉ secret practices, if the ☾ opposition against the government; if it, however, looks towards the maleficient it produces leaders. The third 4 of ♃ are fond of husbandry, able, retired, not uneducated; they are also changing ~~with regard~~ and prolific and easily affected. The fourth 7 of ♂ are male, difficult for the populace and the masses, and of those wandering around at night, ..., of mystical persons, forgers, impostors; these degrees maltreat ~~the~~ men, bring them in chains, and mutilation and torture and jail. The remaining 2 of ♄ are prodigious, very cold, of short duration, mocking people.

The first 6 of ♎ of ♄ are kingly, proud, active mostly at daytime, at night, however, ...; they are solid, very moist, destructive. The following 5 of ☿ are frequenting the

[1]) Cf. critical apparatus ad 15, 36.

market, active, businesslike, able to handle letters, contracts and numbers, in the whole just, intelligent. The third 8 of ♃ are causing wealth but for those who are faring ill, joyless of hoarding up without stimulation of sordid life, without pleasure of beauty, censorious; and no good children. The fourth 7 of ♀ (art) loving beauty, loving crafts, and arts, such as forgers, painters from nature, sculptors, on the whole growing of themselves ♃ rhythmicians, religious people, gentle, sluggish, prospering, progressing, ♄, very fortunate with marriage, [illegible] about everything happy. The remaining 4 of ♂ (are producers) of leaders, commanders of a squadron, lucky with all martial art and ..... and steadfast and in possession of power and high minded, not good to brothers and not with many brothers.

The first 7 degrees of ♏ are of ♂ (and are) tumultuously, movable, unstable, inclined to anger, free of speech, high minded, lacking children, of many brothers, with abnormal fortune, ardent, suitable for the production into the army and going abroad. The following 4 of ♀ (17) (are producers of) lucky in marriage, religious, liked by many, loving children, easy to handle, among[1] all selected, of happy life. The third 8 of ♀ (are) pertaining to arms, engaged in contests, honoured and with sharp words[2], fighting, not to be despised; they are also prolific, active (in the whole) in mischiefs in spirit, most concerning temptation or those who do oppression. The fourth 6[3] of ♃ (are) artful, lucky, high priest, imagining gold, purple magistrates, births towards their own greatness, doing good deeds, in the whole philanthropic and friends of the gods. The final 6 of ♄

1) Cf. critical apparatus ad 17, 2

2) Cf. critical app. ad 17, 3

3) Sic, instead of 5 as required by the total; Tetrabiblos I, 20 is correct.

(are) punitive, with few children, with few brothers, hating their own family, poisoner, melancholics, hating woman, having hidden harm, in the whole very punitive, very criticizing; they are hated among man and gods; they stand firmly against the more powerful, they are despised by the lower ones.

The first 12 of ♐ belong to ♃ and are of practical people; they are moist and in the same time tempered[1] in the whole of rich and varied work in all arts and techniques, prolific and with many children and brothers, but poor. The next 5° belong to ♀ (and are) beneficiary, of high repute, victorious, wearing wreaths, devote to the gods, people who are afraid in the crowd and of government, with good children and good brothers, ⟨accustomed⟩ to be involved with several women. The third 4 (of ♀) degrees (are) loving words, over-wise, businesslike, creating eternity, philosophers, in the whole those who have prominence in knowledge and intelligence, fond of learning when ☿ approaches; when ♂ loving arms, tacticians. The next 5° fall to ♄, (they are) making barren, and mischievous, very cold, pervert, of mean people, and in all unlucky. The next 4 belong to ♂, (they are) passionate, reckless, insolent, shameless, destructive, except having restlessness in everything. All (degrees) in ♐ are intricate in all actions

The first 7 of ♑ belong to ☿ (and are) theatralic, satyric, mimical, mendacious, harlots, panders, desiring others property and disreputable, without talent in everything beneficient and easy to handle, but not proud. The next

1) Q. critical apparatus ad 17, 21.

7 of 4 in the variation of fortune produce faith and disbelief, wealth and poorness, (18) voluntary contribution and theatrical exhibition, barren, generating females or favouring the birth of monsters, mean people and idiots. The next 8 of ♀ (are of people who) live a profligate life, lustful and leading down, confused, blameworthy, changeable in task, not happy dying nor stable for marriage. The fourth 4 of ♄ (are) harsh, joyless, strange in manner, unfortunate with their children, and brothers, savage, destructive, very cold, incompatible, sorcerer, inclined to delay, and treacherous. The remaining 4 of ♂ are lofty, powerful, tyrranical, given to all governmental things, poor, destructive of their own associates, and brothers[1], fond of wandering, fond of work[1], up to the end fond of contest.

[1] Following the reading proposed in the critical apparatus ad 18, 9.

The first 7 degrees of ♒ of ☿ (are) rich, treasureloving, pleasantly, storing towards the (full) measure of their lot, intelligent, conventional, giving an accurate account of everything, commanding, of small soul, full of care, who love childhood and any skill, controlling, oikonomists, philanthropists. The next six of ♀ (are) beautiful, lovely, pious, separate from work, dooing good, profiting by strokes of good fortune, easy to handle, given to seafaring; these are also very prolific degrees, it happens that one born under them come together with old woman, or that he comes together with feeble ones or eunuchs, to be instructed by people without sperm or superiors. The next 7 of 4 (are) beneficiary, of feeble voice, keeping hidden, free from ambition, without ostentation, with many children, not brother-loving.

The next 5 of ♂ (are) fable mostly with respect to the inside, occupied with lawsuits[1], of loaded, fable people and unserviceable, save that they quickly set to work with evils. The remaining 5 of ♄ are solid, very moist, conceiving with difficulty, mischievious, and most through the membran and the interiora kind, and dropsy and convulsions, poor, with few children and brothers, jealous, in the whole not beneficiary.

The first 12 of ♌ of ♀ (are) joyful, prolific, leading upwards, devoted to enjoyment and of happy life, jovial, very charming, lovely, by themselves progressing, friends of the gods. The next 4 of ♃ (are of ☿ people who are) loving letters, capable of knowledge, appearing prominent in the masses, and by words superior over all, with many brothers and children and descendency, with superfluous limbs, having an extraordinary number of brothers. The following 3 of ☿ (are) prolific, ruling, honoured, with many friends, giving freely, fond of rearing, feeling pity, beneficiary. The 9 of ♂ are practiced, of sea battles, 19 guiding and of good courage, capable with the unspoken, thievish and in turn giving freely, colourful not dying a natural death. The first 2 of ♄ (are) mischievous, very moist, convulsive, in the whole unlucky.

After it is now explained in a didactic manner about every single degree what it forecasts, the appropriate will be predicted for their respective rulers, either bad or good. Now I shall explain the horoscope.

1) Cf. crit. app. ad 18, 22.

Pingree p. 18,15

⟨4. How to find the ascendant⟩

A. Noticing accurately in what degree the sun is located at the nativity, see where its dodecatemorion falls. And wherever it falls, there the left trine will be ascending, or the equivalent zodiacal signs, either male or female, since you know to distinguish between night and daytime. Thus, let the sun be in ♒ 22°, its dodecatemorion ends in ♍[1]. Of this the left trine is ♌. If it was a day-birth ♓ will be ascending, or ♉ or ♎[2], if a night-birth the diametrically opposite signs. ♑ will be ascending at the first hour[3].

B. In whatever degrees the sun may be located, note them accurately and, at daytime, add to them the rising time of the sign in which the sun happens to be and count (the resulting number of degrees) from the (position of the) moon at the nativity, giving each sign one degree[4]. Where (the total) ends there is the ascendant, or as it is placed in one of the equivalent (signs). At night you add the rising time of the zodiacal sign of the moon (to the longitude of the moon)[5] and count from the sun at the nativity. Thus, as in the preceding example, sun in ♒, moon in ♍[6]. I added to it the rising time of the sign (♍), namely 37[6a]. It makes 44[7]. These counted from the sun ends in ♑[8]; there is the ascendant.

C$_1$. Taking the number (of days) from (the first of) Thoth to the day of nativity and multiplying the hours by fifteen and adding (the result) to the first number (the number of days), count for daytime from ♑[9] modulo 30[10], for night from Pisces.

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1) Indeed: the dodecatemorion is ♍ 16.
2) These are all "female" signs.
3) Of day? of night? why? ♑ error for ♍? Cf. note 9.
4) I.e., add as many degrees as λ_ϵ contains complete zodiacal signs (?), counting from ♈.
5) This addition is confirmed by the example.
6) Scorpio is the 8th sign, thus 7 signs are completed.
7) 7 + 37 = 44, emended incorrectly by Kroll to 59 = 22 + 37.
6a) Correct for clima IV, both in System A and B (counting Alexandria as clima I).
8) Perhaps incorrectly subtracted since ♒ 22 − 44 = ♑ 8.
9) Probably error for ♍; one should have diametrically opposite signs, thus either ♋ and ♑ or ♍ and ♌. For ♑ instead of ♍ cf. also notes 16 and 19.
10) ἀνὰ λ′.

C_2. Or again, multiply the hours by 15 and add it to the degrees of the sun but count, for daytime, from the sun according to (?) the rising time of the climate of the nativity, at night from the ascendant according to (?) the rising time.

C_3. The "mysterious" and "necessity-ascendant" is found as follows. At a daytime nativity (20) the trine of the sun at conception will be ascending - or the sextiles of it (the sun) - at night their diametrically opposite (points). Thus you will find the ascending sign if you (only ?) know whether it is night or daytime, also apart from the hour.

D. The following concerns the accurate, to the degree, determination of the ascendant. Multiply the hours of the nativity with the velocity of the moon and, for daytime, count (the result) from the degrees of the sun, at night from its diameter, and where it ends, there will be held to be the degrees of the ascendant.

Take for example Hadrian (year) 4, Mekheir 13, hour of night 1[11]. Sun in ♒ 22°, moon in ♏ 7°, the lunar motion on the 14th day from epoch[12] 13;52. Enter the table given here[13] at 14° in the first line[14] and find under the first hour[15] (the number) 16. These (16) counted from the degree opposite the sun, ♌ 22, ends in ♉[16] 8.

{ Let the sun be in ♉ 19° and someone be born in the third hour of the night. The lunar motion is 12 1/2 1/15°. I enter the column of the third hour, where there are given for 12° of (lunar) motion 41 1/2°, for 13° (lunar) motion[17] 44 1/2°. The excess of the 44 1/2 over the 41 1/2 is 3°. 1/2 1/15 of these is 1 1/2 1/5. These I add to the 41 1/2 because the motion of the moon is 12 1/2 1/15. This makes a total of 43 1/5. These add to the 19° of the sun; it makes a total of 62 1/5. These count from ♋ because it is a nocturnal nativity and the ascendant ends at ♍ 2;12°. According to the tables[18] the ascendant is ♉ [19] 3° }.[20]

Pingree p. 20, 8-18

11) A.D. 120 Febr. 8.
12) Meaning? *)
13) Actually missing.
14) Actually column, not line; cf. the next example (p. 21,8-19).
15) Kroll incorrectly ὥρας instead of ὥραν.
16) Sic, instead of ♍ ; cf. note 9.
17) Kroll's emendations are wrong; cf. the apparatus. Only L' has to be changed to μοιρῶν.
18) What table?
19) Sic, instead of ♍ ; cf. note 9.
20) This example is out of place located in the next section (p. 21,8-19).

*) Anom. for Nab. 867. VII (e) 5; 47;27°

E_1. If, however, (when operating) with rising times, more or fewer degrees are found it will be known from the preceding method whether the hour has an increment or a decrement. With these (degrees), at daytime, take the remaining degrees of the sun and adding those which the moon occupies, disregard 30's, and those (degrees) that remain are ascending. At night (take) the remaining (degrees) of the moon and those which the sun occupies. If, however, the number exceeds the computed hour, so many (degrees) will be ascending as lack behind 30 or (behind) the amount of the hour.

E_2. From Epiphi 25[21] to the day of the nativity reckon the days including the epagomenal days and add 22° [22] to the number and count the (resulting) number modulo 30, at daytime, from Cancer, at night, from Capricorn. Where this number ends there will be the ascendant, and the corresponding number of degrees will be ascending.

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21) This is the date of the rising of Sirius; cf. also p. 101,27 and apparatus, Hephaistion 23 (p. 91,31 Engelbrecht) etc.
22) Emend the "non sanum" μόνα in μοίρας.

<5.> The horoscopic gnomon

Pingree p. 19, 36

F. Taking the degrees of the sun which are operative with respect (?) to the ascendant at daytime, at night the diametrically opposite, multiply them by ten (21) and multiply the result again by the given hours, either of daytime or of night, either whole or according to degrees[1], disregarding complete circles; the remainder hold to be the horoscopic gnomon.

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1) Perhaps: use either the numerical value of the given hour (cf. the following example) or the number of degrees corresponding to the given hours.

If the solar gnomon exceeds the lunar one the hour will have a decrement; if the lunar (gnomon exceeds the solar one) an increment, in the amount of the excess. If, however, they are equal (then the hour) experiences neither addition nor subtraction. Similarly also when the remainders have an addition above 15 or a subtraction below it[6].

H. Observing the ascending sign (only) as sign we will find the degree as follows. Noting the year of the 4-year cycle as it corresponds(?) to the here given(?) hours[7] we add it to the hour of the nativity and compute where the moon is and there we hold the ascendant to be.

The first year has 11 hours, the second 6 hours, the third 12 hours, the fourth 6 hours. The year of the 4-year cycle is also associated with the rising of the Dogstar. The first year of the 4-year cycle rises in ♋ in the first hour of night. The second year rises in ♎ in the 6th hour of the day. The third year rises in ♑ in the 12th hour of the day. The fourth rises in the 6th hour of night in ♈.

In this way the ascendant is also useful for (later) repeated casting of horoscopes by adding the hours of the 4-year cycle according to the year under consideration and counting it from the hours of the (original) nativity. Depending on the semicircle it ends, either nightly or daytime, hold the ascendant to be there and the stars at centers for the given moment to decide the nativity.

ed. Pingree p. 21, 26

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6) Meaning?
7) Probably referring to the hours enumerated in the next paragraph.

the hours of the 4-year-period according to the living year and subtracting (them) from the hours of the birth; into which half circle it falls either nocturnal or diurnal, their it will lead the horoscopos and the epicenters according to the stars at the time will mix in the birth.

<6.> About the Midheaven.

To find midheaven off hand is follows. From the setting degree, working with the rising times of the climat, until the opposite (point), subtract their half from the setting degree; where it falls there will be midheaven. Thus let be the horoscopos ♉ 15° in the second climat, work from the (23) setting degree ♌ 15° until ♉ 15°; the total rising time is 214; its half 107. This add to the 15 of ♌ and start to count it from it; it results ♍ 2°, and there is the midheaven; similarly for the rest. If you wish also to know the amount of hours of the day you always add the rising times from the degree of sun(rise) to the diametrically opposite point and taking the 15th (part) of them you will know the amount. Thus in the preceding example the setting degree of ♌ 15 until (?) sun(rise); until the diametrically opposite point the rising times are 214. The 15th of it (is) 14 (and) 4 (15ths); the rest is $\frac{1}{5}$ (and) $\frac{1}{15}$ of one hour. It is therefore the length of the day when

the sun is in ♋ 15° at the climate of Syria 14 $\frac{1}{5}$ $\frac{1}{15}$ hours. If you also wish to know the length of the night, add the rising times from the point diametrically opposite to the sun until where the process ends; similarly for the remaining signs.

<7.> On the rising times of the zodiacal signs.

It is possible to know by means of the single rising time in how many hours each zodiacal sign rises. Thus if ♈ rises in 20, the hour contains 15 equinoctial time-degrees, and if one subtracts the 15° from the 20 the rest is 5, which is 1/3 of 15. Hence ♈ will rise in ~~one~~ 1 $\frac{1}{3}$ hour. ~~For~~ How much time each degree prevailes ~~one~~ one knows as follows. Double the rising time of each sign and multiply ~~by~~ 60; it makes 240; the degree 8 months. How much each sign has as increment or decrement of rising time can be known as follows. If ♈ rises in 20, then ♎ rises in 40 which are the complement to 60. In how much each sign rises; the diametrically opposite sign will yield the complement to 60; and in how many hours each (rises), the diametrically opposite (sign rises) in the complement to 4 hours; and in how many days and months (each prevailes), the diametrically opposite (sign) will yield (the complement) to two years. Where each increases there the diametrically opposite.

is left behind; where it is left behind, there the straight (opposite) increases. Subtract now from the greatest above given value the smallest, that is 20 from 40; remainder 20. Its $\frac{1}{5}$th is 4; the increment of each zodiacal sign is 4. Thus if we add to the 20 of ♈ the 4 it makes 24; in this (time) 24 ♉ will rise; ♊ in 28, ♋ in 32, ♌ in 36, ♍ in 40, ♎ in 40. Now from ♍ similarly 4 decrease until ♑. Thus one will obtain for each climat what one wishes.

Different. May ♌ rise in 36, and the same ♍, ♉ and ♒ in 24; difference 12, its third 4; this is the ± increment. Thus one finds for each climat, that one wants. One finds the difference between the climats and the increase as follows. If in the first climate the rising times from ♋ to ♐ total 210, the sixth is 35; in this ♌ will rise. And similarly one will know the rising times of the zodiacal signs according to the above method if one subtracts the 25 of ♒ and takes $\frac{1}{3}$ of the rest. Because there exist 7 climats and the total of the rising times in the 7th is 234, we subtract the 210 of the first climat from it, and it remains 24 as excess; its 6th, because there are 6 climats in between, is 4. This is the increment of each climat ~~for the calculation~~ towards the computation[1] of the rising time; hence there are in the 1st climate from ♋ to ♐ 210 rising times, in the second climat 214, in the 3rd 218, in the 4th 222, in the 5th 226, in the 6th 230, in the 7th 234.

1) Liddell-Scott s.v. πήξις p. 1401 b translates "fixing" with reference to this passage, which makes no sense. Cf. also the use in p. 304, 1 and 2. πήξις = composition = computing. Or "determination";

<8.> On the hearing[1] and seeing zodiacal signs.

Similarly one can know about the (seeing and hearing) hexagonal signs by means of the rising times as follows. ♈ look at ♉; the rising times of 6 signs from the ♈ according to the second clima is 160 and from ♉ to ♎ 200; ♈ have produced less than ♉ and obey him; and the two rising time supplement each other to 360. Similarly from ♊ to ♍ 212 and from ♌ to ♏ 212; thus ♊ and ♌ are of equal rising time and obey each other. Again from ♍ to ♎ 200 and from ♍ to ♈ 160; they look. From ♎ to ♈ 180, from ♐ to ♉ 148, from ♎ to ♋ 148; they obey (each other) and are of equal rising time. Similarly with the others. There are some who treat the sympathy of the hexagons as follows: they add the (25) rising times of two zodiacal signs, take half of it and look whether the sign in between rises in this time. Thus ♈ 20, ♊ 28, total 48, its ½ 24; in this (time) ♉ rises. Therefore ♈ show sympathy with ♊; similarly ♉ to ♋ because the two rising times give together 56, their half 28; in which (time) ♊ rise, and similarly ♊ to ♌ and ♋ to ♍. ♌, however, does not have (sympathy) to ♎ because

1) Robbins, Tetrab. p. 75 translates "obeying"; cf. his note p. 75 3).

2) Robbins, Tetrab. p. 77 translates "signs which behold each other".

theyr sum is 78, theyr half 39[1], but ♍ rises in 40. Similarly for the rest.

1) Sic, instead of 76 and 38 respectively.

⟨9.⟩ Conjunctions and full moons off hand.

How to find conjunctions and full moons off hand. Take the difference from the degrees of the ☉ to the ☾, notice how much 1/12th is and go (this amount) back from the ☉ and there you will find the conjunction. And the ☾ will be so many degrees[2] distant from the conjunction, as you found 12th's. For births at full moon take the distance from the point diametrically opposite to the ☉ to the ☾ and notice how much is 1/12th and subtract (it) from the point opposite to the ☉. There will be the full moon. If you add to the degrees of the full moon 15, you will find the future[3] conjunction. Similarly if you add to the degree of the conjunction 15, you will find the future[3] full moon.

2) Sic, instead of days. (The same error also occurs in 50, 15 and 50, 17).

3) I.e. the next following.

For example Mesore (= XII) 2 ♍ the ☉ ♍ in 5°, the ☾ in ♎ 26°. The distance from ☉ to ☾ is 81, of which 1/12 is about 7. The moon will then be 7 days from conjunction. In turn subtract the 7 from the degrees of the ☉; it leads to ♎ 28°; there the con-

junction happened. And from Mesore 2 subtract the 7; it makes Epiphi 25; if we add 15 to ♋ 28 it gives ♌ 13. Thus full moon will be in ♌ 13°[1]).

1) According to apparatus ad 25, 30 M and V have ♍ 13, i.e. the longitude of the moon opposite ♌ 13.

(26) Fullmoon as follows; assume Mechir (VII) 13 the ☉ in ♍ 22°, the ☾ in ♑ 7°. Take from the point diametrically opposite to the ☉, ♌ 22, (the distance) to the ☾; it makes 75. The 12th is 6, which I subtract from ♌ 22; rest 16, where the full moon happened. In turn subtract the 6 from Mechir 13; it makes Mechir 7. Similarly, because there are 15 days from conjunction to full moon add them to 8; it gives 21. So many days is the moon distant from the conjunction.

<10.> ~~On~~ the seven zones ~~or~~ the sabbat days off hand.

On the week and the sabbath as follows. Add the full years since Augustus and the intercalary days and the days since (the first of) Thoth up to the day of birth and subtract as many times as possible 7 and the rest from the ☉. Into which star you come, its will be the day. The arrangement of the stars with respect to the days is as follows: ☉ ☾ ♂ ☿ ♃ ♀ ♄. The order of the zones is as follows: ♄ ♃ ♂ ☉ ♀ ☿ ☾. From this order results the significance of the hours, from the hours the day of the 6th star. For example 4th year of Hadrian Mechir (VII) of the Alexandrian (calendar) 13th, 1st hour

of the night; the full years of Augustus are 148 and 36 leap years and from Thoth to Mechir 13 are 163 days; it makes 347. I subtract 49 weeks, rest 4; from (day) of the ☉ it ends in the day of ☿ and the first day of the night belongs to ☿, the second to the ☾, the 3rd ♄, the 4th ♃, the 5th ♂, the 6th ☉, the 7th ♀, the 8th ☿, the 9th ☾, the 10th ♄, the 11th ♃, the 12th ♂. The first day ☉, 2nd ♀, 3rd ☿, 4th ☾, 5th ♄, 6th ♃, 7th ♂, 8th ☉, 9th ♀, 10th ☿, 11th ☾, 12th ♄. Thus the 6th will be the upcoming day, i.e., Mechir 14; it is ♃ and the first hour.

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⟨11.⟩ On the ruler of the year.

If you want to know in the same way the ruler of the year, as in the same example the full years of Augustus are 148 and 36 intercalary and 1 of Thoth; it makes 185; from it I subtract 26 weeks; rest 3. These from the ☉; the year ends for ♂. If you thus know the ruler of the year, you will find the ruler of the months as follows, using the arrangement of the zones given above. Thus Thoth (I) belongs to ♂. Because the 29th of Thoth again ends in ♂, the 30ed (belongs to) ☿, the 1st of Phaophi (II) will be ♃, the 30ed ♀; the 1st of Athyr (III) ♄, Khoiak (IV) 1st ☾, of Tybi (V) ☿, of Mechir (VI) ♀. If now the ruler of the year is ♂, of the month ♀, of the day ☿, of the hour ☉ one has to look how they are located with respect to the birth. Similarly they are indicative of the practice of the 'sect', especially

if the lord of the ~~running~~ elapsed year meets the current year, of the month the month and of the day the day. If they are unfavourably located or if they indicate mishappenings then they are indicative of obstacles and disturbances.

It seemed to me more natural to take the full year from Augustus and the leap years, below explained, and the days from (the first of) Thoth until the day of the birth and to remove weeks and to subtract the rest from (the day of) the ☉ and to consider the one as the ruler of the year upon which the ~~day~~ number falls; the new moon of each birth will procure the genetic day. It seems to be not logical to work those born under one rulership in the same year. In general the old ones took the ruler of the year and of the cosmic movements from the newmoon of Thoth (from there they counted the beginning of the year), but more natural from the rise of the dog(star).

<12.> On the ~~masculine~~ male and ~~feminine~~ female signs.

About the masculine and feminine signs as follows. Of the masculine zodiacal signs the first 2 half degrees are masculine, 28 the following 2 halfs feminine; of the feminine zodiacal signs the first 2 half-feminine, the following masculine, the following feminine. For those (born at) the conjunctions the degree of the conjunction will be indicative, for those of the full moon the degree of the full

moon; these, however, in which degree the horoscopos is or the moon.

<13.> On the phases of the moon.

The phases of the moon are as follows. On the first (day) it appears at $\frac{1}{2}\,\frac{1}{4}\,\frac{1}{20}$ hour; the second $1\,\frac{1}{2}\,\frac{1}{10}$; and always how many days there may be, taking 4 times of a 5th is giving the hour of visibility. Thus 15 (days) for the (full) moon, 4 times makes 60, its fifth (is) 12. (The moon) thus will rise after 12 hours. On the first day it raises $\frac{1}{2}\,\frac{1}{4}\,\frac{1}{20}$ hours; 2nd $1\,\frac{1}{2}\,\frac{1}{10}$; 3rd $2\,\frac{1}{3}\,\frac{1}{15}$ hours; 4th $3\,\frac{1}{5}$ hours; 5th 4 hours; 6th $4\,\frac{1}{2}\,\frac{1}{4}\,\frac{1}{20}$ hours; 7th $5\langle\frac{1}{2}\rangle\frac{1}{10}$ hours; 8th $6\,\frac{1}{6}\,\frac{1}{15}$[1]; 9th $7\,\frac{1}{5}$ hours; 10th 8 hours; 11th $8\,\frac{1}{2}\,\frac{1}{4}\,\frac{1}{20}$; 12th $9\,\frac{1}{5}\,\frac{1}{10}$[2]; 13th $10\,\frac{1}{3}\,\frac{1}{15}$[3] hours; 14th $11\,\frac{1}{5}$ hours; 15th 12 hours. Similarly (from the) 16 (th onwards) by means of subtraction as it was from 1 to 15. [The month itself has 29 days, the year 354.]

$\frac{1}{2}\cdot\frac{1}{4}\,\frac{1}{20} = 0;48^h$

1) Sic, instead of $6\,\frac{1}{3}\,\frac{1}{15}$.

2) Sic, instead of $9\,\frac{1}{2}\,\frac{1}{10}$

3) Kroll 28,16 points ιγ' instead of ι'γ'.

<14.> On the disappearance of the moon.

The moon becomes invisible approaching the conjunction for each zodiacal sign as follows. Where you find the ☉, take one half of the rising time and this will be the difference. Thus the ☉ in ♈ in the second clima; the rising time of the sign is 20, its half 10; we subtract the 10 from 30 and the moon becomes invisible in ♓ 20°. The ☉ in ♉; half of the rising time 12; the moon will be invisible in ♈ 18°.

The ☉ in ♊; half of the rising time of the sign is 14; the moon will be invisible in ♉ 16°. The ☉ in ♋; half of the rising time 16; the moon will be invisible in ♊ 14°. The ☉ in ♌; half of the rising time 29 18; the moon will be invisible in ♋ 12°. The ☉ in ♍; half of the rising time 20; the moon will be invisible in ♌ 10; similarly for the remaining signs.

<15.> On the 3rd, 7th (and) 40th[1] day of the moon

On the 3rd and 7th and 40th day as follows. Assume the moon in ♍ 7°; on the third day it will be in ♐ 7°.[2] Thus one must investigate the days, otherwise ♐ 7° falls on the third day. The 7th day will be found according to astrological theory in the (end of the) side of the quadrangle at ♒ 7°; the 40th day in ♉ 7°.[3] Some (astrologers) add 360 to the degree of the moon at birth and subtract it from the zodiacal sign of the moon. And they compute the moon there by observing (?) and computing the lunar degree at birth for the 3rd and 7th and 40th day. Ordinarily they signify fortunate and unfortunate and medium births from the 3rd and 7th and 40th day; looking at these places under the beneficiary ones in business places and not under maleficient (are) very lucky and of great significance, of the two looking at each other (one) under beneficiary, the other maleficient are medium, of the three maleficient only and turning away from the beneficiary ones (are) unfortunate; if they are mixed, predict medium.

1) Cf. apparatus ad 29,4: "40 perhaps error for 11; cf. Firmicus Maternus IV, 1, 7

2) One sign progress.

3) Thus at diameter to the original position. (Corresponding mean motion: 13; 30°/d).

<16.> To find the ascending node off hand.

In order to find the ascending node off hand, take the full years since Augustus, multiply them with $19\frac{1}{3}$ and count for each Egyptian month 1;35°,[1] for each day 0;3[2] and subtract from the sum (full) 360°s. The remaining number subtract from ♎ giving each sign 30°; and the result will be the ascending node. For example Hadrian (year) 4, Phamenoth 19.[4] The completed years since Augustus are 148; this times $19\frac{1}{3}$ gives 2862;[3] and from Thoth (1) to Phamenoth (19) together 10°; makes a total of 2872. Subtract from it 7 circles of 360°; rest 352°. These subtract from (the end of) ♎; it ends up in ♉ 8°. This will be the ecliptical place, the descending node diametrically opposite.

One must now look whether they are in these (degrees) beneficiary; and especially in the ascending node; the birth will be practical and active; and if it is found moderate and down-going he will also be born in downgoing expectation. The malefi-cient indicate banishments and accusations. From the positions of the moon and the days the ascending node and the zodiacal sign of the latitude will be found as follows. For example in the above mentioned birth in the 4th year of Hadrian Phamenoth day 19 it makes from the epoch to the day of birth 204; to the epoch correspond 12;18° of latitude and to 204 11;37 of latitude, makes (a total of) 23;55. This (multiplied) by 15 gives 358;45;

1) Text, according to Kroll, α' ϵ' λϵ'. Emend ϵ' to λεπτὰ, thus read 1° 35'. (Cf. note 2)

2) Text, according to Kroll, ϵ' γ' thus (cf. note 1) read 3', correctly suggested by Kroll.

3) Sic, instead of 2861 1/3.

4) Hadrian 4 VII 19 = Nabon. 867 VII 19 = A.D. 120 Febr. 8 = Augustus 149 VII 19.

start to count ~~subtract~~ it from ♌ towards the next[13]; it ends in ♋ 28; 45.

<17.> Different shorter.

I subtract the 23; 55 ~~from ♌ until it gives ♊ 22, and the rest 1; 55; these I multi-~~ ~~the given, taking each for 2, giving each for 2, ply by 15;~~ from ♌, taking[15] each (zodiacal sign) as 2; until ♊ it is 22, and the rest 1; 55; these I multiply by 15; it makes 28; 45 ♋. Then I take from ♉ so many ~~single~~ degrees as there fall from 1° (of ♉); it makes about 29. These I subtract from the degrees of the moon, i.e., ♏ 7. It ends in ♌ 8° which is the ascending node. In this way one has also to look at the other ~~g~~ births. If I must know the zodiacal sign of the latitude, I will proceed as follows. Only (the degrees) concerning the position of the ~~longitude~~ latitude 12; 18 I multiply by 15; it makes 184; 30. I ~~subtract~~ start to count from ♌; it leads to ♒ 4; 30. Then I multiply by 15 the ~~the~~ 11; 37° of latitude concerning the <20>4 days. It make 174; 15. ~~This given to subtract~~ Added to them the ♒ 4; 30 I start to count from it; it leads to ♋ 28; 45. In this way we will also find for the other positions of the latitude the zodiacal signs.

31 <18.> ~~How~~ How to find the steps and the winds of the moon.

The step and the wind we find as follows. From ♌ to ♎ the moon brings down north winds, from ♏ to ♑ she brings down south winds, from ♒ to ♈ she brings ~~down~~ up south winds, from ♉ to ♋ she brings up north winds. The steps one finds as follows. Since each step is 15° and one zodiacal sign contains 30° each zodiacal

sign contains two steps. Taking the start for the latitude from ♌ we find the step. If in the above quoted birth the latitude was found 23; 55 [and] starting to count from ♌ (each sign) as 2 we find (of) ♋ 1; 55°.[2] Then we know that the moon brings up north wind on the step of the sixth wind.

2) Thus 1; 55 · 15 = 28; 45° in ♋ as before.

<19.> Hipparchus' method to compute the zodiacal sign of the ☾

To find off hand in which sign the moon is as follows. The total of each king add to the year under investigation and divide by 3 not letting the number be arrear but keeping it[1]. If 1 remains add 300[3] to the number; if 2, 20; if 3 nothing, the number is namely exact. Then take half of the months from Thoth to the (month) of birth and add the days to the first number and subtract, if possible, 30's and deduct the rest from the zodiacal sign of the sun; if it is in advance, with 2 ½, if latter, the total. Where you end up, there is the moon.

1) Meaning: divide by 3 but leaving a remainder r such that $0 \leq r \leq 3$.

3) Error in the edition; text has 10 in MS M (CCAG 2 p. 101, 11).

Similarly to find in the same way the day of a given birth; to the year in question add the total and divide as before by 3 and half of the months add to the number. Then comparing the distance from the ☉ to the ☾ as of each zodiacal sign 2 (or) 3, decide which is the greater number. If the distance from the ☉ to the ☾ is greater, (32) subtract from it the first collected number,

and the rest will indicate the day. If the (degrees) of the distance are smaller, you add to them 30 and then subtract the previously collected number. If the two numbers are found to be 30.[1] then ☉ and ☾ are in conjunction.

1) ἀνὰ λ′ : congruent mod. 30 ?

For example year 3 of Hadrianus, Athyr (III) 28. Add to the year 3 the total of the regnal years 2; it makes 5; form its $\frac{1}{3}$. ⟨rest 2⟩ for which you add 20; makes 25. And the half of the months (i.e.) $1\frac{1}{2}$ and the 28; makes $54\frac{1}{2}$. I subtract one 30; rest $24\frac{1}{2}$; the moon will be so many days from conjunction. These I subtract from the solar zodiacal sign ♐ as $2\frac{1}{2}$; it ~~begins~~ ends the ☾ in ♑ on the given day.

The days as follows: again add the 3 years to 2 and divide by 3; rest 2. Because of it add 20 and half of the months $1\frac{1}{2}$, makes $26\frac{1}{2}$. Now compare the distance from the ☉ to the ☾ i.e. from ♐ to ♑ with $24\frac{1}{2}$ days. Because you cannot subtract from it the previously accumulated $26\frac{1}{2}$ (days) add 30 to them; it makes $54\frac{1}{2}$; from this subtract $26\frac{1}{2}$; rest 28, which show the day of birth.

For each king is the ~~total~~ number of years listed in the following genealogy.

For Augustus I and he ruled 43 years, makes 44; I subtract 30, rest 14. These I add to Tiberius and the 22 of the rulership of Tiberius, makes 36; I subtract 30

rest 6. These I add to Gaius, and he ruled 4, makes 10. Added to Claudius and he ruled 14, makes 24. From these I subtract 19 years, rest 5. These to Neron, and he ruled 14, makes 19; thus a 19 years period is filled. And this (the 19 years period) furnishes if we use it for the completion of 30 (years) of Vespasianus 11 and he ruled 10, which makes 21; subtracted a 19 years period, rest 2. This for Titus, and 3 for his rulership, makes 5. This for Domitianus; and 15 of the rulership, makes 20. Of which I subtract a 19 years period, rest 1; it is the total for Nerva, and he ruled 1 year, makes 2. This for Trajan, and what he ruled is 19, makes 21. After subtraction a 19 years period remains the rest 2, which are for Hadrianus and what he ruled is 21 of kingship, makes 23; from which I subtract a 19 years period; rest 4 of Antoninus. Similarly I add the 23 years he ruled, makes 27. From which I subtract 19, rest 8. These are added to Antoninus and Lucius Commodus and what he ruled is 32 makes 40; from which I subtract 30, rest 10 of Severus and Antoninus. And they ruled 25, makes 35; from which I subtract 30, rest 5 for Antoninus; and he ruled 4, makes 9 for Alexander. And he ruled 13, makes 22; from which I subtract a 19 years period, rest makes 3[1] of addition for Maximianus and

1) Text has 4.

what he ruled is 3, makes 7 [2]. And Gordianus 6 and Philippus 6 makes together 19. The 19 years period is filled.

2) Here the erroneous 4 of the preceding rest has been used.

⟨20. On the computation of the ☉ and the 5 stars.⟩

One can know the (position of the) ☉ to the degree as follows; add always to the day of the birth 8° from Thoth (I) to Phamenoth (VII), and thus you will find the ☉; for Pharmouthi (VIII) 7°, for Pachon (IX) 6°, for Payni 5°, for Epiphi (XI) 4°, for Mesore (XII) 3°. For example Phaophi (II) 6, add 8, makes 14; so many degrees is the ☉ in ♌. Pachon (IX) 6 and 6; makes 12; so many degrees is the ☉ in ♉.

If some of those who are eager of learning (and) eager about the arithmetical procedure set it down, for these it is necessary to submit also the other stars to (a computation) off hand, such that if they take up this by this same path the luck in degrees and the accurate instruction then they will make the distinction of the greatest principles with all zeal.

Saturn is to be computed as follows: take the full (i.e. completed) years from Augustus and subtract as many times as possible 30 and multiply the rest with 12; and how many times you subtracted 30 take for each circle 5 and for each 34

month from Thoth 1, and for each day 1/32 and the total start to count towards the next with 30 from ♋; and where you end there will be the star.

Jupiter as follows. The years of the Caesar[14] divide by 12, multiply the rest by 12 and add these; as many times you subtracted 12 take for each circle 1 and for each month 1 and for each day $\frac{1}{5}$ $\frac{1}{9}$; added those you start counting from ♉ taking 12 for each zodiacal sign.

0;18,40
Apparatus: ε' ϑ' fort. corruptum

Mars as follows. Take the (years) from Augustus to ⟨the one⟩ you investigate, subtract as many times you can 30, and investigate the remainder wheter it is even or odd, because if you find it even you will take the start from ♈, if odd from ♎. After this is decided you double the number, and (take) each month for $2\frac{1}{2}$; if it is more than 60, you subtract the rest from ♎ or ♈, giving each zodiacal signs 5°. Where it ends, the significant zodiacal sign looks at the sun, in which sign it is; if namely (♂) was found below, the star will be in retrograd movement from the found sign, if above it will proceed direct. This he does, wherever he is closer to the sun, from the sign which was found; also the remaining stars have the same power when they move around the mean movement of the sun, most of all ♀.

Venus as follows. Add the (years) from the Caesar until the year under investigation and divide by 8 and investigate (each) of the 8 (possible) remaining numbers wheter it has the position

the stationary points
of ~~retrogradations~~; after this has been consulted add the amount
of days until the investigated day, if possible use the above,
as in the case of the moon; if one finds for the (date) of
birth the same position, this must be used; if after the birth,
(use) the below. Collecting the total and subtracting the
epoch of the zodiacal sign subtract 120° from each zodiacal
sign, thus ~~subtracting~~ start to count, the rest of the stationary points from the
epoch of the sign you have[1], counting each sign for 25.
When the number ends, there is ♎ 35 Venus. The epochs of the
stationary points
~~retrogradations~~ will be evident from the remainders of the
years; if 1, 3, 4, 6, 7 is left over she will be stationary; if
however 2, 5 she will go. The first epoch coordinates (?)
Phamenoth (VII) 10 to ♉, the 3 Phaophi (II) 10 to ♐[3], the 4
Payni (X) 22 to ♌, the 6 Tybi (V) 8 to ♓, the 7 Mesore (XII)
14 to ♒; in the 8(th) year she is stationary. < From the (first of) Thoth (I) >

Mercury is to be computed as follows. ~~Count~~ until the
day of birth adding the days and always adding additional
162 and totalling; if it is beyond 360 subtracting
a (full) circle and start to count ~~subtracting~~ the rest from ♈ counting
each sign for 30 and where you end there is the
star. Always put it closest to the sun. That is
to say if the sun is in the beginning of a sign[2]
you may find it (☿) behind it (in the same sign);
if at the end, (in the next sign.
(the ☉) (then ☿ might be)!

1) Apparatus ad 34, 34: "haec turbata"!

3) CCAG 2 p. 104, 16 has here incorrectly ♉.

2) Following the reading proposed p. 419 ad p. 35, 12.

Take for example[0] (year) 13 of Trajanus. Phamenoth (VII) 18; the full (i.e. completed) years from Augustus are 138. From this subtract 4 30's, for which I take for each circle 5, makes 20; the remainder 18 I multiply by 12, makes 216. And from Thoth (I) until Phamenoth (VII) for each month 1 makes 7; all together 243. These I start to count from ♎ (taking each sign) as 30, which ends in ♑; there is ♄.

Again divide 138 by 12: 11 and remainder 6; this times 12 makes 72 and each subtracted circle for 1, makes 11, and for the month 7, makes 90. These (counting) from ♉ (counting each sign) as 12. It ends in ♐; there is ♃.

Now ♂ as follows. From the Caesar to the investigated year makes 139, from this subtracting 4 times 30, rest 11.[1] Because the remaining number was found to be odd I know that the subtraction must be made from ♒. These doubled makes 22 and for each month until Phamenoth (VII) (taken 2½ times) makes 17, total 39; these I start to count[2] from ♒ counting each sign as ♉, it ends in ♉; here is ♂.

♀ as follows.[3] 139 divided by 8, remainder 3, which indicates a stationary point, (and) the epoch Phaophi (II) 10 for ☿. I take the rest of Phaophi (II) (i.e.) 20, from

0) The same data are used again in the horoscope III,6 p. 142,8-20 (though without quoting the date and giving degrees and minutes of longitudes

1) Sic! instead of 19, or 18.

2) I read here (p. 35,30) ἔπειτα ταύτας ἀπολύω instead of the meaningless ἐμέρισα ταύτας· ἀπολύω. Cf. p. 35,20.

3) The sections concerning ♀ are translated in Tihon, Bull. Inst. Hist. Belge de Rome 39 (1968) p. 72-74.

Athyr (III) to Mechir (VI) 120 and of Phamenoth (VII) the 18, makes together 158[0]. From these I subtract for the stationary (36) point and ♐ 120, rest 38 which I start to count from ♉ (counting each sign) as 25; it ends in ♍; here is ☿.

Because there seems to prevail much < puzzling difficulties >[1] for this birth I shall explain another case. Hadrian 4[2] Athyr (III) 30, the (years) from Augustus make 148; these divided by 8, remainder 4, which indicate the epoch Payni (X) 22 for ☌. Because this epoch does not work being found greater than the (date of) birth. I go back in the lower (epoch) which is the third (namely) Phaophi (II) 10 for ♐. I take the remaining 20 of Phaophi (II)[3] and from Athyr (III) to Mesore (XII) 300 and 5 epagomene; it makes 325 of the preceding year and of the present year from Thoth (I) to 30 Athyr (III) 90, makes altogether 415. From this I subtract for the stationary point and the zodiacal sign ♐ 120, remainder 295. These (counted) from ♉ (taking each sign) as 25; it ends in ♐ 20; here is the star.

Different. Hadrian 4 Mechir (VI) 13, from Augustus 149. (Divided) by 8, remainder 5 which indicates neither epoch nor stationary point. I go back in the previous epoch which is Payni (X) 22 for ☌; I take the remai-

0) Variant: 138.

1) Cf. apparatus ad p. 36, 3.

2) Variant: 3, corrected perhaps from 1.

3) Here follows a crossed out variant: "from Athyr (III) to Mechir (VI) 120, and for Phamenoth (VII) 28."

ning 8 of Payni (X) and Epiphi (XI) and Mesore (XII) and 5 epagomene, makes 73; and of the present year from Thoth (I) to Mechir (VI) 13 makes 163, makes (all together) 236.[1] From this I subtract for the stationary point and for ☽ 120, remainder 116; these (I start to count (counting each zodiacal sign) as 25, they end in ♎ 16°; there is ♀.

Similarly compute for the same birth and ☿; take from Thoth (I) to the 13th of Mechir (VI) 163 and add moreover 162, total 325. These subtract from ♈ (counting each sign) as 30, it ends in ♒ 25; there is the star.

For the ☉ the 2nd, and the 6th and the 12th (place) is good, the 7th and the 4th bad. For the ☾ the 3rd and the 8th and the 9th bad, the 5th and the 11th and 12th good. For ♃ the 4th and the 10th bad, the 6th and the 8th and the 12th good. For ♄ the 3rd, and the 9th, the 10th and the 11 good, the 4th and the 7th bad. For ♂ the 3rd, the 4th and the 9th good, the 37 7th and 10th bad. For ♀ the 3rd and 7th and 8th good, the 5th bad. For ☿ the 2nd, the 5th the 11th bad, the 7th and 8th and 9th good. The remaining (places) are irregular for each planet: 16)

1) Variant: 235.

When the planets get into these above mentioned places, at the ingress and especially if they gain mastery over the time-degrees) in effective places and if they signify under beneficiary or maleficiary (places) then they will bring good or evil toward which they exceed. If they are in the whole mixed, the bad and the good will happen according to the birth individual r. Whence it is necessary always to observe according to the passing[2] of the places for the exact estimate of the time(-degrees).[17]

1) Cf. critical apparatus ad 37, 7

2) Liddell-Scott p. 1341 b: "rotation of chronocratory".

21. On the combined appearances and influences.

♄ and ♃
♄ and ♂
♄ and ☿
(38) ♄ and ♀
♄ and ☾
♄ and ☉
♃ and ☉
♃ and ☾
(39) ♃ and ♂
♃ and ♀
♃ and ☿
♀ and ☉
♀ and ☾
♀ and ♂
(40) ♀ and ☿
☿ and ☉
☿ and ☾
☿ and ♂[18]
(41) ☉ and ☾ If the great accumulation[3] is found, there are born rulers of cities, ... Except not long lasting good exists for those through the figure of the waning moon.

3) ὑπόστασις μεγάλη

22. On the higher configurations.

♄, ♃ and ☉

♄, ♃, ☾ (42)

♄, ♃, ♂

♄, ♃, ♀

♄, ♃, ☿

(43) ♄, ♂, ☉

♄, ♂, ☾

♄, ♂, ♀

♄, ♂ ☿ (44)

♄, ♀ ☉

♄, ♀ ☾

♄, ♀ ☿

♃, ☉, ☾ (45)

♃, ♂, ☉

♃, ♂, ☾

♃, ♂, ☿

♃, ♂, ♀ (46)

♃, ☿, ☉

♃, ☿, ☾

♃, ☿, ♀

(47) ♃, ♀, ☉

♃, ♀, ☾

♀, ☉, ☾

♀, ♂, ☾

(48) ☿, ☉, ☾

☿, ☉, ♀

☿, ☾, ♀

☿, ♂, ♀

♂, ☉, ☾

♂, ☉, ♀ (49)

♂, ☉, ☿

♂, ☾, ☿ 19)

And this we explained for the single explanations and in general. In the case of mixture and mutual interference (this must be altered) either because of coincidence or of configuration according to the quality of the planet and the discussion of the place or the power of the action. I did not wish to write much and at length about the mixtures because the old ones did deal about them. At a glance the method will be distinguished, for those who have sense, from the power of each star and the quality of the zodiacal signs; it is explained in this book when one must mix the localisation of the planet according to configuration or epicentre, or rising, fortune, horoscope, triangle, ruler; similarly the signs in which they happen to be, whether they are houses or sects, (50) significant about something; in this way reliable predictions will be given; if they come out in unprofitable places and in zodical signs which are not the domicil or because of the sect then it will be also inferior for action and for fortune.

<23. On conception.> 20)

This being the case one must also talk about conception, putting aside those who offer twisting and ill will. Because there exist three terms[1], the smallest, the middle and the largest, the difference of each one is 15; if we add and subtract this from each term, the other will

1) Cf. VIII, 6. Here in the sense of "limit of time" esp. duration of pregnancy

be obtained. The ⟨lowest⟩ has 25⟨8⟩ days, which will be brought forth at the setting degree, i.e., if the moon is before setting;[1] the middle 273, which is in full view when the moon is in the horoscope, the largest 288, which is in full view when the moon is in the setting point. If we namely measure the 15 degrees[4] in the hemisphere from horoscope to the setting point, we find that we have to add to each zodiacal sign $2\frac{1}{2}$°.[4] Thus ♋ may be horoscope, ♑ setting. If the moon is found above the center[2] of the setting sign, the pregnancy is 25⟨8⟩; if in ♒ $260\frac{1}{2}$; if in ♓ 263; if in ♈ $265\frac{1}{2}$; if in ♉ 268; if in ♊ $270\frac{1}{2}$; if in ♋, the horoscope, 273; if in ♌ $275\frac{1}{2}$; if in ♍ 278; if in ♎ $280\frac{1}{2}$; if in ♏ 283; if in ♐ $285\frac{1}{2}$; if in ♑ 288.

Take as an example year 8 of Nero, Mesore (XII) 6 to 7,[21] 11th hour, ☾ in ♎, ♋ horoscope. Because the moon is found in the center the birth will be produced[3] during 280 days and 12 hours. This must now be subtracted from the $365\frac{1}{4}$ days of a year, rest 84 (days) 12 hours. If we add these 84 to Mesore (XII) 6 it will be Phaophi (II) 2⟨7⟩, hour 23, which is the day of conception. And again if we take (the time) from Phaophi (II) 27 to Mesore (XII) 6, it will be 280.

1) Not after sunrise; or in the 8th "τόπος" (cf. Liddell-Scott p. 636 b), as follows from the subsequent example.

4) Either error for "days" or calling days "degrees" because of the ☉-movement.

2) Below the center would mean 288^d.

3) Cf. Liddell-Scott p. 523 s.v. ἐκτρέπω.

We can show this in many different (51) ways which all lead to the same road. From the (date of) birth we will know in how many days it developed. If the moon is found in the hemisphere above the earth we shall compute from the setting degree until the (degree of the) moon, taking for each 30 $2\frac{1}{2}$ days adding those to the lowest term of 2[5]⟨8⟩ and so many days you will find the pregnancy; subtracting them from the (day of) birth you will find in the resulting (day) the day of conception. If you want it differently, count from the degree of the moon until the horoscopic degree for each 30 (degrees) $2\frac{1}{2}$ days and subtract them from the middle term, i.e., 273; and this will be the conception. Similarly if the moon is found in the hemisphere below the earth count from the horoscopic degree until the (degree of the) moon and (after) subtracting (take) for each 30 $2\frac{1}{2}$ days and add the total to the middle term, i.e., 273. And this will be the (duration of) pregnancy. Taking (the degrees) from the (degree of the) moon until the (degree of) setting and noting down how many days[1] they total, for the number of subtracted 30's subtract $2\frac{1}{2}$ days from 288; and so much will be the (duration of) pregnancy.

In order to make it clearer to those who happen to make predictions, take again as example Hadrian

1) Sic, instead of degrees.

year 10 Mechir (VI) ~~[illegible]~~ 13 to 14,[21] first hour of the day; moon in ♍ 7°, horoscope ♎ 7°. Because the moon is found in the hemisphere below the earth, take (the degrees) from the horoscopic degree until the degree of the moon; it makes 60; I count each 30 for 2½; makes 5; and these I add to the middle term, ~~it~~ it makes 278; this is the ~~conception~~ pregnancy.

I now subtract the 278 from the hour of birth. ~~[illegible]~~

The day of conception results as Pachon (IX) 11. If again I subtract the 5 days of the difference from the 92, rest 87; it is namely the middle (term) 273 and the rest from 365 is 92 days. If we now add 87 to Mechir (VI) 14 {and ~~[illegible]~~ start to count from the hour of birth}[1], it leads to Pachon (IX) 11.

If one counts from the degree of the moon until the (degree of) setting, i.e., ♑ 7°, it totals 120. Taking for each 30 degrees 2½ days makes 10 days; if I subtract them from the largest term, namely 288, rest 278. ~~Reversing~~ Retracing these from the moment of birth in counting you will find the moon on the horoscope of the moment of birth.[2]

52 If the moon is found in the hemisphere above the earth, take from there the distance in degrees until the horoscopic degree and subtract[3] for each 30 (degrees) 2½ and ~~know~~ notice how many days it totals and if you wish add it to the 92 and ~~subtract~~ start to count from the moment of birth toward the next and where it ends there you will find the day of conception.

1) Meaningless; to be cancelled.

~~[illegible]~~

2) Text in disorder. Must mean "retracing these days from the moment of birth you will find the same result as if computing the moon from the horoscope at the moment of birth" (i.e. as in the preceding case).

3) Incorrect expression; one should read here ἀναλαβών not ἐπικρούσας (cf. 51, 4/5)

toward the next
And again if you count from the day you found until the (moment of) birth notice the amount of days.[1] If the moon is found in the hemisphere below the earth and you count from the horoscopic moment to the (moment of the) moon and if you notice the day[4] of the difference you assign for each 30 (degrees) 2½ days. These you subtract from the 92 and add the rest to the day of birth & and start to count from it towards the next; & and this will be the day of conception; {this you add to the <middle> term, i.e., 273 and subtract from the moment of birth.}[3]

Take as another example year 17 of Trajan, Mesore (XII) 2, hour 11½ of the day. ☉ in ♌ 5°, ☾ in ♎ <18>, horoscope ♉ 24°. Because the moon is found in the hemisphere above the earth, I take (the degrees) from there to the horoscopic degree; it makes about 96; for each 30 degrees I take 2½ and it makes 7½ days. These I add to the 92; makes 99½ days. I start to count them from the day of birth toward the next; it results in Athyr (III) 6.[5] Again from the 6th of Athyr (III) ♑ until the (days) of birth towards the next; they total 266; so much is the pregnancy; conception. If I do not wish to add the 7 to the 92, I subtract them from the 273; and the rest will be 266; subtracting them from the day of birth and computing, the sun will be found in the horoscope ♉.

1) This amount is used in the example below to find the position of the ☉ at conception.

3) { } this belongs to the first type of procedure (cf. commentary p. -22- c)).

4) Sic! not days.

5) Actually: add (cf. commentary)

6) Actually: 16 (cf. commentary)

The hour of conception will be indicated by the moon at birth. As many degrees the moon has at birth, so many has the horoscope at conception. Other ones, however, compute by doubling the hour of birth .... for the horoscope and again ⟨other ones⟩[1], who work with the ☉ at birth, 53 consider as horoscope of the conception the leading[2] triangle from there[3]. Whence we make no miscalculation according to the preceding discussion and investigating about the remaining births. Such ~~is~~ the necessary and mystical way into our future conduct. (may be explained)

1) I assume the following restoration of the lacuna in 52,34: καὶ πάλιν ⟨ἕτεροι⟩ μὲν τοῦ κατ' ἐκτροπὴν Ἡλίου λάβοντες

2) In the sense of the daily motion.

3) i.e. the place of the ☉.

⟨24.⟩ On the 7-month (-children).

We will proceed differently if one remains a longer or shorter time in the womb, wheter extermination or abortus occur and painful deliveries and deaths of the 7-month births. The result is as following.

I take together the year ~~of~~ before the ~~birth~~ conception[4] and the month of ~~birth~~ conception[4] and the day and compute the moon; and noticing in which sign it is found, I mark it down. Similarly I take the second year after ~~the birth~~ conception and the month and the day and compute again the moon and I compare the result with the first year. And if I find the moon in both years in triangle with the moon of the ~~birth~~ conception I declaire the ~~conception~~ fruit complete. If the moon in the two years is found in the quadrangle

4) γένεσις and γεννητικός must here mean conception and not birth.

with respect to the (moon) of the ~~birth~~ conception, the birth will take the shortest time of ~~conception~~ pregnancy, i.e. within 258 (days). If the moon of the first year is found in the triangle, the (moon) of the second in quadrangle, within 269 (days) will be the time of the womb. If the (moon) of the first (year is found) in the quadrangle, the (moon) of the second in the triangle, the same 269 days will be the time. If the (moon) of the first (year) is in the quadrangle, the second, however, turning away, (the child will be) non-viable. If the moons in the times of setting are found unrelated to the moon of ~~birth~~ conception (the child) will be death in the womb or the embryo is dissected and will bring danger to the mother. If the moons of the two years are in the diameter and coordinated it will be of seven months. If the (moon) (54) of the first year is in the diameter, the second, however, in the triangle or in the horoscope or in the same (sign) it will be seven months; it will be the same if found in the triangle. And if the first in the quadrangle and the second in the diameter, it will be seven months. The same will also the ☉ indicate, in the diametrically opposite sign in which the conjunction happens.

This is the way which the old ones described mystically and obscure, we, however, more clearly.

Book II.

55.

Second book of the anthology of Vettius Valens from Antiochia.

Vettius Valens III,3

p. 136 On the Starter (aphesis)

Since some, influenced by malice or inexperience, treat the aphesis only partially and obscurely (for they always make their exposition taking the number of degrees towards east from the starting degree to the (end of the) side of the square), it is necessary that we clarify the (method of) determination. For we find nativities which exceeded the side of the square, especially in case of the signs with short rising times, although the Ancient says precisely that this is impossible, and, again, nativities which, even without the radiation of the maleficent (stars), did not traverse the (side of the) square. Therefore, for a given nativity, it will be necessary to see whether the nativity has a ruler or is without ruler and whether sun or moon or horoscope is starter. And if the sun or moon obtains the initial place, it is necessary to reckon from the starting degree through the side of the square how much the time total according to the respective clima and the total shows that he will live so many years. But this applies (only) if the house ruler is located in its own terms and in appropriate configuration (and) in conjunction with or in aspect to the starter and no one of the destructive (stars) radiates and (thus) he cuts into the number of years. And if the ruler happens to be not in aspect to the supreme (ruler) but is found otherwise well configured such as if it is rising in

Horoscope or in Midheaven[1] it allotted the maximum years; but if (it is at a distance) from the centers[2] then it sets aside the portion of the distance and it will allot the remainder according to the system of participation.

It is always necessary, therefore, to reckon the number of years from the supreme ruler and combine this with that of the house ruler and whatever the number of years found, so many will be lived. For the house ruler will be allotted, if (the nativity) happens to have a house ruler, the remainder of the distance to a center. And if the years of the starter happen to be less than those of the house ruler the (years) of the starter will be the length of life and the nativity will be considered without house ruler. And if the supreme ruler happens to be in its own domain, and (so) also the house ruler, each is allotted its respective years. Some reckon the distance between the centers (137) and the house ruler from the hour and the degree of the setting point and if they are 5 or 6 signs distant they subtract that amount. But I say to reckon the distance of the house ruler from the 4 centers and subtract it, if the nativity is found to have a house ruler; for they say in [... lacuna ...]

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1) This is the literal translation of the text which makes no sense. What is meant is probably "if he is rising in the Horoscope or if he is in Midheaven".

2) The text is here corrupt but the meaning is evident.

4. On the winds of the stars and their exaltations and steps

This being such, it now is also in order to subsume the winds. First one must consider in which degree each (of the planets) has its exaltation; because it is from here that the distinction is made. The sun has its exaltation in 19° of ♈, the moon at 3 of ♉, Jupiter at 15 of ♋, Mars at 28 of ♑, Saturn at 21 of ♎, Mercury at 15 of ♍. Venus at 27 of ♓. Their depressions are in the diametrically opposite degrees. The point at a right angle preceding each exaltation will be called "northern", and the following one "southern". Thus since the sun has its exaltation in 19° of ♈, its preceding right angle is ♑ 19°; if it is found there, we say that it is going up to the north attaining high exaltation; from ♈ 19 to ♋ 19 it is going down to the north; from ♌ 19 to ♎ 19 it is going down in the south; from ♎ 19 to ♑ 19 it is going up to the south[1]. If we also ask for the step of the wind we shall find it as follows: Since each step is 15°, taking the distance of the star from the individual degree (of the exaltation) and subtracting (as many times as possible) 15°, I will know. Thus let the sun be in ♒ 22°; I take (the distance) from ♑ 19 to ♒ 22, i.e., 33°. We subtract twice 15°, i.e., 30° which are 2 steps: remainder 3. Thus the sun is ascending to the north in the 3rd step of the wind. This we describe for the sake of an example.

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1) This terminology exactly corresponds to the terminology in the theory of latitudes, the exaltation playing the role of the Northern-limiting-point.

p. 157, 12 – 15

Transl.:

Since the rising times of the zodiacal signs are incorrect (when computed) with the Anaphoricos of Hypsicles if the time (of life) should coincide (with the computed total) within one or two years — the king (Nechepso) determined the rising times only for the first climate (i.e. Alexandria).

Comm.:

Convincly, the rising times of Hypsicles give the length of life within an accuracy of 1 or 2 years.

Followed by horoscopes ℰ L 82 (for Alexandria) and L 102 IV a and IV b (for Babylon) using rising times of System A, i.e. in the case of Alexandria the values from Hypsicles' Anaphoricos.

<6.> On the computation of the rising times and the three terms.

The computation of the rising times and of the three terms be composed as follows. Assume for example that in the second clima ♈ rises in 20; double this, it makes 40. To the first degree is assigned 0;40, which are 40 minutes[1]. To the 2nd degree 1;20; to the third 2;0; to the 4th 2;40; to the 5th 3;20; and such until the 30ed degree, totalling the 0;40 the 20 years.

1) This must be the meaning of the abbreviation μγ' (of course not 48). Perhaps γ = ἑξήκοντα = minutae ?

Next we compose as follows the second term according to the first degree following. Because ♉ rises in 24, I double these, makes 48, which I add to the 20 of ♈; and it makes for the first degree of ♉ 20;48; for the 2nd 21;36; for the third 22;24; for the 4th 23;12; for the 5th 24;0; and continuing until 30° adding 0;48 to 20 we will find 44;0.

The third term we will put together as following. The first degree of the third term 44;56, for the 2nd 45;52; for the 3rd 46;48; for the 4th 47;44; for the 5th 48;40, and (similarly) until 30. Adding (0;)56 we will find 72. Similarly also for the remaining zodiacal signs we will find the rising time of the zodiacal sign in the first term and adding, in the second of the next sign, in the 3rd of the 3rd sign, for each clima one wants.

Veltius Valens

Notes to the Translation

Notes

1) Lit.: "Flower-gathering"

2) αἵρεσις: Liddell-Scott p. 41 b 'condition' Ptol. Tetr. 21. Robbins, however, translates (p. 43) "sect"; cf. p. 43 note 1: αἵρεσις, "condition, sect"; referring to Vett. Val. II, 1 and III, 5. + CCAG I, 146.

3) This must be the meaning here. Cf. σκληρουργία "work in hard materials" (Liddell-Scott quoting Vett. Val. 12, 2 48, 32). Liddell-Scott says s.v. σκληρουργός "apparently one of corps of masons in the Roman Army" referring to Sammelb. 4411 "cf. Vett. Val. 3, 7 = silicida flos." Kroll refers to CIG 4716 d [15. 20. 35].

4) Cf. Tetrabiblos 152 (ed. Robbins p. 328 last paragraph).

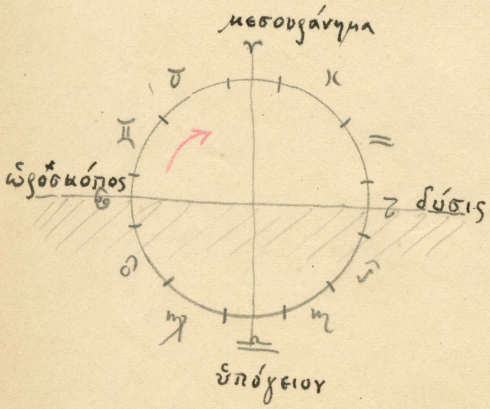
5) Cf. Tetrabiblos 193 ed. Robbins p. 416 note 1.

6) Cf. references given in Liddell-Scott I, 544 s.v. ἐμπεριόχεσις

7) Liddell-Scott "dominant planets".

8) τροπικός referring both to solstices and equinoxes; cf. Hebrew tequfah.

9) Liddell-Scott s.v. μεσουράνημα "title of Aries as having been on the meridian at the creation" (no other reference than Vett. Val. 5, 26). The following situation at the creation is assumed



♈ ≈ μεσουράνημα cf. Vett. Val. 5, 26
♌ ≈ ὡροσκόπος " 8, 31/32
♎ ≈ ὑπόγειον " 10, 20
♑ ≈ δύσις " 11, 13

Cf. also Fr. Cumont, Symbolisme funéraire chez les Romains (1942) ch. I.
Boll-Bezold, Sternyl. u. Stund.(4) p. 148

10) For προσνεύειν "approach" cf. Robbins, Ptol. Tetr. p. 9 note 2.

11) The system of "terms" explained here is the "Egyptian system" according to Tetrab. I, 20 (Robbins p. 97). The total scheme, given here is as follows:

	①	②	③	④	⑤
♈	6 ♃	6 ♀	[8] ☿	5 ♂	5 ♄
♉	8 ♀	6 ☿	8 ♃	5 ♄	3 ♂
♊	6 ☿	6 ♃	5 ♀	7 ♂	6 ♄
♋	7 ♂	6 ♀	6 ☿	7 ♃	4 ♄
♌	6 ♃	5 ♀	7 ♄	6 ☿	6 ♂
♍	7 ☿	10 ♀	4 ♃	7 ♂	2 ♄
♎	6 ♄	5 ☿	8 ♃	7 ♀	4 ♂
♏	7 ♂	4 ♀	8 ☿	6(!) 4 should be 5	6 ♄
♐	12 ♃	5 ♀	4 ☿	5 ♄	4 ♂
♑	7 ☿	7 ♃	8 ♀	4 ♄	4 ♂
♒	7 ☿	6 ♀	7 ♃	5 ♂	5 ♄
♓	12 ♀	4 ♃	3 ☿	9 ♂	2 ♄

The only deviations are a) one error in ♍ ④ and b) in ♎

Vett. Val.	6 ♄	5 ☿	8 ♃	7 ♀	4 ♂
Tetrabiblos	6 ♄	8 ☿	7 ♃	7 ♀	2 ♂

The total is in both cases correctly 30°. The total of the planetary contribution of the whole scheme, however, will be modified as follows

	Tetr.[1]	Vett. Val.
☿	76	73
♀	82	82
♂	66	68
♃	79	80
♄	57	57

This is important for the doctrine of the length of life assigned by each planet.[2] The canonical "maximal" periods (e.g. Lydus, De mens. p. 56, 3–57) follow the Tetrabiblos, not Vett. Val.

1) Cf. Ptol. Tetr. ed. Robbins p. 96 n. 1.

2) Cf. Tetr. ed. Robbins p. 93.

12) It might be significant that at this point the previous scheme is broken a) by ὁμοίως b) by omitting at first the names of Antoninus and L. Commodus c) by using ιδ' instead of ἐννεακαιδεκαετηρίδα. This might point towards the beginning of an interpolation later than Vett. Valens. To remove this whole list, beginning p. 32, 22 as Kroll thinks (cf. apparatus to 32, 22) is impossible because the 2 years of Nerva are used in the example for Hadrianus 3 on p. 32, 6 ff.

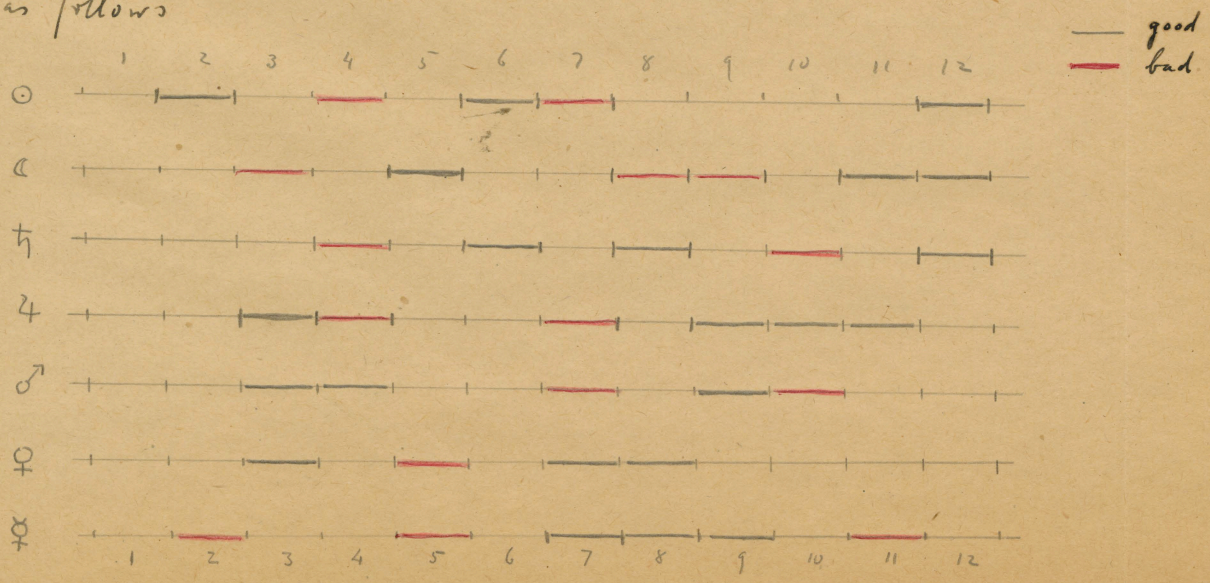
13) κατὰ τὰ ἐξῆς; similar 34, 4 κατὰ τὸ ἐξῆς. Meaning: without omission of signs, in the proper order of the zodiacal signs. Cf. note 15).

14) i.e. Augustus as it follows from the example.

15) ἀπολύω ἀπὸ δι δίδους ἑκάστῳ ἀνὰ β'. Cf. 35, 30/31: ἀπολύω ἀπὸ = δίδους ἑκάστῳ ζῳδίῳ ἀνὰ ε'. Abbreviated, e.g., 35, 24: ταύτας ἀπὸ ϑ ἀνὰ ιβ'. The full phrase would be: ἀπολύω ἀπὸ .... κατὰ τὸ ἐξῆς δίδους ἑκάστῳ ζῳδίῳ ἀνὰ[η]....[1] Cf., e.g., 34, 4: ἀπόλυε ἀπὸ ζ κατὰ τὸ ἐξῆς ἀνὰ λ', and (μοίρας) 34, 18: ἀπόλυε ἀπὸ = (ἑ ϒ) ἑκάστῳ ζῳδίῳ δίδους ἀνὰ μοίρας ε'.

1) I subtract from ... in the order (of the signs), taking each sign as ... degrees.

16) The theory of "places" (τόποι) is mentioned in Tetrabiblos I, 22 (Robbins p. 109). The distribution of the twelfths of signs given here is as follows



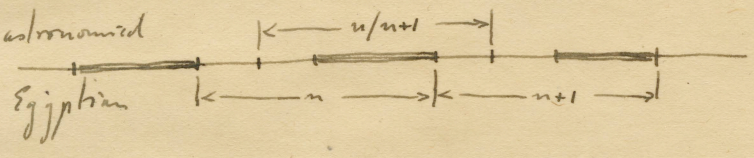
17) Cf. for this section Tetrabiblos III, 10 (ed. Robbins p. 304/305).

18) The combinations ♂ and ☉ ♂ and ☾ are missing (19 instead of 21 combinations).

19) 32 combinations instead of 35. Missing are: ♄ ☿ ☉
♄ ☿ ☾
♄ ☉ ☾

20) σπορά for conception also Tetrabiblos III, 1 (Robbins p. 222)

21) For these double dates cf. Manitius in Ptolemäus, Handbuch der Astronomie I p. 431 note 27. The arrangement is as follows



Vettius Valens

Glossary

ἐκκρούω

20, 20 : τὰς λοιπὰς ... ἐπισυνθεὶς ἔκκρουε τριακοντάδας

21, 3 : καὶ ἐκκρούσας ὅλους κύκλους

21, 26 : δεῖ λαμβάνειν .... καὶ ἐκκρούειν τριακοντάδας

22, 2 : καὶ ἐκκρούσαντες τριακοντάδας

27, 22 : καὶ ἐκκρούσαντα ἑβδομάδας

33, 32 : τὰ ... ἔτη ... ἀναλαβὼν ἔκκρουε ὁσάκις δύνῃ ἀνὰ λ'

51, 13 : ἀπὸ τῆς ... μοίρας λογισάμενος ἕως τῆς ...
καὶ ἐκκρούσας ἑκάστης τριακοντάδος β'ζ' ἡμέρας

51, 18 : πρὸς τὴν προσότητα [ἐκ] τῶν ἐκκρουσθεισῶν τριακοντάδων
β'ζ' ἡμέρας ἀφαίρει

1) should be ἀναλαβὼν, not ἐκκρούσας; cf. 51, 3/4; partially influenced by 51, 13.

140, 24 : ἐπεὶ ἕκαστος βαθμός ἐστι μοιρῶν ιε', ἀπὸ τῆς ἑκάστης
μοίρας λαβὼν τὸ διάστημα .. καὶ ἐκκρούσας τὸ ιε' ...

215, 6 : τὰς ἀπὸ .... ἕως ... ἡμέρας συναγαγόντες ... ἐκκρούομεν
δωδεκάδας, τὰς δὲ περιλειπομένας ἀπολύομεν ἀπὸ ....

297, 14 : καὶ τοῦτο ἐκκρούειν ἀπὸ τοῦ μεγέθους τῆς ἡλιακῆς μοίρας

174, 2 : ἐκκρούομεν ὁσάκις δυνάμεθα δωδεκάδας

52, 3 : λαβὼν ἀπὸ ... τὸ μοιρικὸν διάστημα ἕως τῆς ... μοίρας καὶ
ἑκάστης τριακοντάδος ἐκκρούσας[1] ἀνὰ β'ζ'

cf. 51, 3/4 : λογισάμενος τὰς ἀπὸ τῆς .. μοίρας ἕως τῆς ... καὶ
ἑκάστης τριακοντάδος ἀναλαβὼν ἀνὰ β'ζ' ἡμέρας

Birth

19, 8: ἐπὶ γενέσεως
19, 19: κατὰ γένεσιν (= 19, 22)
19, 27: τῆς γενεσιακῆς ἡμέρας
20, 6: τὰς γεννητικὰς ὥρας
22, 14: τῇ γεννητικῇ ὥρᾳ
22, 25: ἀπὸ τῆς γενεσιακῆς ὥρας
29, 13: ταῖς κατὰ γένεσιν ... μοίραις
29, 13/14: τὴν σεληνιακὴν γενεσιακὴν μοῖραν
30, 14: ἕως γενεσιακῆς ἡμέρας
51, 7: ἀπὸ τῆς γεννητικῆς
51, 27: ἀπὸ τῆς γεννητικῆς ὥρας
51, 36: ἀπὸ τῆς γεννη[μα]τικῆς ὥρας
52, 5: " " "
52, 7: ἕως τῆς γεννη[μα]τικῆς
52, 12/13: τῇ γενεσιακῇ ἡμέρᾳ
52, 23: } ἀπὸ τῆς γενεσιακῆς ἡμέρας
52, 28: } " " "

Conception (?)

53, 10/11: τὸν πρὸ τῆς γενέσεως ἑαυτὸν καὶ τὸν μῆνα τὸν γεννητικὸν καὶ τὴν ἡμέραν
53, 13: μετὰ τὸν γεννητικόν
53, 16: τῆς κατὰ γένεσιν Σελήνης
53, 18: τὴν κατὰ γένεσιν (Sel.)
53, 26: πρὸς τὴν τῆς γενέσεως Σελήνην

Conception

50, 30/31: ἡ σπορικὴ ἡμέρα
51, 27: " " "
52, 6: ἐκεῖ εὑρήσεις τὴν σπορίμην ἡμέραν
52, 13/14: κἀκεῖ ἔσται ἡ σπορίμη ἡμέρα
52, 30: Τὴν ὥραν τῆς σπορᾶς
52, 32: ὁ ὡροσκόπος τῆς σπορᾶς
53, 1: ὡροσκόπον τῆς σπορᾶς

σπορά = conception also in Tetrabiblos
p. 222 Robbins and CCAG 8, 2 p. 117, 2.

Pregnancy

51, 6: καὶ τοσούτων ἡμερῶν εὑρήσεις τὴν σποράν.
51, 15: καὶ τοσούτων ἔσται ἡ σπορά
51, 18: " " " " "

[illegible] for addition : "begin to count" (Liddell-Scott 208 b)

20, 14 : ταῦτας ἀπέλυσα ἀπὸ τῆς (zod. sign)

21, 16/17 : ἃς ἀπέλυσα ἀπὸ τοῦ (zodiac. sign)

23, 3 : ἀπέλυσα ἀπὸ τοῦ αὐτοῦ (zod. sign)

30, 17 :
30, 29 : } ἀπολύω ἀπὸ (zod. sign)

34, 4 : ἀπόλυε ἀπὸ (zod. sign) κατὰ τὸ ἑξῆς

34, 10 : ἀπόλυε ἀπὸ (zod. sign)

34, 15 : ἀπὸ (zod. sign) τὴν ἄφεσιν ποιήσῃς ..... (f. 31, 8)

34, 35 : ἀπὸ τοῦ ἐχομένου ζῳδίου τῆς ἐποχῆς ἀπόλυε

35, 10 : ἀπόλυε ἀπὸ (zod. sign)

35, 20 : ἀπολύω ἀπὸ (zod. sign)

35, 24 : ταύτας ἀπὸ (zod. sign)

35, 30 : ἀπολύω ἀπὸ (zod. s.)

36, 1 : ἀπολύω ἀπὸ (zod. s.)

36, 13 : ταύτας ἀπὸ (zod. s.)

36, 21 : ταύτας ἀπὸ (zod. s.)

36, 26 : ταύτας ἀπέλυσα ἀπὸ (zod. s.)

51, 31 : καὶ ἀπολύσωμεν ἀπὸ τῆς γενεθλιακῆς ὥρας

52, 5 : καὶ ἀπολῦσαι ἀπὸ τῆς γενεθλιακῆς ὥρας κατὰ τὸ ἑξῆς

52, 13 : καὶ ἀπόλυε ἀπὸ αὐτῆς κατὰ τὸ ἑξῆς

52, 22/23 : ἀπόλυσω ἀπὸ τῆς γενεσιακῆς ἡμέρας κατὰ τὸ ἑξῆς ταύτας

52, 24 : πάλιν ἀπὸ τῆς (date) ἕως τῶν γενεσίων κατὰ τὸ ἑξῆς

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p. 76–106 Musiciens, athlètes et acrobates dans les écrits astrologiques

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Astronomical Commentary

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[References to pages and lines]

6,5. Thus equinox between ♈ 0° and ♈ 15°, thus most likely ♈ 8°; (Kroll (in the apparatus) quotes Boeckh, Sonnenkreise 184 ff.).

6,8 ff. Ptolemy's star catalogue contains only 13 stars for ♈ + 5 outsiders. The (doubtful) total here is 146 stars! Obviously 3 traditions superimposed:

a) 13 proper + 6
b) 24 bright + 27 faint
c) 28 bright + 48 faint

6,30. Ptolemy gives 32 stars for ♉ + 11 outsiders.

8,5. Ptolemy: ♊ has 18 stars + 7 outsiders

8,8. Satyr = Orion according to Boll, Sphaera, p. 284. The whole passage from 8,5 ἔχει (προσκεῖται) to 8,15 (ὡρῶν) seems to be rather out of place, describing Orion and not Gemini.

8,29 Ptolemy: ♋ 9 stars + 4 outsiders. According to Kroll (ad locum) Boll ~~wants~~ wants to read [1]4 stars. Why?

Boll, Sphaera p. 59 ff assumes that the Σφαιρικά, used by Vett. Valens, is based on Eudoxus (cf., e.g., p. 63)[1]. The given totals of stars

♈ 19 + ...
♉ 27
♊ 21
♋ 4 (missing for the remaining signs)

have no parallel in any other list known to me[2]

1) Cf. also Boll in RE 6,2 col. 2420, 57-61.

2) i.e. Hipparchus, Comm. Ar. CCAG 9,1 p. 189 f
Eratosthenes, Epitome

To I, ch. 4-5

Cf. P. Antin. 141 (Antin. Pap. III p. 72-74)

Vettius Valens

General Commentary

Studies in Ancient Astronomy. VIII

Vettius Valens

by

O. Neugebauer

> Il me paraît .... que le don de faire apparaître le passé est aussi étonnant et bien meilleur que le don de voir l'avenir.
>
> - Anatole France, Le livre de mon ami

Introduction

Modern science has long ago shown the futility of all efforts to predict the future of human life from the changing aspects of the planets. But the modern historian who studies the ancient documents of astrological science might well become even stronger impressed by the futility of his own attempts to restore the past. If one reads the Almagest, questions like the problem of Ptolemy's dependence upon Hipparchus or the methods of Babylonian astronomy might well be asked and to a certain extent exactly answered. But whoever attempts to reconstruct the astronomical background of astrological literature must face a totally different situation. He will recognize an enormous mass of mechanical rules of unknown origin and very often of unknown significance. No traces of these methods can be found in a work like the Almagest, though they form an important substratum of ancient and medieval astronomical science and were well known also to scholarly astronomers as the Tetrabiblos clearly reveals. The anonymity of these methods, the lack of chronological determination, spoils all attempts to draw a clear picture of the development. On the other hand, we may hope to get from this literature occasionally a glimpse of astronomical doctrines which belong to the many missing links between Greek and Oriental

astronomy.

It was for this reason that I have undertaken this study, knowing from superficial reading and occasional references that there existed relations with Babylonian methods in Vettius Valens' "Anthology". It seemed to me a matter of methodological necessity not to ignore an extensive text of this type. Very soon, however, it became clear to me that this was no easy task, yet much more fascinating and fruitful than anticipated. The text is in the most deplorable condition wherever one can judge it from passages with exact astronomical content. Whole paragraphs are displaced, sentences omitted, numbers and symbols erroneously copied. To reach under these conditions a real understanding of the astronomical subject-matter turned out to be a major enterprise. The results are not spectacular. Yet we obtain here for the first time insight into methods of Greek astronomy which seemed to have been lost forever under the influence of the work of Ptolemy.

Though it is the goal of the present study to recover the astronomical methods of Vettius Valens (or his predecessors) it was not possible to avoid the discussion of astrological concepts and problems. On the other hand I had to omit even astronomical sections which were not directly connected with mathematical methods, e.g., the remarks made in I,2 about the simultaneous rising and setting of constellations. Similarly, passages concerning geography, minerals, hiatromathematics, etc., were left aside, if only for the reason that these sections would fall completely outside my field of competence. I have no doubt, however, that here too many hidden informations could be regained by a detailed investigation.

Bouche-Leclercq[1] describes the Anthology as a work "tout

---

1) AG p. XIII.

en casuistique sans idées et en problèmes d'arithmetique que l'incertitude des sigles et des chiffres rend le plus souvant inintelligibles". It cannot be expected that a collection of scattered excepts will result in a well rounded picture. Indeed, it is no easy task to present a readable description of the problems discussed in the text and their solution. Lengthy explanations are necessary to restore the original meaning of the text. I tried to solve this dilemma by separating my comments to each section into three different parts. The first gives a summary of the problem and describes the general idea of its solution. The second part follows the text more closely, containing all special examples given in the text and relating in detail the description of the methods. The third part is devoted to textual criticism, indicating emendations, transpositions, interpolations etc. I hope this arrangement will make it possible to obtain a fair picture of the astronomical contents of the Anthology by going through the first parts only. Wherever the basis of my statements is required the second and third part must be consulted.

In order to give the reader at least a general idea of the contents of the Anthology as a whole, also the titles of the astrological chapters are mentioned in their proper order, if necessary with short explanatory remarks. Finally I added as an appendix[2] explanations of a few fundamental concepts of ancient astronomy and astrology, the knowledge of which I had to assume throughout in my commentaries.

---

2) Cf. p. .....

Vettius Valens

Book		Text	modern	Text		Book
I 4	☉ ☾	Hadrian 4 VII [a] 13 1^h n.	120 Feb. 8	♒ 22 ♏ 7	♒ 22 ♏ 7 H: ♍	III 13
I 5	☉ ☾	2^h d.	419 July 2	♋ 7 ♈ 22	♋ 7; 11 ♈ 22; 30	Add.
	☉	3^h n.	431 Jan. 10	♉ 19	♉ 19; 2	
I 9	☉ ☾	XII [a] 2	114 July 26	♌ 5 ♎ 26	♌ ♎	VII 5
	☉ ☾	VI [a] 13	120 Feb. 8	♒ 22 ♏ 7		
I, 10	weekday	Hadrian 4 = Augustus 149 VI Alex. 13 1^h n.	120 Feb. 8			
I, 15	☾		120 Feb. 8	♏ 7		
I 16	♂ ☾	Hadrian 4 = Augustus 149 VII [e] 19	120 Feb. 8	♌ 8 ♏ 7		
I 19	☉ ☾	Hadrian 3 III [a] 28	118 Nov. 24	♐ ♍		
I 20	♄	Trajan 13 = Augustus 139 VII [a] 18	110 Mar. 14	♓	♓ 1; 25	
	4	" " "		♐	♐ 24; 18	III 6
	♂	Augustus 140(!)		♉	♉ 21; 8	
	♀ (a)	" VII [a] 18		♒	♒ 9	
	♀ (b)	Hadrian 4 = Augustus 149 III [a] 30	119 Oct. 22	♐ 20		
	♀ (c)	" " 150(!) VI [a] 13	120 Feb. 8	♉ 16		
	☿	" " "	"	♒ 25		

[a] ... alexandrian } calendar
[e] ... egyptian }

General Remarks

The description of related qualities of a person is certainly based on actual experience which gives to these predictions a strong suggestive force because one feels that these descriptions fit to actually known persons. Astrology is thus based on a primitive practical characterology.

Another basic component is the weather prognostication which is very familiar to the Greeks from Hesiod's times onwards. Cf. parapegmata etc.

Unpleasant qualities and characters are by far more frequent than lucky ones.

Astrology is much more soundly based on empirical facts than the philosophical systems, e.g. the doctrine of two or three elements etc.

Checking of dates shows that 'years' are understood to be "Egyptian years" (i.e. of 365 days length) as to be expected in ancient astronomy [1]. The following table gives the names of the months in the Egyptian calendar and the corresponding total of days of the zeroth day of each month. This makes computation very simple. Example: find the date of a day 278 days before Mechir 14. Solution:

1) A statement, as p. 50, 29 that a year has $365\frac{1}{4}$ days must be a later interpolation and is contradicted by the very same calculation where it occurs.

Mechir 14 = 515 + 14 = 529

− 278

251 = 240 + 11 = Pachon 11

I	Thoth	0	365	730
II	Phaophi	30	395	
III	Athyr	60	425	
IV	Khoiak	90	455	
V	Tybi	120	485	
VI	Mechir	150	515	
VII	Phamenoth	180	545	
VIII	Pharmouthi	210	575	
IX	Pachon	240	605	
X	Payni	270	635	
XI	Epiphi	300	665	
XII	Mesore	330	695	
epagomenai		360	725	

Bouché-Leclercq p. XIII : Vettius Valens.

l'opinion commune, depuis Scaliger jusqu'à E. Riess, le place au temps d'Hadrien. Mais les motifs sont faibles .... Je trouve donc fort acceptable l'opinion de Saumaise (p. 553), qui fait de Valens un contemporain de Constantin. Il est douteux que nous ayons, ... autre chose que des extraits. .... J'ai renoncé à exploiter à fond cet ouvrage, tout en casuistique sans idées et en problèmes d'arithmétique que l'incertitude des sigles et des chiffres rend le plus souvent inintelligibles; ....

6

Namudar

etc.

σεων καὶ θεατρισμῶν, στειρώδεις θηλυγόνοι ἢ τερατογόνοι μικροπρεπεῖς ἰδιωτικαί. αἱ δὲ ἑξῆς η' Ἀφροδίτης ἀσώτων λάγνων καὶ κατωφερῶν ἀκρίτων ἐπιψόγων, εὐμεταβόλων περὶ τὰ τέλη, οὐκ εὐθανατούντων οὐδὲ περὶ τοὺς γάμους εὐσταθῶν. αἱ δὲ τέταρται δ' Κρόνου αὐστηραὶ ἀνεύφραντοι ἀλλοιώδεις δύστεκνοι δυσάδελφοι ὠμαὶ φθαρτικαὶ κατάψυχροι ἀσύγκλωστοι βάσκανοι μελλητικαὶ καὶ δόλιοι. αἱ δ' ἐπὶ πᾶσιν δ' Ἄρεως ὑψηλαὶ ἐξουσιαστικαὶ τυραννικαί, ἐπὶ παντὶ τὸ ἡγεμονικὸν περιτιθεῖσαι, σπανιστικαὶ τῶν ἰδίων συγγενῶν καὶ ἀναιρετικαὶ ἀνθρώπων, ἀποδημητικαὶ φίλεροι ἕως τέλους ἐρισταί.

Ὑδροχόου αἱ πρῶται ζ' μοῖραι Ἑρμοῦ πλουσίων φιλοθησαύρων, ἡδέως ἀποθησαυριζόντων πρὸς τὰ μέτρα τῶν γενέσεων, συνετῶν νομικῶν συνακριβούντων πάντα, ἐπιτακτικῶν μικροψύχων πολυμερίμνων, φιλούντων παιδείαν καὶ πᾶσαν πολυτεχνίαν, διοικητικῶν οἰκονομικῶν φιλανθρώπων. αἱ δὲ ἑξῆς ἑξ Ἀφροδίτης καλῶς φιλουμένων θεοσεβῶν χωρὶς πόνου εὐπορούντων αἰφνιδιοτυχῶν εὐπόρων πλευστικῶν· εἰσὶ δὲ αὗται πολύσποροι μοῖραι, συμβαίνει δὲ τὸν κατ' αὐτὰς γενόμενον γραυσὶ συνέρχεσθαι ἢ ἐπισινέσιν ἢ εὐνούχοις συνέρχεσθαι, προβιβάζεσθαι δὲ ὑπὸ ἀσπέρμων ἢ προβεβηκότων. αἱ δὲ ἑξῆς ζ' Διὸς εὐτυχεῖς μικρολόγοι ἐνδόμυχοι ἀφιλόδοξοι ἀνεπίφαντοι εὔπαιδες ἀφιλάδελφοι. αἱ δὲ ἑξῆς ε' Ἄρεως ἐπισινεῖς μάλιστα περὶ τὰ ἐντός, δικασχολούμενοι, πονηρῶν ἀνθρώπων ἀδρανῶν καὶ ἐκλελυμένων, πλὴν ταχέως ἐπιχειρούντων τοῖς κακοῖς. αἱ δὲ λοιπαὶ ε' Κρόνου στειρώδεις κάθυγροι δύσγονοι σινωτικαί, καὶ μάλιστα περὶ μήνιγγας καὶ τὰ ἐντὸς εἴδη καὶ ὕδρωπας καὶ σπασμούς, σπανιστικαὶ σπανάδελφοι σπανότεκνοι φθονεραί, ἐπὶ τῷ τέλει οὐκ εὐτυχεῖς.

Τῶν δὲ Ἰχθύων αἱ πρῶται ιβ' Ἀφροδίτης, ἱλαραὶ πολύσπερμοι καταφερεῖς ἀπολαυστικαὶ καὶ ἡδύβιοι χαιρητικοὶ ἐπιχάριτοι ἐπέραστοι, αὐτομάτως προβιβάζουσαι, προσφιλεῖς θεοῖς. αἱ δὲ ἑξῆς δ' Διὸς φιλολόγων ἐπιστημονικῶν, ἐν ὄχλοις διαπρεπόντων καὶ λόγοις πάντων περιγινομένων, πολυάδελφοι πολύγονοι πολύτεκνοι περισσομελεῖς περισσάδελφοι. αἱ δὲ ἑξῆς γ' Ἑρμοῦ πολύσπερμοι ἀρχικαὶ ἐντίμων πολύφιλοι χαριστικαὶ φιλότροφοι ἐλεήμονες φιλόθεοι εὔκρατοι. αἱ δὲ θ' Ἄρεως εἰσὶ πρακτικαὶ θαλασσομάχοι

3 εὐθυνθανούντων M 6 μελητικαὶ M 7 δ'] 5' M 9 malim συγγ. καὶ ἀδελφῶν ἀναιρ., ἀποδ. ἀποδημιτικαί M possis φίλεργοι 13 an ὑποτακτικῶν? 15 nempe καλαὶ aut καλῶν 16 αἰφνιδιοτύχων M at -τυχής probabilius 18 ἐπὶ σύνεσιν M alterum συνέρχεσθαι delere nolui 22 nempe δίκαις ἀσχολούμενοι 29 ἡδύβιαι M an χαριστικαί? 33 περισάδελφοι M

ἀφηγηταὶ καὶ εὐψυχεῖς, περὶ τὰ ἄρρητα ποιητικαί, ἁρπακτικαὶ καὶ πάλιν μεταδοτικαί, ποικίλαι οὐκ ἰδιοθάνατοι. αἱ δ' ἐπὶ πᾶσι β' Κρόνου σινωτικαὶ κάθυγροι σπασματώδεις, περὶ πάντα ἀτυχεῖς.

Ἐκθέμενοι οὖν διδασκαλικῶς περὶ ἑκάστης μόνης μοίρας τί ἀποτελεῖ, τοῦ οἰκοδεσπότου αὐτοῖς ἐπικειμένου ἀποτελέσει τὸ ἴδιον ἤτοι φαῦλον ἢ ἀγαθόν. νυνὶ δὲ περὶ ὡροσκόπου ἐκθήσομαι.

⟨δ'. De inveniendo horoscopo.⟩

Μαθὼν ἀκριβῶς πόσων μοιρῶν ἐστιν ὁ Ἥλιος ἐπὶ γενέσεως ἴδε, ποῦ τὸ δωδεκατημόριον ἐκπίπτει, καὶ οὗ ἂν ἐκπέσῃ, τούτου τὸ εὐώνυμον τρίγωνον ὡροσκοπήσει ἢ τὰ ὁμοιόπτωτα ζῴδια οἷον ἀρρενικὰ ἢ θηλυκά, νοοῦντός σου τὴν διαφορὰν νυκτὸς ἢ ἡμέρας. οἷον ἔστω Ἥλιος Ὑδροχόου μοίρᾳ κβ'· τούτου τὸ δωδεκατημόριον κατέληξε Σκορπίῳ· τούτου τὸ εὐώνυμον τρίγωνόν εἰσιν Ἰχθύες. εἰ οὖν ἡμερινὴ ἦν ἡ γένεσις, ἔδει τοὺς Ἰχθύας ὡροσκοπεῖν ἢ Ταῦρον ἢ Καρκίνον· εἰ δὲ νυκτερινή, τὰ τούτων διάμετρα· Αἰγόκερως ὡροσκοπήσει κατὰ τὴν πρώτην ὥραν.

Ὅσων ἂν ᾖ μοιρῶν ὁ Ἥλιος, ἐπιγνοὺς ἀκριβῶς ἡμέρας ταύταις πρόσθες τὴν ἀναφορὰν τοῦ ζῳδίου, ἐν ᾧ ὁ Ἥλιος τυγχάνει, καὶ ἀπόλυε ἀπὸ τῆς κατὰ γένεσιν Σελήνης, ἑκάστῳ ζῳδίῳ ἀνὰ μίαν μοῖραν διδούς· ὅπου ἐὰν καταλήξῃ, ἐκεῖ ὁ ὡροσκόπος, ἢ καθὼς πρόκειται εἰς τὰ ὁμοιόπτωτα. νυκτὸς δὲ ἐπιθεὶς τὴν ἀναφορὰν τοῦ σεληνιακοῦ ζῳδίου ἀπόλυε ἀπὸ τοῦ κατὰ γένεσιν Ἡλίου. οἷον ἐπὶ τοῦ προκειμένου παραδείγματος Ἥλιος Ὑδροχόῳ, Σελήνη Σκορπίῳ· ταύταις προσέθηκα τὴν ἀναφορὰν τοῦ ζῳδίου λζ'· γίνονται νθ'. ταύτας ἀπέλυσα ἀπὸ Ἡλίου, κατέληξεν Αἰγόκερῳ· ἐκεῖ ὁ ὡροσκόπος.

Ἀπὸ Θὼθ ἕως τῆς γενεσιακῆς ἡμέρας τὸ πλῆθος ἀναλαβὼν καὶ τὰς ὥρας πολυπλασιάσας ἐπὶ τὸν πεντεκαίδεκα καὶ προσθεὶς τῷ πρώτῳ ἀριθμῷ ἀπόλυε ἡμέρας μὲν ἀπὸ Αἰγόκερω ἀνὰ λ', νυκτὸς δὲ ἀπὸ Ἰχθύων. ἢ πάλιν τὰς ὥρας πολυπλασιάσας ἐπὶ τὸν ιε' καὶ προσθεὶς τὰς τοῦ Ἡλίου μοίρας ἀπόλυε ἡμέρας μὲν ἀπὸ αὐτοῦ τοῦ Ἡλίου πρὸς ἀναφορὰν κατὰ τὸ γεννητικὸν κλίμα, νυκτὸς δὲ ἀπὸ τοῦ ὡροσκόπου πρὸς ἀναφοράν. Μυστικὸς δὲ καὶ ἀναγκαστικὸς ὡροσκόπος οὕτως εὑρίσκεται· ἐπὶ μὲν ἡμερινῆς γε-

1 an εὐτυχεῖς? 5 sententia curta; possis ⟨τοῦτο προσθῶμεν, ὅτι⟩ τοῦ οἰκ. αὐτῇ 15 νυκτερινή] νύξ M 17 ἦν M 19 τῆς] τοῦ M 20 ᾖ] εἶ M ex corr. 22 ἀπὸ] ἐπὶ M 25 νθ' (= 22 + 37)] μδ' M κατέληξα M 28. 31 τὸν] τῶν M 34 οὗτος M

νέσεως ὡροσκοπήσει τὸ σπόριμον τρίγωνον τοῦ Ἡλίου ἢ τὰ τούτου ἐξάγωνα, ἐπὶ δὲ νυκτερινῆς τὰ τούτων διάμετρα. ὥστε καὶ ἄτερ ὥρας ἐὰν ἐπιγνῷς, πότερον νὺξ ἢ ἡμέρα, εὑρήσεις τὸ ὡροσκοποῦν ζῴδιον.

Πρὸς δὲ λεπτομερῆ καὶ μοιρικὴν εὕρεσιν ὡροσκόπου οὕτως. τὰς γεννητικὰς ὥρας ἐπὶ τὸ τῆς Σελήνης δρόμημα πολυπλασιάσας ἀπόλυε ἡμέρας μὲν ἀπὸ τῆς τοῦ Ἡλίου μοίρας, νυκτὸς δὲ ἀπὸ τοῦ διαμέτρου, καὶ ὅπου δὰν καταλήξῃ, τοσούτων μοιρῶν ὁ ὡροσκόπος κριθήσεται. ἔστω δὲ ἐπὶ ὑποδείγματος Ἀδριανοῦ δ′ Μεχὶρ ιγ′ ὥρα νυκτὸς α′· Ἥλιος Ὑδροχόου μοίρᾳ κβ′, Σελήνη Σκορπίου μοίρᾳ ζ′, τὸ δρόμημα τῆς Σελήνης ἐν τῇ ιδ′ ἡμέρᾳ ἀπὸ ἐποχῆς ιγ′ νβ′· εἰσῆλθον εἰς τὸ προκείμενον ὄργανον εἰς τὰς ιδ′ μοίρας τὰς ἐν τῷ πρώτῳ στίχῳ καὶ εὗρον ὑποκάτω κατὰ τὴν πρώτην ὥρας ις′. ταύτας ἀπέλυσα [καὶ] ἀπὸ τῆς διαμετρούσης τὸν Ἥλιον μοίρας Λέοντος κβ′· κατέληξεν ἐν τῷ Αἰγόκερῳ περὶ μοῖραν ἡ′. ἐὰν δέ πως ἐκ τοῦ ἀναφορικοῦ πλειόνων ἢ ἡττόνων μοιρῶν εὑρεθῇ, ἐκ τῆς προκειμένης ἐφόδου γνωσθήσεται, πότερον πρόσθεσιν ἢ ἀφαίρεσιν ἡ ὥρα ἔχει.

Ἐπὶ μὲν τῶν ἡμέρας τὰς λοιπὰς τοῦ Ἡλίου μοίρας καὶ ὅσας ἐπέχει ἡ Σελήνη ἐπισυνθεὶς ἔκκρουε τριακοντάδας, καὶ αἱ λοιπαὶ ὡροσκοπήσουσιν· ἐπὶ δὲ τῶν νυκτὸς τὰς λοιπὰς τῆς Σελήνης καὶ ὅσας ἐπέχει ὁ Ἥλιος. ἐὰν μέντοι ὑπὲρ τὴν λογιζομένην ὥραν πλεονάσῃ ὁ ἀριθμός, ὅσαι ἂν ὑστερῶσιν εἰς τὰς λ′ ἢ εἰς τὸ μέγεθος τῆς ὥρας, τοσαῦται ὡροσκοπήσουσιν. ἀπὸ τῆς κε′ τοῦ Ἐπιφὶ ἕως τῆς γεννητικῆς ἡμέρας ψήφισον τὰς ἡμέρας σὺν ταῖς ἐπαγομέναις καὶ πρόσβαλλε τῷ ἀριθμῷ μόνα κβ′ καὶ ἀπόλυε τὸν ἀριθμὸν ἀνὰ λ′, ἡμέρας μὲν ἀπὸ Καρκίνου, νυκτὸς δὲ ἀπὸ Αἰγοκέρωτος· ὅπου δ' ἂν καταλήξῃ ὁ ἀριθμός, ἐκεῖ ἔσται ὁ ὡροσκόπος, καὶ ὧν μοιρῶν, τοσαῦται ὡροσκοπήσουσιν.

⟨ε′.⟩ Ὡροσκοπικὸς γνώμων.

Λαβὼν τὰς τοῦ Ἡλίου μοίρας ἐπὶ ὡροσκόπου χρηματιζούσας ἐπὶ ἡμέρας, ἐπὶ δὲ νυκτὸς τῆς διαμέτρου, δεκαπλασίασον αὐτὰς

2 nempe τούτου 10 ὦ ρ ν α M 12 organon aut excerptor omisit aut V. προκείμενον inconsiderate ex auctore transcripsit cf. p. 21, 10 15 κδ′ M 19 ἡμέρας (sc. γεννωμένων)] ⟨σ⟩M quod solvi potest etiam ἡμερινῶν (nec obstaret quod infra νυκτὸς M); cf. 21, 17 26 πρόσβαλε M μόνα non sanum 31 ἐπὶ ὦ ρ χ ἐπὶ M 32 αὐτοὺς M

καὶ τὸ γενόμενον ποσὸν πάλιν πολλαπλασίασον ἐπὶ τὰς ἀναδοθείσας ὥρας ἤτοι ἡμερινὰς ἢ νυκτερινὰς ἤτοι ὅλας ἢ καὶ μετὰ μοιρῶν, καὶ ἐκκρούσας ὅλους κύκλους τὰ λοιπὰ ἡγοῦ ὡροσκοπικὸν γνώμονα. κλίμα ** ὥρα ἡμέρας β′· Ἥλιος Καρκίνου ζ′, Σελήνη Κριοῦ κβ′. ἡμερινοὶ ὡροσκόποι τῆς τοῦ Ἡλίου μοίρας † κη μβ δεκάκις, γίνονται σκδ′· ταῦτα δίς, γίνονται μετὰ κύκλων πη′· οὗτος ὁ ὡροσκοπικὸς γνώμων.

Οἷον ἔστω Ἥλιος Αἰγόκερω μοίρᾳ ιϑ′· ἐγενήθη δέ τις ὥρᾳ νυκτερινῇ τρίτῃ. τὸ δὲ δρόμημα τῆς Σελήνης ἐστὶ μοιρῶν ιβ′ L′ ιε′. εἰσέρχομαι εἰς τὸ σελίδιον τῆς τρίτης ὥρας, ἔνθα παράκειται ἐπὶ μὲν τῶν ιβ′ μοιρῶν τοῦ δρομήματος μοῖραι μα′ L′, ἐπὶ δὲ τῶν ⟨ιε′⟩ L′ [τοῦ δρομήματος] μοῖραι ⟨μ⟩δ′ L′. ἡ ὑπεροχὴ τῶν μδ′ L′ πρὸς τὰς μα′ L′ γίνεται μοῖραι γ′, τούτων τὸ L′ ιε′ γίνεται α′ L′ ε′. ταύτας προστίθημι ταῖς μα′ L′ διὰ τὸ εἶναι τὸ τῆς Σελήνης δρόμημα μοιρῶν ιβ′ L′ ιε′. γίνονται οὖν ὁμοῦ μοῖραι μγ′ ε′. ταύταις πρόσθες τὰς τοῦ Ἡλίου μοίρας ιϑ′· ὁμοῦ γίνονται μοῖραι ξβ′ ε′· ἃς ἀπέλυσα ἀπὸ τοῦ Καρκίνου διὰ τὸ νυκτὸς εἶναι τὴν γένεσιν, καὶ κατέληξεν ὁ ὡροσκόπος μοίρᾳ β′ Παρθένου λεπτοῖς ιβ′· ἦν δὲ ἀπὸ τοῦ κανόνος ὁ ὡροσκόπος Αἰγόκερω μοίρᾳ γ′.

Σκοπεῖν δεήσει ἐπὶ μὲν τῶν συνοδικῶν τὸ ὅριον τῆς συνόδου καὶ τὸν κύριον τοῦ ζῳδίου, καὶ ὃς ἂν τούτων συνεγγιζούσας μοίρας τῇ ὥρᾳ ἔχῃ, ἐκεῖναι ὡροσκοπήσουσιν. ἐπὶ δὲ τῶν πανσεληνιακῶν τὸ ὅριον τῆς πανσελήνου καὶ τὸν κύριον τοῦ ζῳδίου συγκρίνειν.

Ἡμέρας τὰς τοῦ Ἡλίου δεῖ λαμβάνειν καὶ τὰς λοιπὰς τὰς τῆς Σελήνης καὶ ἐκκρούειν τριακοντάδας, τὰς δὲ περιλειπομένας εἰσενέγκαντας εἰς τὸν ἀναφορικὸν λόγον τὸ παρακείμενον μέγεθος τῷ ἡλιακῷ ζῳδίῳ ποιεῖν ἐπὶ τὰς μοίρας τοῦ ζῳδίου, καὶ ἐπιπροσθέντας τὰς ἡλιακὰς μοίρας ἀπολύειν τριακοντάδας· ὅσαι δ' ἂν λείψωσιν, ἔσονται ἡλιακὸς γνώμων, ὃν καὶ σημειωσάμενοι ποιήσομεν καὶ τὸν τῆς Σελήνης γνώμονα οὕτως. διπλώσαντες ἃς ἔχει μοίρας ἡ Σελήνη ἀφαιροῦμεν τριακοντάδας, τὰς δὲ περιλειπομένας δωδεκαπλασιάσαντες καὶ ἐπιπροσθέντες τὰς τῆς Σελήνης [ἢ] μοίρας ἀφαιροῦμεν τριακοντάδας, καὶ αἱ λοιπαὶ ἔσονται τῆς

2 ὦ ρ ἤτοι σ ν ἢ ρν ἤτοι M 4 ὥρα] ὦ ρ χ M 5 nempe ἡμεριναὶ ὧραι ... κβ′ λεπτὰ κδ′ 6 [nempe γίνονται υμή′ τουτέστι κύκλος εἷς καὶ πη′ vel sim.] 12 ιε′] ⟨ιχ′⟩ potius (loco evanido) M 13 τούτων] τουτέστι M 16 mirum quod ab initio Cancri numerat, non a parte XIX 21 τὸν] τὸ M τούτων sc. domini signi totius et domini finium 27 εἰσενέγκαντες M 30 debuitne λειφθῶσιν?

Σελήνης γνώμων. νυκτὸς δὲ τὰς λοιπὰς τῆς Σελήνης μοίρας καὶ ἃς ἔχει ὁ Ἥλιος ἐπισυνθέντες καὶ ἐκκρούσαντες εἰς τὸν ἀναφορικὸν τριακοντάδας τὰς λοιπὰς εἰσφέρομεν ἐπὶ τὸ ἡλιακὸν ζῴδιον καὶ ἐπιγνόντες τὸ ὡριαῖον μέγεθος πολλαπλασιάζομεν τὰς τοῦ Ἡλίου μοίρας καὶ ἐπιπροσθέντες, ὅσας ἔχει μοίρας ὁ Ἥλιος, ἀφαιροῦμεν τριακοντάδας· καὶ αἱ περιλειπόμεναι ἔσονται ἡλιακὸς γνώμων. ἐὰν οὖν ὑπερέχῃ ὁ τοῦ Ἡλίου γνώμων τὸν τῆς Σελήνης, ἡ ὥρα ἀφαίρεσιν ἔχει· ἐὰν δὲ ὁ τῆς Σελήνης, πρόσθεσιν, ὅση ἡ ὑπεροχή· ἐὰν δὲ ἴση, οὔτε πρόσθεσιν οὔτε ἀφαίρεσιν ἔχει. ὁμοίως καὶ ἐὰν ὑπὲρ τὰς ιε′ ἢ ἐντὸς αἱ περιλειπόμεναι πρόσθεσιν ἢ ἀφαίρεσιν ἔχωσι.

Ζῳδιακῶς ἐπιγνόντες τὸ ὡροσκοποῦν ζῴδιον τὴν μοῖραν οὕτως εὑρήσομεν. μαθόντες τὸ ἔτος τῆς τετραετηρίδος ὡς ὑπόκειται τὰς παρακειμένας ὥρας τῇ γεννητικῇ ὥρᾳ ἐπιπροσθέντες καὶ ψηφίσαντες τὴν Σελήνην, πόση ἐστί, τοσοῦτον ἡγησόμεθα τὸν ὡροσκόπον. ἔχει δὲ τὸ πρῶτον ἔτος ὥρας ια′, τὸ δεύτερον ὥρας ϛ′, τὸ τρίτον ὥρας ιβ′, τὸ τέταρτον ὥρας ϛ′· προσῳκείωται δὲ καὶ τὸ ἔτος τῆς τετραετηρίδος πρὸς τὴν τοῦ Κυνὸς ἄστρου ἐπιτολήν. Ἔτος πρῶτον τῆς τετραετηρίδος· ἀνατέλλει Καρκίνῳ ὥρᾳ πρώτῃ νυκτερινῇ. τὸ δεύτερον ἔτος, ἀνατέλλει Ζυγῷ ὥρᾳ ἡμερινῇ ϛ′. τὸ τρίτον ἔτος, ἀνατέλλει Αἰγόκερῳ ὥρᾳ ἡμερινῇ ιβ′. τὸ τέταρτον ἀνατέλλει ὥρᾳ ϛ′ [καὶ] νυκτὸς ἐν Κριῷ. οὕτως καὶ ἐπὶ τῶν ἀντιγενέσεων χρησιμεύει ὁ ὡροσκόπος, προστιθεμένων τῶν τῆς τετραετηρίδος ὡρῶν κατὰ τὸ ζητούμενον ἔτος καὶ ἀπολυομένων ἀπὸ τῆς γενεσιακῆς ὥρας· εἰς ποῖον ἂν ἐκπέσῃ ἡμικύκλιον ἤτοι νυκτερινὸν ἢ ἡμερινόν, ἐκεῖ ἡγεῖσθαι τὸν ὡροσκόπον καὶ τοὺς κατ᾽ ἐκεῖνο καιροῦ ἀστέρας ἐπικέντρους συγκρίνειν πρὸς τὴν γένεσιν.

⟨ϛ′.⟩ Περὶ μεσουρανήματος.

Μεσουράνημα δὲ ἀπὸ χειρὸς εὑρεῖν οὕτως. ἀπὸ τῆς δυνούσης μοίρας λαβὼν κατὰ τὰς ἀναφορὰς τοῦ κλίματος ἕως τοῦ διαμέτρου τούτων τὴν ἡμίσειαν ἀπόλυε ἀπὸ τῆς δυτικῆς μοίρας· ὅπου δ᾽ ἂν ἐκπέσῃ, τοσοῦτον ἔσται τὸ μεσουράνημα. οἷον ἔστω ὡροσκόπος Αἰγόκερῳ μοίρᾳ ιε′ κατὰ τὸ δεύτερον κλίμα, ἔλαβον ἀπὸ τῆς δυ-

9 nempe ἴσοι 11 ἔχουσι M 14 γενητικῇ M 21 ὡ ῳ ῳ ἡμερινῇ M 25 ἐκπέσοι M 27 ἐκεῖνον M 28 hinc inc. cod. V f. 89 29 οὕτως om. V 32 an τοσούτων (sc. μοιρῶν)? ἔστω M] ἔσται V ὁ ὡροσκ. M

νούσης μοίρας Καρκίνου ιε′ ἕως τῆς τοῦ Αἰγόκερω ιε′· συνάγονται ἀναφοραὶ σιδ′· τούτων τὸ ἥμισυ ρζ′. ταύταις προσθεὶς τὰς ιε′ τοῦ Καρκίνου ἀπέλυσα ἀπὸ τοῦ αὐτοῦ· κατέληξεν ἐν Σκορπίῳ μοίρᾳ β′, ἔνθα τὸ μεσουράνημα· ὁμοίως δὲ καὶ ἐπὶ τῶν λοιπῶν. ἐὰν δὲ καὶ τὸ μέγεθος τῶν ὡρῶν τῆς ἡμέρας ἐπιγνῶναι θέλῃς, πάντοτε ἀπὸ τῆς ἡλιακῆς μοίρας ἕως τῆς διαμετρούσης τὰς ἀναφορὰς ἐπισυνθεὶς καὶ τούτων τὸ ιε′ λαβὼν ἐπιγνώσῃ τὸ μέγεθος. οἷον τὴν προκειμένην δύνουσαν Καρκίνου μοῖραν ιε′ ὑπόθου εἶναι ἡλιακήν· ἕως οὖν τοῦ διαμέτρου γίνονται ἀναφοραὶ σιδ′. τούτων τὸ ιε′ ιδ′ δ′· λοιπά εἰσιν ε′ ιε′ μέρος ὥρας. ἔστω οὖν ἡ ἡμέρα Ἡλίου ὄντος ἐν Καρκίνῳ περὶ μοίρας ιε′ κατὰ τὸ κλίμα τῆς Συρίας ὡρῶν ιδ′ ε′ ιε′. εἰ δὲ καὶ τὸ τῆς νυκτὸς μέγεθος ἐπιγνῶναι θέλεις, ἀπὸ τῆς διαμετρούσης μοίρας τὸν Ἥλιον ἐπισυνθεὶς τὰς ἀναφορὰς ἕως ἧς ἐπέχει πραγματεύου· ὁμοίως δὲ καὶ ἐπὶ τῶν λοιπῶν ζῳδίων.

⟨ζ′.⟩ Περὶ ἀναφορᾶς τῶν ζῳδίων.

Πόσων δὲ ὡρῶν ἕκαστον ζῴδιον ἀναφέρεται, ἐκ τῆς ἑκάστου ἀναφορᾶς γνωστέον. οἷον ἐπεὶ ὁ Κριὸς ἀναφέρεται ἐν κ′, ἡ δὲ ὥρα ἔχει χρόνους ἰσημερινοὺς ιε′, ἐὰν ἀφέλῃς ἐκ τῶν κ′ τὰς ιε′, λοιπὰ ε′, ἅ ἐστι τρίτον μέρος τῶν ιε′. ἀνενεχθήσεται οὖν ὁ Κριὸς ὥρᾳ α′ καὶ τρίτῳ. πόσον δὲ χρόνον ἑκάστη μοῖρα ἰσχύει, γνώσῃ οὕτως. δίπλωσον τὴν ἀναφορὰν ἑκάστου ζῳδίου καὶ ταῦτα ἑξάκις· γίνονται σμ′· ἡ μοῖρα μῆνες η′. ἕκαστον δὲ ζῴδιον πόσην πρόσθεσιν ἢ ἀφαίρεσιν ἀναφορᾶς ἔχει, οὕτως γνωστέον. ἐπεὶ ὁ Κριὸς ἀναφέρεται ἐν κ′, ὁ Ζυγὸς ἐν μ′ εἰς συμπλήρωσιν τῶν ξ′. ὅσων γὰρ ἕκαστον ἀναφέρεται ζῴδιον, εἰς συμπλήρωσιν τῶν ξ′ τὸ κατὰ διάμετρον ζῴδιον ἐφέξει· καὶ ὅσων ὡρῶν ἕκαστον, εἰς συμπλήρωσιν τῶν δ′ ὡρῶν τὸ κατὰ διάμετρον· καὶ ὅσων ἡμερῶν καὶ μηνῶν, δυοῖν ἐτῶν τὸ κατὰ διάμετρον ἐφέξει. ᾧ γὰρ πλεονάζει ἕκαστον, τὸ κατὰ διάμετρον λείπεται· ᾧ δὲ λείπεται, τούτῳ πλεονάζει τὸ κατ᾽ εὐθύ. ἀφεῖλον οὖν ἀπὸ τοῦ προκειμένου μεγίστου τὸ ἐλάχιστον, τοῦτ᾽ ἔστιν ἀπὸ τῶν μ′ τὰ κ′· λοιπὰ κ′. τούτων τὸ πέμπτον γίνεται δ′· ἡ προσθαφαίρεσις ἑκάστου ζῳδίου τέτταρα. ταῖς οὖν κ′ τοῦ Κριοῦ ἐὰν προσθῶμεν δ′, γίνονται κδ′· ἐν τούτοις

3 κατέληξεν V] κατέλυσεν M 5 καὶ] κατὰ MV 7 διαφορὰς V 9 διαφοραὶ V 10 ιδ′ καὶ δ′ V λοιπαί V 11 ἐν om. M 16 hoc caput deest in M 21 εἰσ////χύει V 23 η′ ex κ′ V 24 προσθέσεως ἢ ἀφέσεως V[a] 25 κριὸς ir. V 32 τὸ h] τὸν V

Preliminary Commentary to I §§ 4 and 5 [p. 19, 7 to p. 22, 27]

Introduction

Kroll's separation of the text into two chapters is certainly wrong. This not only follows from the fact that both parts deal with the same problem but is explicitly confirmed by the lack of a title for § 4 and by the displacement of a section originally belonging to Kroll's § 4 (after p. 20, 15) to § 5 (p. 21, 8 to 19).

As far as I can see the problem consists in the determination of the exact point of the ascendant H if only approximate data are given. The only elements entering the discussion seem to be $\lambda_{\odot}$ and $\lambda_{\mathbb{C}}$ for a given (seasonal?) hour of day or night and perhaps a calendaric date or an approximate information about the ascendant, e.g. its zodiacal sign.

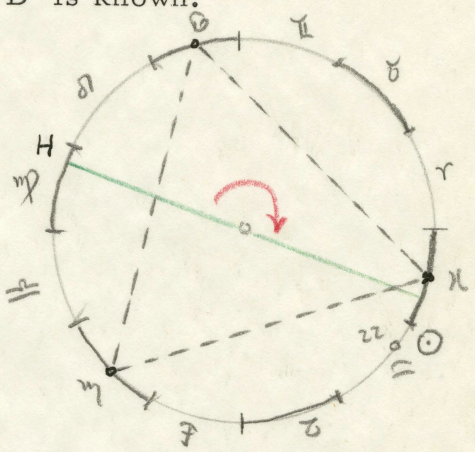
Assuming $\lambda_{\odot}$ and $\lambda_{\mathbb{C}}$ accurately given for a known date it would be, of course, possible to compute accurately the hour at which these longitudes be true and thus determine for that moment the rising point of the ecliptic. Thus, in principle, the problem could be astronomically sound and leading to an accurate answer.

The text, at least as we have it in a badly corrupt form, gives a great number of methods, with some astronomically understandable steps, but nowhere appears a procedure which makes sense from beginning to end. On the other hand there occur several rules which surely seem to be lacking any astronomical meaning. Thus one is tempted to declare the procedure in all cases as purely fictitious.

We would be better off if we would know for what time the "given" positions $\lambda_{\odot}$ and $\lambda_{\mathbb{C}}$ were computed. The ordinary arrangement of ancient tables would suggest noon but some of the rules seem to make better sense if positions at sunrise (or sunset) were given. Similarly the formulation of the text speaks more in favor of seasonal hours whereas the procedures suggest equinoctial hours. Calendar dates are clearly to be understood as Alexandrian.

A. p. 19, 8-16

Given: $\lambda_{\odot}$. Therefore also its "dodekatemorion" D is known.[1]



Rule: H = left trine of D

or a "corresponding" sign

(i.e. a sign of the same "sex" as H?)

Example:

$\lambda_{\odot}$ = ♒ 22

thus D = [♒ 0 + $9^{s}16^{o}$ =] ♎ [16]

Left trine of D: ♌ . At daytime "corresponding" signs are ♌ , ♉ , ♋ (because they are all "female" signs?), at nighttime the diametrically opposite signs ♍, ♎ , ♑ .

The "Ascendant of the 1st hour" is ♑ [thus concerning nighttime?]. This answer is, of course, purely formal. At the first hour of night not ♑ but ♍ is rising; but our text has repeatedly ♍ and ♑ interchanged, thus it may be also an error here.[2]

1) For its computation cf. Neugebauer-Van Hoesen, Greek Horoscopes p. 6.

2) Interchange of ♍ and ♑ is easily explicable on the basis of forms like ♑ for ♍ and ♑ for ♑ .

B. p. 19,17-26

Rule: $\lambda_H = \lambda_{☾} + (\lambda'_{☉} + \rho_{s☉})$ at daytime

$\lambda_H = \lambda_{☉} + (\lambda'_{☾} + \rho_{s☾})$ at night

where $\lambda'_{☉}$, $\lambda'_{☾}$ denote the number of completed signs from Aries to the place of sun or moon respectively (text: "giving each sign one degree") and $\rho_{s☉}$, $\rho_{s☾}$ mean the rising time (for the given climate) of the sign in which sun or moon are located.

Example: $\lambda_{☉}$ = ♒ [22] (as in A)

$\lambda_{☾}$ = ♍ [7] (cf. below D) thus $\lambda'_{☾} = 7$

$\rho_{s☾} = \rho(♍) = 37$ (exact for clima IVa, both in System A and B[2])

Therefore $\lambda'_{☾} + \rho_{s☾} = 7 + 37 = 44$ and λ_H = ♒ 22 + 44 = ♈ 6. The text gives as result ♉ , probably computing by mistake ♒ 22 - 44 = ♉ 8, i.e. counting in the wrong direction.

2) Firmicus Maternus gives this value for the latitude of Rome, being actually a rounding of 37;40.

(VI)

Hadrian 4 Mekk. V13 $1^h_{n.} = 120$ Febr. 8 Alex.

$\lambda_\odot = \simeq 22$ $\lambda_\leqslant = \eta\ 7$ (find $v_\leqslant$ °/d)

1764 926 = Mekk. 13 Nat. 867
747
120

	299.64	126.8		278.67	250.4
				0.15	0.3
*	133.58	39.8		37.45	250.7
	140.70	136.5		0.25	0.1
Gem.	3.29	3.3		316.52	250.8
	577.21	306.4		0.08	
	-360	-1.1		316.60	
	217.21	305.3		-0.09	
	-1.15			316.51	
	216.06			-1.88	
	-5.34			314.63 ≈ ≈ 14;40	
	210.72 = η 0.72 ≈ η 0;40				

	127.53	13.17		123.4	13.1
	140.70	13.18		136.5	13.0
	153.88			149.5	

	202.89	292.2		229.24	318.3
	-5.97			-4.40	
	196.92			224.84	

196.92 13.80 = 13;48
210.72 14.12 = 14; 8
224.84

} ≈ 13;50 °/d

C_1. p. 19, 27-30

Rule: given t = number of days since Thoth 1 (i.e. number of degrees of solar motion since Thoth 1) and (equinoctial) hours of daytime or night. Form

$$\left.\begin{matrix}\text{♎}\\ \text{♑}\end{matrix}\right\} [0^\circ(?)] + (t + 15.h) \equiv \begin{cases}\alpha\\ \beta\end{cases} \text{(mod. 30) at } \begin{matrix}\text{daytime}\\ \text{night}\end{matrix}$$

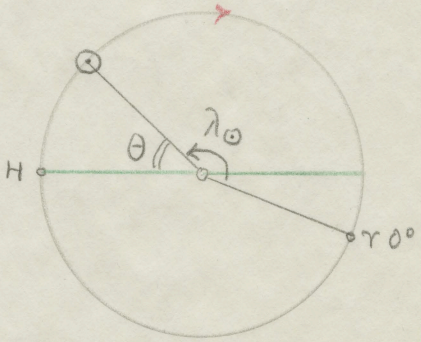
I see no reason for the reduction mod. 30.

♎ is certainly an error for ♍ (a) because ♍ is opposite ♑ and (b) the sun is at Thoth 1 near ♍ 6 or 8 in about A. D. 130 (cf. § 20). The term ♍ or ♑ $[0^\circ]$ + t gives $\lambda_\odot$ for Thoth 1 and 15.h is the arc of the daily rotation since sunrise (or sunset). Thus the left-hand side is the longitude of the ascendant.

C_2. p. 19, 30-33

Continuation of C_1(?). Form

$$\lambda_\odot + 15.h \; [= \lambda_\odot + \theta \approx \lambda_H]$$



Since 15.h is the gain in right ascension of the sun since sunrise we have approximately $\lambda_H \approx \lambda_\odot + \theta$, where $\lambda_\odot$ is known from C_1.

The final sentence probably means that instead of θ = 15.h one should use the oblique ascension for the proper climate.

At night the diametrically opposite points should be taken. The reference to H in line 33 must be an error.

If my interpretation of $C_1 + C_2$ is correct we have here at least one section which yields λ_H from given date and hour by means of an astronomically reasonable approximation.

C_3. p. 19, 33-p. 20, 4

In contrast to $C_1 + C_2$ this last section seems to be pure nonsense. The "mystical" and "necessity-ascendant" is the trine -- or one of the sextiles -- of $\lambda_\odot$. Cf., perhaps, A.

D. p. 20, 5-15; p. 21, 8-19

This method pretends to be "accurate and to the degree." Assumed to be known are: $\lambda_{\odot}$, the hour h of daytime or night, and the lunar velocity $v_{\leftmoon}$. Then the rule for finding the ascendant H is as follows:

(1) $$\lambda_H = h.v_{\leftmoon} + \begin{cases} \lambda_{\odot} & \text{at daytime} \\ \bar{\lambda}_{\odot} & \text{at night} \end{cases}$$

The term $h.v_{\leftmoon}$ would give the distance travelled by the moon since sunrise or sunset if $v_{\leftmoon}$ would be the hourly velocity of the moon. The numerical examples, however, show that $h.v_{\leftmoon}$ is taken from a table (which is not preserved) and that the values are much nearer to a daily velocity than to a hourly motion.

Example 1 (p. 20, 9-15): Hadrian 4, Mekheir 13, 1^h of night:

$$\lambda_{\odot} = \text{♒} 22 \qquad \lambda_{\leftmoon} = \text{♍} 7 \ ^{3)}$$

Then it is said that "the lunar motion on the 14th day from epoch (?)" is $13;52^{\circ}$. I do not know where this information comes from; the lunar velocity on the 1st day must be near the mean motion when the motion on the 14th day is only about $0;41^{\circ}$ above the mean value. [4)]

The number 13;52 is rounded to 14 and with it one enters the (lost) table of double entry in line 14° and column 1^h. The value found there is 16. This is the value to be used for $h.v_{\leftmoon}$ in (1). Consequently

$$\lambda_H = 16 + \text{♌} 22 = \text{♍} 8 \ .$$

---

3) Modern computation gives for A. D. 120 Febr. 8: $\lambda_{\odot} = \text{♒} 14;40$ $\lambda_{\leftmoon} = \text{♍} 0;40$. Assuming a norm in which the vernal point has the sidereal longitude $\text{♈} 8^{\circ}$ one would have $\lambda_{\odot} = \text{♒} 22;40$ $\lambda_{\leftmoon} = \text{♍} 8;40$ thus good agreement with the text.

4) Modern computation gives with respect to Febr. 7 a motion of $13;48^{\circ}$, with respect to Febr. 9 $14;8^{\circ}$, thus a mean value of $13;53^{o/d}$.

Example 2 (p. 21, 8-19)

No date given, h = 3^h of night; $\lambda_\odot$ = ♉ 19, $\lambda_☾$ not given (or rather, not preserved), but $v_☾$ = 12 1/2 1/15 [= $12;34^{o/d}$].

In order to find the corresponding value h.$v_☾$ in (1) one has to interpolate in the table, already used in the previous example, between the lines for 12° and 13° and in the column 3^h. The entries are

for 12° and 3^h: 41 1/2

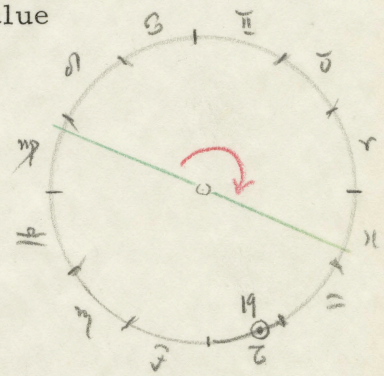
for 13° and 3^h: 44 1/2

Thus Δ = 3 and Δ(1/2 + 1/15) = 1 1/2 1/5 hence the final value

41 1/2 + 1 1/2 1/5 = 43 1/5

and therefore

λ_H = 43 1/5 + ♋ 19 = ♍ 2;12 .



In comparison some other tables, unknown to us but presumably less accurate, would have given λ_H = ♍ 3.[5]

The here used values from the table for h.$v_☾$ suggest a restoration as follows:

$v_☾$ o/d	1^h	2^h	3^h	4^h
min. = 11				
12	[13;50]	[27;40]	41;30	
13	[14;50]	[29;40]	44;30	
14	16			
max. = 15				

Δ = 3,50
Δ = 4;50

I can not connect any astronomical significance with it.

5) The result is (accidentally?) quite reasonable; cf. the figure.

E_1. p. 20, 16-24

Certainly out of place and practically unintelligible. Perhaps related to the end of G_2. The rule seems to be $\lambda_H \equiv \lambda_\odot + \lambda_{\text{☾}} \mod 30$.

E_2. p. 20, 24-29

Let Δt be the number of days between Epiphi 25, the date for the rising of Sothis, and the given date. Form

$$\tau \equiv \Delta t + 22 \mod 30$$

then

$$(2) \qquad \lambda_H = \tau + \begin{cases} ♋ [0^\circ] & \text{at daytime} \\ ♉ [0^\circ] & \text{at night} \end{cases} .$$

If we assume as date of the summer solstice Epiphi 3 ≈ June 27[6] then (2) gives an approximation of $\lambda_\odot$ at the given date Epiphi 25 + Δt. Obviously this can not be λ_H as given in (2) since H depends on the hour; cf. above C_1 and C_2.

6) In A. D. 120 June 23 would be correct. We do not know, however, whether ♋ 0° or, e.g., ♋ 8° represent the summer solstice. Cf. also H.

F. p. 20, 31-p. 21, 7

The title "horoscopic gnomon" corresponds exactly to the term "indicator of the ascendant" of the Arabic versions.

The rule for finding the "horoscopic gnomon" p from given hour h and $\lambda_{\odot}$ seems to be

$$(3) \qquad p \equiv 10 \cdot h; \begin{cases} \lambda_{\odot} & \text{at daytime} \\ \bar{\lambda}_{\odot} & \text{at night} \end{cases} \qquad \text{mod. } 360$$

where 10 actually might be 0;10 = 1/6.

Unfortunately the following example is corrupt and therefore of no help in testing (3). For the continuation cf. below G_2.

Example. Clima [(?)], h = 2nd hour of day, $\lambda_{\odot}$ = ♋ 7, $\lambda_{\text{℄}}$ = ♈ 22 (not needed in (3)). The computation seems to say that

$$10 \cdot 28;42 = 224 \qquad 2 \cdot 224 \,[= 448] \equiv 88 = p \ .$$

Since h = 2 it would follow from (3) either that $10\lambda_{\odot} = 224$, thus $\lambda_{\odot}$ = 22;24, or that $\lambda_{\odot}$ = 28;42 but the product 287 instead of 224 (which is unlikely since 224 is again used in the next step). Neither value seems to be related to the given $\lambda_{\odot}$. Finally one can use (3) for the given h and $\lambda_{\odot}$ and obtains p = 140, again badly different from the result of the text.

G_1. p. 21, 20-24.

Dealing with syzygies (details not clear), obviously not belonging to the present chapter.

G_2. P. 21, 25-p. 22, 11

Section F is only the beginning section of a procedure which finds its continuation here (perhaps to be supplemented by E_1). The next step consists in finding a "solar gnomon" $q_\odot$ and a "lunar gnomon" $q_\leftmoon$ for daytime respectively for night.

The rule for daytime seems to be: take to the given solar longitude $\lambda_\odot$ the oblique ascension $\rho(\lambda_\odot)$ (and probably also $\lambda_\leftmoon$ and $\rho(\lambda_\leftmoon)$) perhaps reduced mod. 30. Then

$$q_\odot \equiv \lambda_\odot + \rho(\lambda_\odot) \quad \text{mod. } 30 \tag{4a}$$

The lunar gnomon seems to be defined by

$$\begin{aligned} 2\lambda_\leftmoon &\equiv \lambda'_\leftmoon && \text{mod. } 30 \\ q_\leftmoon &\equiv \lambda_\leftmoon + 12\lambda'_\leftmoon && \text{mod. } 30 \end{aligned} \tag{4b}$$

At night the solar gnomon seems to be defined by

$$\begin{aligned} \lambda' &\equiv \lambda_\odot + \lambda_\leftmoon && \text{mod. } 30 \\ q_\odot &\equiv \lambda' + \rho(\lambda_\odot) && \text{mod. } 30 \end{aligned} \tag{4c}$$

No rule is given for the lunar gnomon.

The purpose of all this seems to be to find a position or negative correction for the hour which was only given approximately as an integer value. The text gives the following rule for the sign of the correction δ:

$$\text{if } q_\odot \gtrless q_\leftmoon \quad \text{then} \quad \delta \lessgtr 0 \tag{5a}$$

The amount seems to be given by

$$|\delta| = |q_\odot - q_\leftmoon| \quad . \tag{5b}$$

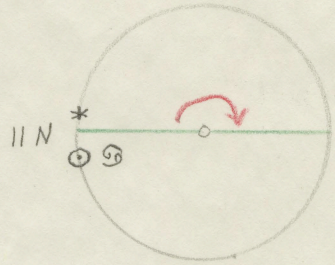
Corresponding rules seem to exist when time is not measured in hours but in degrees. Perhaps section E_1 (p. 20, 16-24) is related to this case.

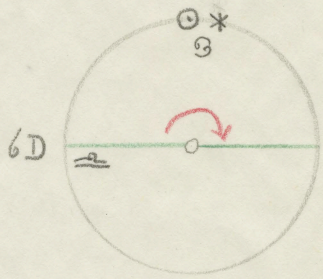
Cf. for this whole procedure the Islamic rules for the "Namūdār", ascribed to Vettius Valens.

H. p. 22, 12-27

This last section relates the ascendant and the heliacal rising of Sirius to the four-year intercalation cycle of the Alexandrian calendar.

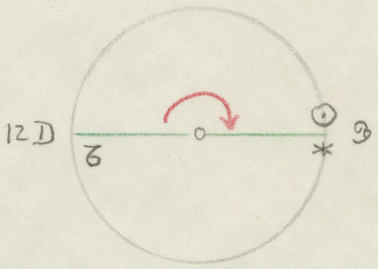
In the first year Sirius rises when the sun is in ♋ (cf. above E_2) at the 11th hour of night. This is the situation at the actual heliacal rising. 365 days later it is still 1/4 day missing until the sun comes again in the same position with respect to Sirius as in the first year. In other words the sidereal year will only be completed at noontime when ♎ is the ascendant. Similarly we have in the 3rd year ♑ as ascendant at the end of the sidereal year at sunset and in the fourth year at midnight ♈ in the ascendant.



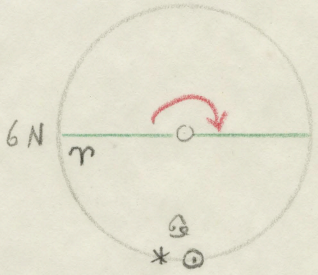


This gives the following table

	expected		text p. 22	
Year	Asc.	at	lines 19-22	line 16
1	♋	11^h night	♋ 1^h night	11^h
2	♎	6^h day	♎ 6^h day	6^h
3	♑	12^h day	♑ 12^h day	12^h
4	♈	6^h night	♈ 6^h night	6^h



Thus the text is correct except for the single error 1^h instead of 11^h in line 19.



Same procedure with George, Bishop of the Arabians (written A.D. 716); cf. Ryssel [1893] p. 50 f.

Summary of the "Namūdār" Ascribed to Vettius Valens by the Islamic Sources

Given at a known day an "approximate" hour h_o of a nativity, to integer seasonal hours. Find an "accurate" hour h, i.e. a correction $|\delta| < 1^h$ such that $h = h_o \pm \delta$.

Procedure: compute for the given h_o the longitudes

(1) $\lambda_\odot$, $\lambda_{\mathfrak{C}}$ and the oblique ascensions $\rho(\lambda_\odot)$, $\rho(\lambda_{\mathfrak{C}})$

For the date in question it is also known how many degrees α correspond to one seasonal hour (at night for the solar longitude at midnight, at daytime for the solar longitude at noon).

Using the values (1) one now forms the "horoscopic gnomon":

(2) $$p \equiv 12\alpha \cdot h_o \qquad \text{mod. } 360^o$$

and the "solar gnomon"

(3) $$q = \rho(\lambda_{\mathfrak{C}}) - \rho(\lambda_\odot) \ .$$

The factor $12\alpha^o$ is the length of the arc of daylight or night respectively, while q gives the rising time of the arc $\Delta\lambda = \lambda_{\mathfrak{C}} - \lambda_\odot$.

The values of p and q are only needed in order to determine the sign of the correction δ. The rule is:

(4) If $p \gtrless q$ then $h \lesssim h_o$ or $\delta = h - h_o \lesssim 0$.

The amount of the correction is determined from the elongation $\Delta\lambda$ in such a fashion that it can not exceed 1^h:

(5) $$|\delta| = \frac{1}{3} \begin{cases} \Delta\lambda & \text{if } \Delta\lambda < 180 \\ \Delta\lambda - 180 & \text{if } \Delta\lambda > 180 \end{cases} \ .$$

Then

(6) $$h = h_o + \delta$$

with the sign determined by (4). This is the desired "accurate" hour.

With the accurate hour known one now can find the ascendant for this new moment in the usual, astronomically correct, fashion.

The Namūdār of Vettius Valens

from the Arabic Zīj of Muhī al-Din al-Maghribī, Treatise 4, Ch. 1, Sec. 1 and from the Persian Zīj of Shams-i Munajjīm, Treatise 4, Ch. 16, Sect. 3.

Purpose: find from the approximate hour h_o of the nativity, known only to integer hours, the accurate hour h, i.e. find the correction $h - h_o$.

Given h_o. Determine for this moment

$$\lambda_\odot \quad \rho(\lambda_\odot) \quad \lambda_{\mathfrak{C}} \quad \rho(\lambda_{\mathfrak{C}}) \quad .$$

Then

$$q = \rho(\lambda_{\mathfrak{C}}) - \rho(\lambda_\odot) \tag{1}$$

is the "indicator of the sun" [= "solar gnomon"].[1)]

Let 12α be the "arc of daylight" or "arc of night" respectively (i.e. the equivalent in degrees of 12 seasonal hours). Form

$$p \equiv 12\alpha \cdot h_o \qquad \text{mod. } 360 \tag{2}$$

which is the "indicator of the ascendant" [= "horoscopic gnomon"]. If

$$p \gtrless q \quad \text{then} \quad h_o \gtrless h \tag{3}$$

where h_o is the approximate, h the accurate hour which we wish to find.

Then a number $|\delta|$ is computed by

$$|\delta| = \frac{1}{3} \begin{cases} \Delta\lambda \\ \Delta\lambda - 180 \end{cases} \quad \text{if} \quad \Delta\lambda = \lambda_{\mathfrak{C}} - \lambda_\odot \lesseqgtr 180^\circ \quad . \tag{4a}$$

This number $|\delta|$ is reckoned as minutes of time. Consequently

$$|\delta| \leq 1^h \quad . \tag{4b}$$

Then $h = h_o \pm \delta$, with the sign determined by (3), is the accurate time in equinoctial hours for which the accurate ascendant can be computed as follows.

---

1) Thus the solar gnomon is the rising time of the arc $\Delta\lambda = \lambda_{\mathfrak{C}} - \lambda_\odot$.

Form

$$(5) \qquad 15h + \left\{ \begin{array}{l} \rho(\lambda_{\odot}) \\ \\ \rho(\bar{\lambda}_{\odot}) \end{array} \right\} = \rho(H) = \alpha^{1}(M) \qquad \begin{array}{l} \text{at daytime} \\ \\ \text{at night} \end{array}$$

Thus from the table of oblique ascension the longitude of the ascendant $\lambda(H)$ and from the table of normed right ascensions the longitude of the culminating degree $\lambda(M)$ can be found.

From the Meshad copy of the (Arabic) Zīj of Māhānī al-Din al-Maghribī

f. TREATISE 4, Chap. 1, Sect. 1

39v On the Determination of the

Namūdār of (Vettius) Valens of Alexandria, and by it are determined the hours fixed for the time of the nativity, either exceeding what ( ) or less than it. (Thus) spake the Sage: Ascertain the approximate hours passed from the first of the day or the night, without fractions, and compute the true longitudes of the sun and the moon at that (time) and determine the oblique ascension of each and subtract the solar ascension from the lunar ascension and what remains is the indicator of the sun. Then multiply the approximate hours by the arc of daylight

40r if the birth was diurnal, or by the arc of night-time if the nativity was nocturnal, and what results [subtract] from it (complete) revolutions if they are in it and it is the ascendant indicator. Then look, and if the solar indicator is less than the ascendant indicator the approximate hours are excessive, but if greater the approximate hours are lacking. Determination of the Excess or Lack: Take the distance between the sun and the [moon] in equal degrees, and if it is less than 180 degrees take a third of it, but if it is greater than 18[0] degrees, then take a third of the excess over it, and compute with it as though it were minutes of equal hours, taking each hour as 60 minutes. It is the amount to be added to the deficient hours or to be sub[tracted] from the excessive (hours). There result the true hours of the nativity and their minutes. Then multiply them by 15; there results its rotation and add it to the solar oblique ascension if the time is in the day or to the ascension of its opposite if the time was at night. There results the ascension of the

ascendant; look it up inversely in the oblique ascension table for the latitude of the assumed locality (to obtain) the result in equal degrees. There results the ascendant of the nativity, and if you find the arc by looking (it) up inversely in the table of right ascensions to obtain equal degrees, the tenth (house) results, but God knows better.

-15c-

(B)

the (Persian) zīj of Shams-i Munajjim

AYA SOFYA MS 2694, f.95p.

TREATISE IV, Chap. 16, Sect. 3. On Explaining the namūdār of Vettius the Alexandrian: The basis of this namūdār is thus, that it is to adjust the hours of the nativity which we have determined ( ) by means of this namūdār. The method is thus, that as of the integer hours of the nativity from the first of the day or night we determine the true longitude of the sun and the moon, and we obtain the oblique ascension of each. Then we subtract the oblique ascension of the sun from the oblique ascension of the moon. That which results we call the indicator (dalīl) of the sun. Then we look, and if it is such that the nativity is diurnal, the hours determined are multiplied by the arc of daylight, but if it was nocturnal (multiply) by the arc of night-time. Whatever results, we subtract (complete) revolutions from it, if possible, and that which results is called the indicator of the ascendant. After this we look at these two indicators. If it is such that the excess is to the indicator of the ascendant over the indicator of the sun, then the determined hours will exceed the hours of the nativity, but if they are less, then if we want to determine the amount in excess or lacking we subtract the true longitude of the sun from the true longitude of the moon so that a distance comes out in equal degrees. That we extend ( ) to the degrees [of the integer hours]. If that distance is less than a half-revolution we multiply it by twenty minutes, or we divide by three so that a third of it results. But if it is greater than half a revolution we subtract half a revolution from it and take a third of the remainder. That which results we call minutes of equal hours. Then, if it is greater than sixty we elevate it to hours and add to the determined hours, or subtract so that the adjusted hours of the nativity result. According to those hours we determine the ascendant so that the exact ascendant of the nativity results according to this namūdār.

The Namūdār of Vettius Valens

from the Persian Zīj-i Mufrad.

Given h_o the approximate (or estimated) hour (an integer value).

Let α be the "parts of hours of the degree of the sun" at noon or at midnight respectively. Then

$$\alpha\, h_o$$

will be "what rotated". Then

(1) $$p \equiv 12\alpha\, h_o \quad \text{mod. } 360$$

is the "indicator of the ascendant".

For h_o we compute $\lambda_\odot$ $\lambda_{\mathfrak{C}}$ $\rho(\lambda_\odot)$ $\rho(\lambda_{\mathfrak{C}})$ and form

(2) $$q = \rho(\lambda_{\mathfrak{C}}) - \rho(\lambda_\odot)$$

which is the "indicator of the namūdār".

The sign of the correction of h_o is determined from

(3) $$p \gtrless q \quad \text{then} \quad h_o \gtrless h \ .$$

The amount of the correction $|\delta| = |h - h_o|$ is found from

(4a) $$\Delta\lambda' = \begin{cases} \Delta\lambda \\ \Delta\lambda - 180 \end{cases} \quad \text{if} \quad \Delta\lambda = \lambda_{\mathfrak{C}} - \lambda_\odot \lesseqgtr 180$$

as

(4b) $$|\delta| = 0;5\cdot 4\Delta\lambda' \ ^{1)}$$

Example

h_o = 1 seasonal hour of night

α = 13;31

hence $\alpha\, h_o = 13;31^o$ rotated (since sunset) and

$$p = 12\cdot 13;31\cdot 1 = 162;12$$

---

1) Text not clear.

the indicator of the ascendant.

Furthermore it is assumed that

$$q = \rho(\lambda_{\mathfrak{C}}) - \rho(\lambda_{\odot}) = 303;43$$

which is the indicator of the namūdār. Hence

$$q > p \qquad \text{and therefore} \qquad h > h_o \ .$$

Also supposed to be known is

$$\Delta\lambda = \lambda_{\mathfrak{C}} - \lambda_{\odot} = 314;28 > 180$$

thus

$$\Delta\lambda' = \Delta\lambda - 180 = 134;28$$

Hence

$$|\delta| = 0;4 \cdot \frac{\Delta\lambda'}{12} = 11;12,20 \cdot 0;4 = [0;44,49,20 \approx] 0;44,50^{h} \ 1)$$

and therefore

$$h = h_o + \delta = 1;44,50^{h} \ .^{1)}$$

From this one finds eventually H = ♈ 13;40. 2)

---

1) Text, incorrectly 51 instead of 50.

2) From this it follows that $\lambda_{\odot} \approx$ ♉ 7;17, $\lambda_{\mathfrak{C}} \approx$ ♌ 21;45.

Cambr. MS Browne Or.0.1(10), The (Persian) Zīj-i Mufrad (c.1080 A.D.)

f.
86v TREATISE IV, Chapter 23. ON THE NAMŪDĀR OF THE DISTANCE, WHICH IS THE NAMŪDĀR OF (VETTIUS) VALENS OF ALEXANDRIA

87r When a nativity occurs we approximate (or conjecture) the hour of that time in hours as temporal; and if it is (in) the night we multiply it by the parts of (corresponding to) (one) hour's time for the degree of the sun at the time of midnight, but if it was day by the parts of hours of the degree of the sun at the time of noon. What results will be what rotated. We multiply by twelve; what results we call the indicator of the ascendant. We retain it, and if it is more than three hundred and sixty degrees we take three hundred and sixty degrees from it. Then, with these approximate hours we determine the true lunar longitude and the oblique ascension. We ( ) both and we subtract the ascension of the degree of the sun from that of the moon. That which remains we call the indicator of the namūdār. We look at both indicators which resulted. If we find that the indicator of the namūdār is greater than the ascendant indicator, it will be that, by (2) which that approximate hour of the nativity (is) less than the true hour of the nativity which we had put. But if we find it less, that will be by that that hour is to be increased. Then we want to produce the true hour, and this is to be an additive or a negative (correction). and we subtract ( ) the true longitude of the sun from the true longitude of the moon at the time of that hour of those two true longitudes. and that which remains will be equal degrees; if (it) was greater than a hundred and eighty we subtract from it a hundred and eighty. What remains we call the distance of the two luminaries, and we drop ( ) twelve(s). divide it by

What is left less than twelve we multiply by five so that it becomes minutes, and what results we multiply by four. What it becomes we call the difference of the approximate (?) hour and we add it to that temporal hour of the nativity if it is less for the ( ) and we subtract if it had been added (?) ( ) what results as sum or difference is the true temporal hour of birth. From it we extract the ascendant as we have said, i.e., in parts of hours we multiply the degree of the sun, at day or night, by the number of times. What comes out will be what has rotated. From what has rotated we determine the ascendant. Example of it: The approximate hour of the nativity was in the night so much: 1;0, temporal. The parts of hours times the degree of the sun is so much: 13;31. Into the approximate hour we struck (multiplied it by cf. Arabic ḍaraba), there went so much: 13;31. This is what rotated. Then we multiplied it by twelve; there came out so much: 162;12. This is the

87v ascendant indicator, the distance between the sun and the moon in degrees of ascension is so much: 63;43. This is the indicator of the namūdār, and it is greater than the ascendant indicator; we have (thus) ascertained that the approximate hour is to be put less than the true hour which we put. So we want to determine it. If we subtract the solar longitude from the lunar longitude there remains so much: 30;28 equal degrees, and this is the distance of the sun and the moon; it is more than a hundred and eighty, we subtract it from it, there remains so much: 134;28. We divide by twelve there went so much: 11;12,20. We multiply by four there came out so much: 0,44,51. We added it to the approximate hour, it came out thus: 1;41,51. This is the true hour of the nativity. We extract from it what rotated if we multiply (?) it by the opposite of the sun so much: 13;31 (or 53,31?). And from this which rotated we extract the degree of the ascendant, there results the ascendant so much: 13;40 of the sign of Aries. And according to this fashion ( ) are all the operations of the degrees of the ascendants of the namūdār, but God knows better.

The Namūdār of Vettius Valens

according to the Irshād of Bīrūnī, from the "Ismaʿīlī Zīj".

Given: arc of daylight or night (i.e. 12α if $\alpha^{o} \approx 1$ seas. hour) h_o the approximate (integer) seasonal hour. Then

(1) $$p \equiv 12\alpha\, h_o \quad \text{mod. } 360$$

is the "indicator of the ascendant" and

(2) $$q = \rho(\lambda_{☾}) - \rho(\lambda_{☉})$$

the "solar indicator" [= "solar gnomon"].

(3) If $p \gtrless q$ then $h \gtrless h_o$. [1]

Take

(4) $$\Delta\lambda' = \begin{cases} \Delta\lambda \\ \Delta\lambda - 180 \end{cases} \quad \text{if} \quad \Delta\lambda = \lambda_{☾} - \lambda_{☉} \begin{cases} < 180 \\ > 180 \end{cases}$$

and form

(5) $$|\delta| = \frac{\Delta\lambda'}{12} \cdot \frac{h_o}{15} \left[= \frac{\Delta\lambda'}{12} \cdot 0;4 \cdot h_o = \frac{1}{3} \Delta\lambda' \cdot h_o^{\text{min.}} \right]$$

[Note that in (5) appears here a factor h_o which seems to be absent in the rules given by the other authors.]

---

1) All other Islamic sources have the opposite arrangement: if $p \gtrless q$ then $h \lessgtr h_o$.

The Namūdār of Vettius Valens

according to Sanad bin ʿAlī, from the "Ismaʿīlī Zīj".

Compute the "solar indicator":

$$q = \rho(\lambda_{☾}) - \rho(\lambda_{☉}) \tag{1}$$

and the "ascendant indicator":

$$p = 12 \cdot \alpha \cdot h_o \qquad \text{(mod. 360)} \tag{2}$$

If $p \gtrless q$ then $h \lessgtr h_o$

Then take

$$\Delta\lambda' = \begin{cases} \Delta\lambda & \text{if } \Delta\lambda = \lambda_{☾} - \lambda_{☉} < 180 \text{ "conjunction-like"} \\ \Delta\lambda - 180 & \text{if } \Delta\lambda > 180 \text{ "opposition-like"} \end{cases} \tag{3}$$

and form

$$\frac{\Delta\lambda'}{12} \cdot 15 = |\delta| \tag{4}$$

The formulation of (4) is very unclear but probably corresponds to the ordinary rule $\delta = \frac{1}{3}\Delta\lambda'$. Perhaps one should read

$$|\delta| = \frac{\Delta\lambda'}{12} \cdot \frac{1}{0;15} = \frac{1}{3}\Delta\lambda' \quad .$$

(D) 1

From the "Ismaʿīlī Zīj", Paris BN Ar. 5968

TREATISE VI, On the Operations of Namūdār Nativities (f.183r),

f. having seven sections:

183v Section 1. On the Determination of the Degree of the Ascendant at the Nativity, from Kūshyār.

The Namūdār of the Falling of the Drop (of sperm, i.e., Impregnation) in the Irshād of Abū Rayḥān (al-Birūnī. This is from Boilot No. 77, a lost work of Bīrūnī).

184r The Equation of Hermes for the Namūdār of Impregnation.

The Namūdār of Impregnation, from Sanad b. Alī.

184v The Namūdār of the Dropping of Water, from Kūshyār's Jamal.

185r Section 2. On the Determination of the Namūdār of Ptolemy al-Falūdhī.

Section 3. On the Hindu Namūdār

185v Section 4. On the Namūdār of Valens the Alexandrian, the Greek, from the Irshād of Abū Rayḥān.

The Namūdār of Valens, from Sanad b. Alī.

186r Section 5. On the Namūdār of the Tasyīr, from the Irshād of Abū Rayḥan. (This contains Battānī's horoscope of the Prophet, translated last winter.)

186v The Namūdār of the Tasyir, from the Jamal of Kūshyār.

Section 6. On the Beginning of Dawn and the End of Twilight, from Bīrūnī's Qānūn.

187v Twilight table, source not given.

188r Dawn table, source not given.

188v Section 7. On the Determination of the Evening (? aṣr Prayer-) Time, from Kūshyār's astrolabe treatise.

Another Method (used)by some (people).

f. Translation of

185v Section 4. On the Namūdār of (Vettius) Valens the Alexandrian, the Greek, from the "Irshād" of Abū Rayḥān.

The namūdār of Valens is to take the arc of daylight or of the night-time, in whichever the nativity occurred, multiplied by the number of temporal hours passed of the night or day until that time. And the remainder is called, after deleting revolutions, the ascendant indicator. Then one takes what is between the two luminaries in degrees of ascension, and it is called the solar indicator. If the solar indicator exceeds the ascendant indicator the true hours are less than the approximate. But if the ascendant indicator is ~~less~~ more than the solar indicator the true is more than the approximate. But if they are equal the operation is correct, and there is no need for increase or decrease. The extraction of the difference between the true and the approximate hours is this; one takes the (amount) between the two luminaries in equal degrees, and if it is greater than a hundred and eighty subtract from it a hundred and eighty and divide the remainder by twelve, and what comes out multiply by the time (azmān) of hours of that day or of the night, and divide the result by fifteen, and what comes out is the difference which is to be added to or subtracted from the hours. But if there is nothing between the two luminaries, then there is neither excess nor deficiency for the hours.

The Difference (of Opinion) About It. (This may not be from the Irshād.) The adherents of Valens differ as to the extraction of the difference between the true and approximate hours. Some assert what we have explained, but some assert that its extraction is to take half of what the moon traveled in its sign and its ratio to fifteen, and if the nativity was conjunction-like (?), add to the hours what is proportional to it with

(D) 3

f.
185v respect to one hour belonging (?) to the ratio. But if it is opposition-like, subtract that from it. Others claim that one should halve what the moon travelled in its sign, and add that to the part (i.e., longitude) of the conjunction, if it was a conjunction-like one, but subtract (it) from the part of the opposition if it was opposition-like. So it will end at the part of one of the cardines of the ascendant. It is said of Abū Maʿshar that he deems it necessary to subtract from the approximate hours a seventh of it, then to increase it by the difference between the approximate and true hours, or subtract them from them. But others than he said that from the sign of addition (?) in this namūdār that (it is) if the (above-) mentioned nativities occur in odd hours or in even ones.

(E) The Namūdar of Valens (according to) Sanad bin ʿAlī. He said: If you want that, and verily you determined (?) the hour without coming upon its parts, compute the ascendant for that (time) and the true longitude of the sun and the moon. Then multiply what is between the sun and the moon in degrees of ascension and call that the solar indicator. Then multiply the parts of hours of that day by 12, then by the hours, i.e. multiply the hours by twelve and increase it by what results ( ) in amount, and that is the ascendant indicator which was determined ( ), and what results is the division (or portion) of the ascendant indicator. Then look, and if the ascendant indicator is greater than the solar indicator the hours are deficient, but if less the hours are excessive, so keep it. Then take what is between the sun and the moon in equal degrees and if it is less than 180 degrees the nativity will be
186r conjunction-like, but if it is more the nativity will be opposition-like. So, if the nativity is conjunction-like divide what is between the sun and the moon by 12, and take it as days ( ), and double what

186r remains, and it is hours -- keep it. But if the nativity is opposition-like subtract 180 degrees from the distance between the sun and the moon and divide the remainder by 12. So what comes out of days and hours, keep it. If the days are 15 take them (?) as hours, but if less take each day as four minutes of hours and keep them. Then look, and if the hours are in excess subtract from them one hour and return back upon the remainder the retained (quantity) in hours or fractions thereof. But if the hours are defective, return the retained upon the approximate hours without subtracting anything from them. What remain after the addition or subtraction are the ( ) hours, at which the nativity occurred.

Translation of the anonymous treatise on Vettius Valens' table

MS Escorial ar. 961,5a
MS Cairo Tal#at *miqat* 102,9

An explanation of the *hashtaq* of Walis who compiled it without meanness and with no precociousness for finding the length of life. Walis, who is (also called) Walintiyus, made a *namudar* for correcting the longitude of the ascendant and the hour of birth so that no doubt remains (concerning their accuracy). We mentioned it and explained it in the chapter on *namudars* in this book of ours and we refrain from repeating this here.

(Walis also compiled) a table which he called *hashtaq* starting with Libra, and he put 2 for the 1st degree of (this sign), 4 for the 2nd, 6 for the 3rd, 8 for the 4th, 10 for the 5th, and 12 for the 6th. Then he added 14 to these 12 and the entry for the 7th was 26. Then he added 2 again for the 8th and so for it the entry was 28, and then 30 for the 9th, 2 for the 10th, 4 for the 11th, and 6 for the 12th. Here he added 14 and so for the 13th the entry was 20, and then he started adding 2 degrees again so that the entry for the 14th degree was 22, for the 15th 24, for the 16th 26, for the 17th 28, and for the 18th 30. Here he added 14 and so for the 19th degree the entry was 14, for the 20th 16, for the 21st 18, for the 22nd 20, for the 23rd 22, and for the 24th 24. Here he added 14 and for the 25th the entry was 8, and then he started adding 2 degrees again so that for the 26th the entry was 10, for the 27th 12, for the 28th 14, for the 29th 16, and for the 30th 18. He made Leo and Pisces the same.

For the 1st degree of Scorpio (he put) 14 and added to this in the same fashion, and he made Aries and Virgo the same. For the 1st degree of Sagittarius (he put) 26 and added to this in the same fashion, and he made Taurus the same. For the 1st degree of Capricorn (he put) 8 and added to this in the same fashion, and he made Gemini the same. For the 1st degree of Aquarius and also Cancer he put 20.

The way he increased was to add 2's and if 5 degrees had passed to add 14 and then to add 2's again until he had completed all of the signs. The number of degrees of increase at the beginning of each sign is 6, because the 1st degree has no *ishtirak* and the remaining (degrees) are *mushtarik*. There are 5 degrees increasing between each 14 and its *ukht*. Walis also said that if you add 12 to the entry for the 1st degree of each sign you obtain the entry which must be for the 1st degree of the next sign. We checked this and it was correct. He did not mention the reason for his procedures for obtaining these entries or for the increases which he applied.

Then he (described the following procedure) for determining the length of life of a newborn for whom "the stars" have indicated that he will be healthy during the years of his early upbringing

and that he will have a life (beyond childhood), if God Almighty wills. You take the degrees of the hours corresponding to his ascendant in the locality where he was born, by day or night depending on the time of his birth, multiply these by 12 and obtain the product. Then investigate the entry in the *hashtaq* corresponding to an argument equal to the longitude of the ascendant, divide this by 60 and take this fraction of the product you obtained by multiplying the degrees of the hours by 12. The result will be the years and the fractional parts months, and this will be the length of his life, if God Almighty wills.

Example. The ascendant is Leo 7$ and the corresponding degrees of the hours in Baghdad are 17;8$. When we multiply this by 12 the product is 205;36. In the *hashtaq* the entry for Leo 7$ is 26, the ratio of which to 60 is as one-third plus one-tenth (to unity). If we take the share (of this fraction) of the 205 degrees and (the extra) minutes whose derivation we explained, the result is 89;5, which represents 89 years and one month.

Again suppose the ascendant is Cancer 6$. The degrees of its hours are 17;45 and if we multiply this by 12 the result is 213. (The entry) in the *hashtaq* is 30, the ratio of which to 60 is one-half (to unity). If we take one-half of the product we obtain 106 (years) and 6 months.

The procedure is the same as this in all other localities (read: *al-bilad* for *al-bab*): one (must) calculate with the (appropriate) degrees of the hours in each locality. We have compiled the *hashtaq* table for each degree of the signs (by the procedure) you know, without working out the years and months because these change for (different) localities according to the variation in the degrees of the hours of daylight in each. In our opinion this chapter (or this method) should be helpful for finding the duration of life. It should be compared with the indications of the *katkhudah* and its supporters and the interruptions to life (*qutu#*) necessitated by the *tasyirat* towards the bodies of the planets. (The truth ??) will become apparent by (comparing) one of these (methods) with the others, so that we can know through it what is correct of this noble science. God - may He be praised and exalted - knows best.

Title of table: Table of life and the duration of the span of life for a newborn.

Note to the left side of the table: (The author) said that this table was found in the *Kitab al-Kamil fi 'l-nujum*, "The Perfect Book on Astrology," in the treasury of #Abd Allah ibn Tahir ibn al-Husayn, (sent to him) by al-Ma'mun. (It was) written in gold.

Shorter text to Table of Life

MS Cairo Dar al-Kutub *miqat* 1108, fol. ***

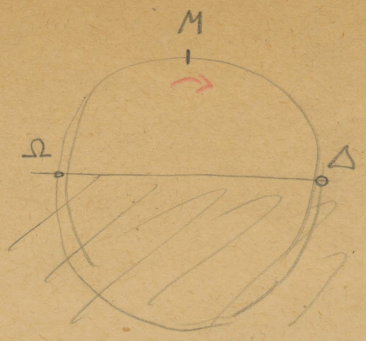
Praise be to God. This is the Table of Life and the Lifespan of a Newborn as I found it in the *Kitab al-Kamil fi 'l-nujum* in the treasury of #Abd Allah ibn Tahir ibn al-Husayn (sent to him) by al-Ma'mun and written in gold. The way to use this table is (as follows). Take the degrees of the hours corresponding to the longitude of the ascendant, multiply them by 12, and keep (the product) in mind. Then look at the table of life and take the entry opposite the argument equal to the longitude of the ascendant. Make what you find a ratio to 60 and take that ratio of the result of the multiplication which you kept in mind. It will be the (length of) life of the newborn in years and months.

Example. A baby is born and has ascendant Gemini 5$. We take the corresponding entry in the table, which we find to be 16, which is one-sixth plus one-tenth of 60. The degrees of the hours corresponding to the longitude of the ascendant are 17;44. (When we) multiply (this) by 12 the result is 212;48$. One-sixth plus one-tenth of this is 56;45, which is fifty six years and nine months approximately. God knows best the Unseen.

(The following note) was found in the handwriting of Ibn Abi 'l-Fath al-Sufi. Take the diurnal arc corresponding to the ascendant and keep it in mind. Enter with the longitude of the ascendant in the table, multiply what you find by the quantity you kept in mind and divide the product by 60. The quotient will be years (of the individual's life). God knows best. This is as I found it and I copied it as I found it.

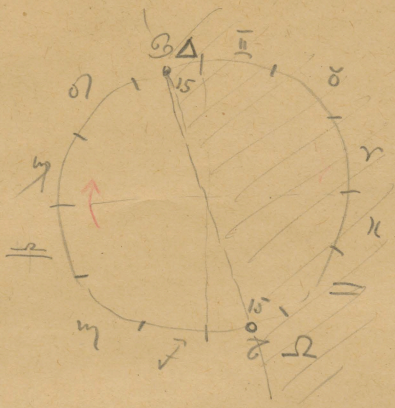
Another example. The blessed child Muhammad was born on Wednesday, 29 Shawwal, 1006 (Hijra). The position (of the sun) was (Gemini) 13;13$, the time since sunrise 63;13$, the (oblique) ascensions (of the sun) 57;50, the (oblique) ascensions of the ascendant 121;3$, and the ascendant Leo 9;20$. The (corresponding) value in the table is 30. The arc of daylight corresponding to the ascendant is 201;44$, and the product is 1,47;52, the first (digit) being 60's (*awwaluhu marfu# marra*) on the basis that the entries in the table are minutes. His lifespan according to what was related was six years, five months, and six days. God knows best. This is as I found it.

7



Take the rising time from Ω to $\Delta (= \alpha)$ (i.e. length of daylight)

Form $S - \frac{\alpha}{2} = M$



Example

Horoscopos $\Omega = \text{♎ } 15$

Climat II [2]

$\alpha = 214$ [1]

$\frac{\alpha}{2} = 107°$ (of equator)

$15°$ of ♋

$122°$

count 122° from ♋ 0

result: ♋ 122 = ♍ 2

[Funny rule: one takes $\frac{\alpha}{2}$, measured originally on the equator, and takes the same arc, beginning at Δ, on the ecliptic.]

1) Explanation:

Babylon, Syst. A:

$\frac{1}{2}$ ♋	16
♌	36
♍	40
♎	40
♏	36
♐	32
$\frac{1}{2}$ ♑	14
$\Sigma \alpha_i = 214$	

Length of daylight $= \frac{1}{15} \alpha$

Example: ☉ in ♋ 15 Climate Syria [2]

$\alpha = 214 = 3{,}34°$

$\frac{\alpha}{15} = 14\ \frac{4}{15} = 14\ \frac{1}{5}\ \frac{1}{15}$ h

Length of night: same procedure with $\overline{\lambda_\odot}$.

2) Climate II = Syria in agreement with Pap. Mich. III, 149 (cf. Ngb., Anc. Geogr. p. 255 f.)

I, 7. Prelim. Comm.

a) Transformation of rising times into equinoctial hours

$\alpha_1 = 20°$ [Bab. Syst. A]

$1^h = 15°$

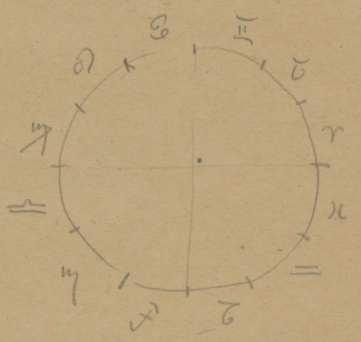
$20 - 15 = 5 = \frac{1}{3} \cdot 15$ thus $\alpha_1 = 1\frac{1}{3}^h$

b) How long a sign "prevails" (is "dominant")

$2\alpha_1 \cdot 6 = 240^d$

$\frac{1}{30} \cdot 240 = 8$ months } ? = division by 30 → transformation into months

c)



degrees:

$\alpha_{i+6}^{\circ} = 60° - \alpha_i^{\circ}$

$\alpha_1 = 20 \quad \alpha_7 = 40$

hours:

$\alpha_{i+6}^{h} = 4^h - \alpha_i^{h}$

prevailing:

$\alpha_{i+6}^{\text{months}} = 2^{\text{years}} - \alpha_i^{\text{months}}$ (thus according to rule b):

$60° \cdot 12 = 720^d$

$\frac{1}{30} 720^d = 24^m = 2^y$)

d) All rising times.

Linear increase!

largest $\alpha = \alpha_6 = \alpha_7 = 40$ [Babylon, Syst. A]

smallest $\alpha = \alpha_1 = \alpha_{12} = 20$

$\frac{1}{5}(40 - 20) = 20\frac{1}{5} = 4$ [5 = number of intervals between ♈ and ♍]

= increment

Thus

♈	20	♎
♉	24	
♊	28	
♋	32	
♌	36	
♍	40	♎

d') Different method for all rising times

♌ 36 ♏
♉ 24 ♒

$\frac{1}{3}(36-24) = \frac{1}{3}\,12 = 4$ [3 = number of intervals between ♉ and ♌]

e) For all climats

climate I: $\overset{♌}{\alpha_4} + \alpha_5 + \dots + \overset{♐}{\alpha_9} = 210$ [= Max. length of daylight][1]

$\frac{1}{6}\,210 = 35 = \alpha_5$ (♌)

$25 = \alpha_2$ (♉)

$\frac{1}{3}\,10$ (= 3; 20 thus I:

$\alpha_1 = 21;40 = \alpha_{12}$
$\alpha_2 = 25 = \alpha_{11}$
$\alpha_3 = 28;20 = \alpha_{10}$
$\alpha_4 = 31;40 = \alpha_9$
$\alpha_5 = 35 = \alpha_8$
$\alpha_6 = 38;20 = \alpha_7$)

[1] Cf. Ngb. Astr. Mich. Pap. p. 254 (4')

climate VII $\alpha_4 + \dots + \alpha_9 = 234$
I 210
24

6 intervals $\frac{1}{6}\,24 = 4$ [increase of M per climate]

thus $\alpha_4 + \dots + \alpha_9$

in I 210
II 214 [notice that here the "second climate" is no longer Babylon because for this the total would be M = 216; the first climate is now Alexandria, cf. Ngb., Astr. Mich. Pap. p. 257 b f.]
III 218
IV 222
V 226
VI 230
VII 234

[Result (cf. Ngb. Astr. Mich. Pap. p. 258):

	I	II	III	IV	V	VI	VII
$\alpha_1 = \alpha_{12}$	21; 40	20; 33, 20	19; 26, 40	18; 20	17; 13, 20	16; 6, 40	15
$\alpha_2 = \alpha_{11}$	25	24; 20	23; 40	23	22; 20	21; 40	21
$\alpha_3 = \alpha_{10}$	28; 20	28; 6, 40	27; 53, 20	27; 40	27; 26, 40	27; 13, 20	27
$\alpha_4 = \alpha_9$	31; 40	31; 53, 20	32; 6, 40	32; 20	32; 33, 20	32; 46, 40	33
$\alpha_5 = \alpha_8$	35	35; 40	36; 20	37	37; 40	38; 20	39
$\alpha_6 = \alpha_7$	38; 20	39; 26, 40	40; 33, 20	41; 40	42; 46, 40	43; 53, 20	45
M	3, 30	3, 34	3, 38	3, 42	3, 46	3, 50	3, 54
M : m	7 : 5	107 : 73	109 : 71	37 : 23	113 : 67	23 : 13	13 : 7

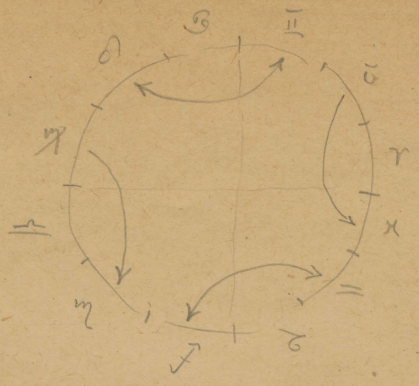
I, 8. Prelimin. Comm.[0]

a) ♉ and ♑ look at each other
rising times: [Babylon Syst. A]

♉: $\alpha_2 + \alpha_3 + \cdots + \alpha_7 = 200$

♑: $\alpha_{12} + \alpha_1 + \cdots + \alpha_5 = 160$

$160 < 200$ thus ♑ obey ♉



0) cf. Tetrabiblos I, 14 (Robbins)

[N.B. $\alpha_i + \cdots + \alpha_{i+5}$ = length of daylight for ☉ in ith sign. Thus all these relations actually relations between length of daylight.[0]]

b)

♊: $\alpha_3 + \alpha_4 + \cdots + \alpha_8 = 212$

♌: $\alpha_5 + \alpha_6 + \cdots + \alpha_{10} = 212$

$212 = 212$ thus ♊ and ♌ obey each other

c)

♍: $\alpha_6 + \alpha_7 + \cdots + \alpha_{11} = 200$

♏: $\alpha_8 + \alpha_9 + \cdots + \alpha_1 = 160$

[one would expect: ♏ obeys ♍; but texts: "they look"[1]]

1) This is the only reference to "looking" in the title of the chapter.

d)

♎: $\alpha_7 + \alpha_8 + \cdots + \alpha_{12} = 180$

[no second sign; probably mixed up with "they look" in c)]
(♎ does not fit into the scheme; cf. figure)

e)

♐: $\alpha_9 + \alpha_{10} + \cdots + \alpha_2 = 148$

♒: $\alpha_{11} + \alpha_{12} + \cdots + \alpha_4 = 148$

$148 = 148$ they obey each other

Sympathy

if $\alpha_n = \frac{1}{2}(\alpha_{n+1} + \alpha_{n-1})$ then $n+1$ and $n-1$ "sympathetic"

e.g. $\alpha_2 = \frac{1}{2}(\alpha_1 + \alpha_3)$

$\alpha_3 = \frac{1}{2}(\alpha_2 + \alpha_4)$

$\alpha_4 = \frac{1}{2}(\alpha_3 + \alpha_5)$

$\alpha_5 = \frac{1}{2}(\alpha_4 + \alpha_6)$ but not ♌ and ♎. because $\frac{1}{2}(36+40) = \frac{76}{2} = 38 \neq 40 = \alpha_7$.

text: 78 text 39

I, 9. Prelim. Comm.

a) Conjunction

$$\lambda_\sigma = \lambda_\odot - \frac{1}{12}(\lambda_\mathbb{C} - \lambda_\odot)$$

[$\lambda_\mathbb{C} - \lambda_\odot$ = elongation
12°/d relative velocity]

time[1] elapsed since σ = $\frac{1}{12}(\lambda_\mathbb{C} - \lambda_\odot)$

$$\lambda_{\sigma^\circ} = \lambda_\sigma + 15°$$

[assuming solar velocity 1°/d]



1) Text erroneously: degrees

Example:

XII 2 $\lambda_\odot$ = ♑ 5 = 114 July 26 (cf. Book VII, 5)
$\lambda_\mathbb{C}$ = ♎ 26

$\frac{1}{12}(\lambda_\mathbb{C} - \lambda_\odot) = \frac{1}{12} \cdot 81 \approx 7$

thus
σ: $\lambda_\odot - 7$ = ♋ 28 = 114 July 19 ♋ 24;27
(XII 2) − 7 = XI 25

and
σ°: $\sigma + 15$ = ♋ 28 + 15 = ♌ 13 / ♒ 13
= Aug. 5 act. Aug. 4 ♒ 9;26

b) Opposition

$$\lambda_{\sigma^\circ}(\mathbb{C}) = \overline{\lambda}_\odot - \frac{1}{12}(\lambda_\mathbb{C} - \overline{\lambda}_\odot)$$

and

$$t_\sigma = t_{\sigma^\circ} + 15^d$$



3) Year not given but certainly Hadrian 4 as it follows from the examples p. 19/20

Hadr. 4	VI (a) 13 = 120	Febr. 8			$\lambda_\mathbb{C}$	
	VI 7 = " 2	correct	♓ 12;22	Example		
	VI 22 = " 17	Febr. 16	♒ 26;29	VI 13[3]	$\lambda_\odot$ = ♒ 22	
					$\lambda_\mathbb{C}$ = ♍ 7	

full moon: 120 Feb. 2 ♓ 12;22
new moon: " Feb. 16 ♒ 26;29

$\frac{1}{12}(\lambda_\mathbb{C} - \overline{\lambda}_\odot) = \frac{1}{12} \cdot 75 \approx 6$

thus
σ°: $\overline{\lambda}_\odot - 6$ = ♌ 16
(VI 13) − 6 = VI 7

and
σ: $\sigma^\circ + 15$ = (VI 7) + 15° = VI 22[2]
= (VI 13) + 9[2]

2) Text in disorder: 21 and 8 instead of 22 and 9 and wrong explanation of these numbers.

I. 10

p. 26, 21–33

Example: Hadrian 4 VI (a) 13 1h night

Hadrian 4 = Augustus 148

in 148 years: 36 leap years

VI (a) 13 − I (a) 1 = 163

148 (note: 365 ≡ 1 mod 7)
36
163
347 = 7 · 49 + 4

Thus ☉-day + 4 = ☿-day

For ☿-day:

hour of night		of day	
1	☿	1	☉
2	☾	2	♀
3	♄	3	☿
4	♃	4	☾
5	♂	5	♄
6	☉	6	♃
7	♀	7	♂
8	☿	8	☉
9	☾	9	♀
10	♄	10	☿
11	♃	11	☾
12	♂	12	♄

and therefore VI (a) 14 [1] 1h (night): ♃

[1] Six for 13.

I, § 13 p. 28

Day	hours
1	$\overline{2} + \overline{4} + \overline{20}^{h}$
2	$1 + \overline{2} + \overline{10}$
3	$2 + \overline{3} + \overline{15}$
4	$3 + \overline{5}$
5	4
6	$4 + \overline{2} + \overline{4} + \overline{20}$
7	$5 (+\overline{2}) + \overline{10}$
8	$6 + (\overline{3}) + \overline{15}$
9	$7 + \overline{5}$
10	8
11	$9 + \overline{2} + \overline{4} + \overline{20}$
12	$9 + (\overline{2}) + \overline{10}$
13	$10 + (\overline{3}) + \overline{15}$
14	$11 + \overline{5}$
15	12^{h}

Text: $5 + \overline{10}$
" : $6 + \underline{\overline{6}} + \overline{15}$

Text: $9 + \underline{\overline{5}} + \overline{10}$
" : $13 + \overline{15}$

Sexagesimal equivalent would be

1	$0;48^{h}$
2	$1;36$
3	$2;24$
4	$3;12$
5	4

etc.

The text assumes an increase of elongation of $0;48^{h/d} = \frac{4}{5}^{h/d}$ i.e. 24^{h} in 30^{d}. One obtains the same result by assuming a daily elongation of $12°$ to which corresponds a delay of ☾-set of $12° / 15°/h = 0;48^{h}$.

§ 14.

λ of invisib. $\mathfrak{C}$ = $\lambda_\odot - \frac{1}{2}\alpha_i$ if $\odot$ in ith sign

(thus assuming one sign for invisibility near the $\odot$ as in early Greek astronomy?)

Second clima

$\odot$	$\frac{1}{2}\alpha_i$	$\mathfrak{C}$ becomes invisible in
♈ 0°	10	♌ 20
♉	12	♈ 18
♊	14	♉ 16
♋	16	♊ 14
♌	18	♋ 12
♍	20	♌ 10

etc.

Clima ♊ = Babylon

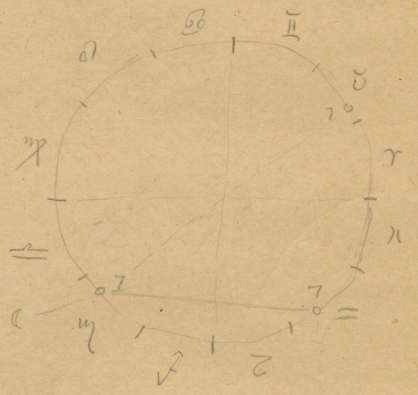
i.e. rising times Syst. A

§ 15

Longitude of the moon

after 3, 7 and 14 (sic!)

days:



$3 \cdot 13;10,35 = 39;31,45 \approx 30°$

(but check days. because of dropped 9 degrees!)

$7 \cdot 13;10,55 = 1,32;14,5 \approx 1,30° =$ quadrangle

$14 \cdot 13;10,35 = 3,4;28,10 \approx 3,0 =$ opposition

(40 days were nonsense and so the 11 days proposed in the apparatus ad 29,4)[1]

[1] $40 \cdot 13;10,35 \equiv 9;47 \mod 6,0$

§ 16

Sect. 5 (N. p. 20)
P. Ryl. 27 gives:
$-0;3,10^{\circ}/d$
$-1;35^{\circ}/m$
$-19^{\circ}/y$

1) In both cases read λ(επτὰ) for a meaningless ε'.

From Alm. IV, 4 nodal motions:

per day $-0;3,10^{\circ} \approx -0;3^{\circ}$

in 30 days $-1;35,20 \approx -1;35^{\circ}$

in 365 days $-19;20,1 \approx -19\frac{1}{3}^{\circ}$

in agreement with the emended numbers[1] given in the text.

Example:

Hadrian 4 Phamenoth (VII) 19 = Augustus 148 VII (e) 19 = 120 Febr. 8
VII (a) 19 = 120 March 15

$148 \cdot 19;20 = 2862^{\circ}$ (accur.: $_{\vee}2861;20$)

VII 19 = 6 · 30 + 19 thus

$6 \cdot 1;35 + 19 \cdot 0;3 \approx 10^{\circ}$ (accur.: $_{\vee}10;27^{\circ}$)

total: $2872^{\circ} \equiv {}_{\vee}352^{\circ} \bmod 6,0^{\circ}$ (accur. total $_{\vee}2871;47^{\circ}$)

hence $\lambda_{☊} = ♋\,30 - 352 = ♌\,8$ (in fact: A.D. 120 Febr. 8

$\lambda_{☋} = \lambda_{☊} + 180^{\circ}$ $\lambda_{☊} = ♌\,4;48$

120 March 15: $\lambda_{☊} = ♌\,2;54^{\circ}$) comp. with P.V.N.

This procedure assumes that at epoch, i.e. Augustus 1, Thoth 1 (Alex.)

$\lambda_{☊} = ♋\,30$ ($\approx ♌\,0^{\circ}$)

Actually for −29 Aug. 30 $\lambda_{☊} \approx ♋\,26;0$[2]

The Canobic Inscr. gives ♋ 25;31[3].

~~1) Same difference of ε° in P. Ryl. 27~~

2) (comp. with P.V.N.)

3) Heib. p. 152, 12

Vettius Valens I,16 - 18 (p. 29,24 - 31,12 Kroll)

16. Direct method for finding the ascending node [1]

This method is based on an explicit computation of the nodal motion since the epoch, which is Augustus 1 Thoth 1. The following nodal motions are assumed:

1 Eg. year: 19 1/3° (Almagest: 19;20,1)

1 month: 1;35 (emended from α′ ε′ λε′; Almagest: 1;35,21)

1 day: 0;3 (emended from ε′ γ′; Almagest: 0;3,11) .

The resulting nodal motion since Augustus 1 I 1 is to be subtracted from ♋ (30° i.e. ♌ 0°); the result gives the longitude of the ascending node. This shows that $\lambda_0(☊)$ = ♌ 0° . Indeed, modern computation gives $\lambda_0(☊)$ = ♋ 26 [2].

Example.

Hadrian 4 VII 19 (= Nab. 867 VII 19 = A.D. 120 Febr. 8 = j.d. 1764 926).[3]

Hadrian 4 = Augustus 149 thus $\Delta t = 148^y\ 6^m\ 18^d$. Hence the nodal motion in 148 years:

148·19 1/3 (= 47,41;20° = 2861 1/3) ≈ 2862 ≡ 342 mod. 360.

For the remaining time one estimates about 10° of nodal motion (indeed: 6·1;35 = 9;30° and 18·0;3 = 0;54°); thus $\Delta\lambda$ = - 352° and

$\lambda(☊)$ = ♌ 0° - 352 = ♌ 8 .

Here (p. 30,6) should end Section 16. [4] The modern result would be about ♌ 5. —

17. Alternative Method

This method is based on the use of "steps" of 15° each, without, however, using this term explicitely; it first occurs in the next section.

The text is in bad disorder. The heading in 30,19 belongs to 30,6 ff. The second lines 30,11-18 are only a slightly different version of 30,27-34. The sentence 30,20-23 belongs to Section 18.

---

1) Cf. also CCAG 8,4 p. 239,14-21.

2) Brown's tables give ♋ 26;4,35. P.V. ♋ 26.

3) This equation assumes the Egyptian calendar; in the alexandrian calendar one would have A.D. 120 March 15 but no agreement with the lunar position ☽ 7 (cf. below).
A.D. 120 Febr. 8 = Hadr. 4 VII(e) 19 = Hadr. 4 VI (a) 13 i.e. the same date used for ☿(c) and ☿ in ch. 20.

After a short astrological introduction about the significance of the nodes we return to the example Hadrian 4 VII 19. The terminology is very misleading and unclear. The text speaks of "latitudes" when actually "steps" of 15° are meant; and what ἡμερησία means (30,30) I do not know. Only the formal mechanism of the procedure is clear. Two "steps" (though not so called) are introduced:

(1) $B_0 = 12;18$ and $B_1 = 11;37$.

B_0 concerns the epoch, B_1 the interval of 204 (days?) from epoch to the given date. Then one forms

(2) $B_0 + B_1 = 12;18 + 11;37 = 23;55$.

Since these quantities represent "steps" we have a corresponding

(3) $\Delta\lambda = 23;55 \cdot 15 = 358;45°$

and with it

(4) ♌ 0° + $\Delta\lambda$ = ♋ 28;45.

Now it is remarked that

(5) ♋ 28;45 − ♉ 0° ≈ 2^s 29°

and since the position of the moon (at the given date) is $\lambda_☾$ = ♍ 7 one finds the node ☊ from

(6) λ(☊) = ♍ 7 − 2^s 29° = ♌ 8°

in agreement with Section 16.

A trivial variant of the procedure (1) to (4) consists in the following arrangement (30,27 − 33): Form:

$$B_0 \cdot 15 = 12;18 \cdot 15 = 184;30 = \Delta\lambda_0$$

and with it

$$♌\ 0° + \Delta\lambda_0 = ♒\ 4;30.$$

Then again

$$B_1 \cdot 15 = 11;37 \cdot 15 = 174;15° = \Delta\lambda_1$$

and with it

$$♒\ 4;30 + \Delta\lambda_1 = ♋\ 28;45°$$

as in (4). This result is called the "zodiacal sign of the latitude" (30,27 and 30,34).

Where B_0 and B_1 come from, I do not know. If the interval 204 really means days we would find from (1) that the daily increment of B is exactly

0;3,25 steps or 0;51,15° per day.

Consequently $B_{\odot}$ would correspond exactly to an interval of 216 days.

The position ♉ 0° in (5) is in all probability the longitude of the moon at epoch (Augustus 1 I 1); modern computation would give about ♉ 20. Similarly ♍ 7 is the lunar longitude for the given date (Hadrian 4 VII 19); the modern value is about ♍ 2. (Tuckerm.)

The lunar nodes are ♌ 0 for epoch, as we know from Section 16, and ♋ 8 for the given date. The significance of the point ♋ 28;45 completely escapes me.

18. On the "Steps" and the "Winds" of the moon

First the "winds" are defined as associated with the four quadrants, starting with ♌ 0° to ♍ 0° as "northerly downgoing". The ♐ follows "southerly downgoing" - "southerly upgoing" - "northerly upgoing". The pattern is the same as in III,4 (p. 140,4 - 28) but the starting point in III,4 is the "exaltation" of the moon, ♉ 3, not, as here, the position ♌ 0° of the ascending node in the year Augustus 1.

Thereafter "steps" are defined as representing 15° of longitude, also starting at ♌ 0° - in III,4 correspondingly with the exaltation.

Again the example of the preceding sections is used with the only difference that now right away 2 steps are counted as one zodiacal sign (p. 30,20 - 22 and p. 31, 6 - 11). Thus

$$B_0 + B_1 = 12;18 + 11;37 = 23;55 = 11^s + 1;55 \cdot 15^\circ = 11^s + 28;45^\circ$$

and instead of (4)

$$\text{☌}\ 0 + B_0 + B_1 = \text{☌}\ 0^\circ + 11^s + 28;45^\circ = \text{♋}\ 28;45$$

as before. The text p. 31,11 says incorrectly "Cancer 1;55 degrees" but the correct final result is given on p.30,22.

It is clear that ♋ 28;45 belongs to the 6th "step" in the last quadrant, i.e. to a "northerly increasing" wind.

§17

$23;55 = 2 \cdot 11 + 1;55$

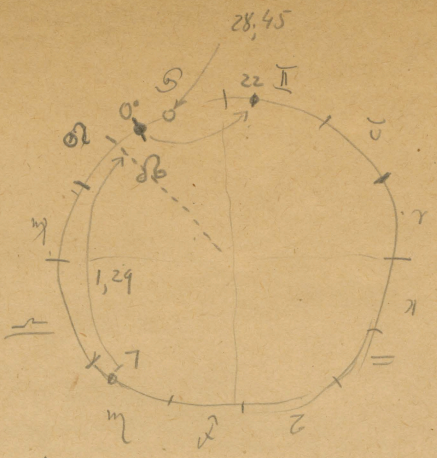
$\approx$ 11 zodiacal signs, counting each sign for 2.[3]

♌ 0° + 11 signs = ♎ 30

$1;55 \cdot 15 = 28;45$ ♎ 30 + 28;45

(factor $15 = \frac{30}{2}$ corresp. to 1 sign ≈ 2)

= ♋ 28;45 $\approx$ ♉ 1;29



λ_a = ♍ 7
− 1;29
♌ 8 = ♌

Consider, for this whole section §16/17 Pap. Ryland I No. 27

5) Perhaps to be emended in: ♌ 0° − 1;55 = ♋ 28;5 which is indeed in the 6th step N.up (whereas ♋ 1;55 is in the 5th step.)

4) Same parameters as in §16 Example b).

3) Probably 'steps' of 15° each.

1) cf. §16.

2) cf. for the 'steps' also the "Planetenuhr" CCAG 8,2 p. 154 ff and p. 172 ff where the moon is related to ἀναμέτρητος βαῆνος "land-measuring steps".

*) For another scheme cf. CCAG II p. 135

cf. for the relation of winds*) and latitude of the moon Tetrabiblos II 12 (p. 213 Robbins) "... in the direction of those winds towards which the latitude of the moon is found to be inclining". This ♌ ↔ ♉ northern lat., ♒ ↔ ♋ southern latitude.

Hadrian 4 VI (a) 13 = VII (e) 19 = 120 Febr. 8

zodiacal sign of latitude:

given position 12;18[4]

$12;18 \cdot 15 = 3,4;30 = 184;30$

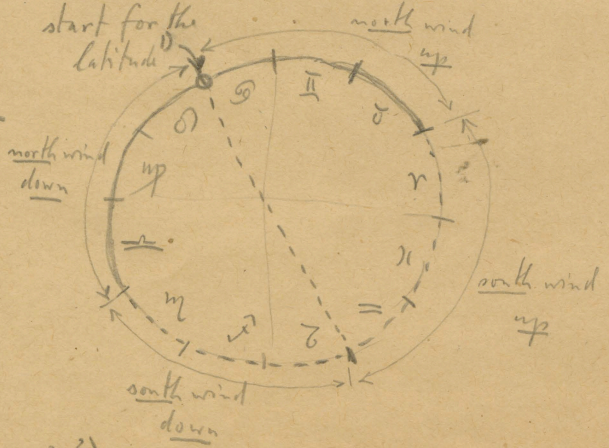
♌ 0° + 184;30° = ♒ 4;30°

⟨20⟩4^d $\approx$ 11;37[4]

$11;37 \cdot 15 = 2,54;15 = 174;15$

♒ 4;30 + 174;15 = ♋ 28;45

§18



1 'step' = 15°[2]

2) i.e. in second half of ♋ Corresponding to the result in §17: ♋ 28;45

Example of §§16/17: arg. d. latitude = 23;55.

♌ 0° − .... = ♋ 1;55[5] (sic! cf. §§16,17 where not ♋ is associated with 1;55)

thus ☾ in 6th step of north wind up[2]

given year (of a living king)[1] + preceding regnal years[2] = t

form $\frac{t}{3}$ rest 1
rest 2 add $\tau = \left\{ \begin{matrix} 10 \\ 20 \\ 0 \end{matrix} \right\}$ to t $\quad (t + \tau = t')$
rest 3

m = number of months from Thoth

form $\frac{m}{2}$ (because 1 month = $30^d = 29\frac{1}{2}^d + \frac{1}{2}$)

d = number of days in given month

from $t + \tau + \frac{m}{2} + d \equiv \delta \mod 30$

$\lambda_\odot - \delta = \lambda_\leftmoon$ if later

$\lambda_\odot - (2+\frac{1}{2})\delta = \lambda_\leftmoon$ if in advance

1) Should be, of course, $n-1$ for a day in year n

2) According to the following table, hence reduced to the era Augustus

---

similarly the day of birth

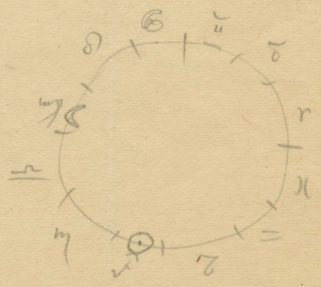
as before t and $\frac{t}{3} \to \tau$ and form $\Delta = t + \tau + \frac{m}{2}$

compare Δ with (the time of) $\lambda_\odot - \lambda_\leftmoon = t_\lambda$

if $t_\lambda > \Delta$ $\quad t_\lambda - \Delta = d$

if $t_\lambda < \Delta$ $\quad (t_\lambda + 30) - \Delta = d$

if $t_\lambda = \Delta$ $\quad \lambda_\leftmoon = \lambda_\odot$ i.e. conjunction



Example 1) Hadrian 3 Athyr (III) 28 $\quad m = 3 \quad d = 28$

$3 + 2$ (of the prec. years) $= 5 = t$

$\frac{t}{3} = \frac{5}{3} = 1 + \frac{2}{3}$ rest 2 thus $(5) + 20 = 25 = t'$

$m = 3 \quad \frac{m}{2} = 1 + \frac{1}{2} \quad \frac{m}{2} + d + t' = 1 + \frac{1}{2} + 28 + 25 = 54\frac{1}{2} \equiv 24\frac{1}{2} \quad (30)$

thus ☾ $24\frac{1}{2}$ days from ♈ $\quad \lambda_\odot = ♐ \quad \lambda_\odot - (2+\frac{1}{2}) \cdot 24\frac{1}{2} = 61\frac{1}{2} = ♍ = \lambda_\leftmoon$

Example 2) (Again Hadrian 3 Athyr (III) but $\lambda_{\odot} = \nearrow$
$\lambda_{☾} = \mathfrak{m}$)

$3 + 2$ (total up to Trajanus) $= 5 = t$

$\frac{5}{3} = 1 + \frac{2}{3}$ thus $\tau = 20$ $t' = t + \tau = 25$

$\frac{m}{2} = \frac{3}{2} = 1 + \frac{1}{2}$. thus $\Delta = t' + \frac{m}{2} = 26\frac{1}{2}^{d}$

$t_\lambda \doteq 24\frac{1}{2}^{d}$ (cf. preceding example)

$t_\lambda = 24\frac{1}{2} < 26\frac{1}{2} = \Delta$

thus $(t_\lambda + 30) - \Delta = 54\frac{1}{2} - 26\frac{1}{2} = 28 = d$

In the following table of regnal years the totals are reduced mod. 30 if they are > 30 and mod. 19 for $19 \leq t < 30$.

NB $19 + 11 = 30$ related to 19-year lunar cycle? Perhaps $11 =$ epact?

Augustus	43	1 + 43 = 44 ≡ 14	mod. 30		
Tiberius	22	14 + 22 = 36 ≡ 6	30		
Gaius	4	6 + 4 = 10			
Claudius	14	10 + 14 = 24 ≡ 5	19		
1) Neron	14	5 + 14 = 19 ≡ 0	19	30 ≡ 11 mod. 19	
1) Vespasian	10	11 + 10 = 21 ≡ 2	19		
1) Titus	3	3 + 2 = 5			
Domitian	15	5 + 15 = 20 ≡ 1	19		
Nerva	1	1 + 1 = 2			
Trajan	19	2 + 19 = 21 ≡ 2	19		
Hadrian	21	2 + 21 = 23 ≡ 4	19		
Antoninus	23	4 + 23 = 27 ≡ 8	19		
Ant. + Comm.	32	8 + 32 = 40 ≡ 10	30		
Sever. + Ant.	25	10 + 25 = 35 ≡ 5	30		
Antoninus	4	5 + 4 = 9			
Alexander	13	9 + 13 = 22 ≡ 3 (!)	19		
Maximinus	3	4 (!) + 3 = 7			
Gordianus	6				
Philippus	6	7 + 6 + 6 = 19 ≡ 0	19		

Cf. the regnal canon P Ryl. 27 (Catal. I, p. 51/52) and P Oxy 35 verso (vol. I p. 75/76)

1) This is the norm of the Ptolemaic Canon, ignoring Galba and giving Titus 3 years.

ad § 19

Epoch: conjunction Augustus -1 I 0 [1]

t = number of years since epoch, reduced mod. 19 because 19-year cycle restores conjunctions.

The elongation $\lambda_\varsigma - \lambda_\odot$ increases 12°/d thus 1° in 2½ days. [*]

[*] Essential idea of Jacques Heyman

Find the numbers of days since last conjunction:

m = current month; each month begins ½ days later with respect to conjunction, thus total delay since Thoth $\frac{m}{2}$ [2].

$$\tau = \begin{cases} 10 \\ 20 \\ 0 \end{cases} \text{ if } t \equiv \begin{cases} 1 \\ 2 \\ 0 \end{cases} \text{ mod. } 3$$

each year begins 11 days later with respect to conjunction thus 10+1 days for one year, 20+2 days for 2 years. A whole month of 30 days is intercalated after 3 years. Thus delay in 3 years 3 days.
Hence delay in t years $t + \tau$ days.

d = number of days in current month.

Thus total delay since last conjunction

$$\frac{m}{2} + t + \tau + d = \delta$$

if necessary reduced mod. 30

Hence elongation:

(1) $$\boxed{\lambda_\varsigma = \lambda_\odot - \frac{\delta}{2\frac{1}{2}} \text{ zod. signs}}$$

Text: (1) was probably given in two forms: a) in form (1) if λ_ς was to be found after a conjunction and b) in form $\lambda_\varsigma = \lambda_\odot + \frac{\delta}{2\frac{1}{2}}$ zod. s. if before next conjunction.

1) As in P. Ryl. 27 + ...

2) Should be $\frac{m-1}{2}$ for the current month m but text uses $\frac{m}{2}$.

The reduction mod. 30 in the definition of δ was incorporated (incorrectly) in the counting of t by reducing the number of regnal years mod. 30 if they are greater than 30.[3)]

The alternative formula (1) seems to have been given erroneously in the form

$$(2) \qquad \lambda_\odot - \lambda_☾ = \delta$$

This seems confirmed by the inverse problem: given $\lambda_\odot$ and $\lambda_☾$ find the date d of the current month. The text says: form

$$\frac{m}{2} + t + \tau = \Delta$$

and compare it with

$$t_\lambda = \lambda_\odot - \lambda_☾$$

Then we find

$$t_\lambda - \Delta = \lambda_\odot - \lambda_☾ - \left(\frac{m}{2} + t + \tau\right)$$
$$= \lambda_\odot - \lambda_☾ - \delta + d$$

Assuming (2) we have:

if $t_\lambda = \Delta$ then $d = \delta - (\lambda_\odot - \lambda_☾) = 0$ (or 30) conjunction[4)]

$t_\lambda > \Delta$ " $t_\lambda - \Delta = d$

$t_\lambda < \Delta$ " $(t_\lambda + 30) - \Delta = d$

3) This is probably the cause for the date discrepancies observable in P. Ryl. 27 + P. Lund 35a.

4) Should be "new moon" not "conjunction" i.e. first of month

<u>Example</u> for (1):

Hadrian 3 III 28

$t = 3 + 2 = 5$ (using table) $t \equiv 2 \pmod 3$ thus $\tau = 20$

$m = 3$ $d = 28$

$\frac{m}{2} + t + \tau + d = 54;30 \equiv 24\frac{1}{2}^d = \delta$ mod. 30

Thus

$$\lambda_☾ - \lambda_\odot = \frac{24;30}{2;30} = 9;48^s = 9^s + 24^\circ$$

If $\lambda_\odot = \nearrow 0$ then $\lambda_☾ = \text{♍}\ 24^\circ$.

Hadrian 3 = Augustus 148 III [a] 28 = 118 Nov. 24 = 1764485

$\lambda_{☾} = ♍\ 9;30$ $\lambda_{\odot} = ♐\ 2;10$

New Moons: 118 Nov. 1 $\lambda_{☾} = ♏\ 7;50$

118 Nov. 30 $\lambda_{☾} = ♐\ 7;50$

Nov. 24 - Nov. 1 = 23^d Text: $24\frac{1}{2}^d$

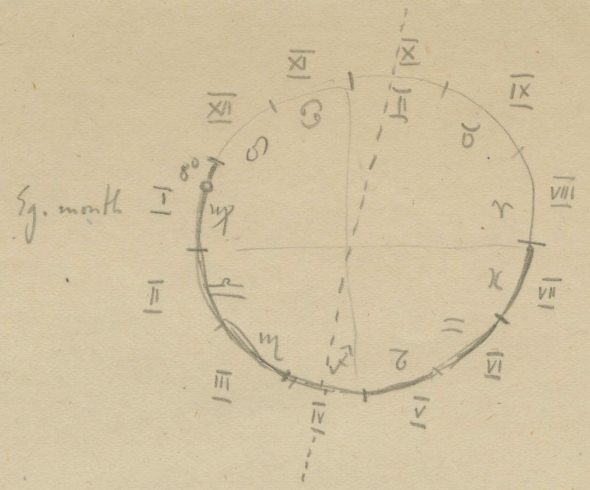
Royal Canon:

		Augustus	mod. 19	Aug. −2	Text
Augustus	43		5	7	14
Tiberius	22	65	8	10	6
Gaius	4	69	12	14	10
Claudius	14	83	7	9	5
Nero	14	97	2	4	0
Vespasian	10	107	12	14	2
Titus	3	110	15	17	5
Domitian	15	125	11	13	1
Nerva	1	126	12	14	2
Trajan	19	145	12	14	2
Hadrian	21	166	14	16	4

§ 20

Thus Thoth 1

$\approx \lambda_{\odot} = \text{♍}\ 8^\circ [= 158^\circ$ [1]



solar velocity 30°/m in ♍ → ♓

with 8° for equinoxes

then 29°/m in ♈ → ♌

total : $7 \cdot 30 = 210^\circ$

$5 \cdot 30 - 5 = 145$

$= 5$ epagomene $= \underline{5}$

360°

1) Cf. Paulus Alex. p. 79, 15 (ed. Boer) + apparatus which gives variant 156. The latter is supported by the Heliodorus comm. to Paulus (p. 90, 11).

Planets:

1) ♄

t years from Aug.

m months d days

$t = \alpha \cdot 30 + \beta.$

$\gamma = \alpha \cdot 5 + \beta \cdot 12 + m \cdot 1 + d \cdot \frac{1}{32}$

$\text{♋}\ 0^\circ + \gamma = \lambda_{♄}$

1 sign = 30°

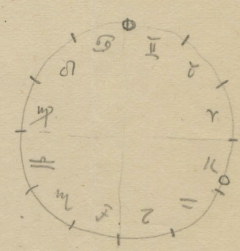
Example: Trajan 13 Phamenoth (VII) 18

= Aug. 139 VII 18

♄ $t = 138 = 4 \cdot 30 + 18$

$\gamma = \begin{pmatrix} 4 \cdot 5 + 12 \cdot 18 \\ 20 + 216 \end{pmatrix} + 7 = 243$

$\text{♋}\ 0^\circ + 243 = \text{♓}\ (3)$



2. ♃

$t = \alpha \cdot 12 + \beta$

$\gamma = \alpha + 12\beta + 1 \cdot m + (\frac{1}{5} + \frac{1}{9})\, d$

$\text{♉}\ 0^\circ + \gamma = \lambda_{♃}$

1 sign ≈ 12°

Example:

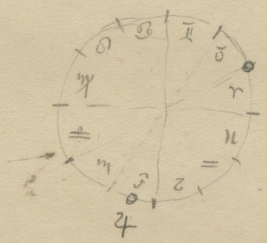
$t = 138 = 11 \cdot 12 + 6 \qquad m = 7$

$\gamma = 11 + \underset{(72)}{6 \cdot 12} + 7 = 90$

$(90 : 12 = 7$ zod. signs $+ 6^\circ)$

$\text{♉}\ 0 + (7$ signs $= \text{♍}\ 30$

$6 \cdot \frac{30}{12} = 15$ thus $\text{♍}\ 30 + 15 =)\ \text{♐}\ (15)$



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3. ♂

$t = \alpha \cdot 30 + \beta$. $\beta \begin{cases} \text{even} = \beta_1 & (\Upsilon) \\ \text{odd} = \beta_2 & (\simeq) \end{cases}$

$\gamma = 2\beta + (2+\frac{1}{2})m \equiv \gamma' \mod 60$

$\left.\begin{matrix} \Upsilon + \gamma_1' \\ \simeq + \gamma_2' \end{matrix}\right\} = \lambda_{\sigma'}$

↑ 1 sign ≈ 5°

Example:

$t = 139(!) = 4 \cdot 30 + 11(!)$

$\beta_2 = 11 \rightarrow$ odd thus $\simeq$

$2\beta_2 = 22$

$m = 7 \quad (2+\frac{1}{2})m \approx 17$

$\gamma_2 = 22 + 17 = 39$

$39 : 5 = 7 \; 4$

$\simeq 0° + 7$ signs $= \Upsilon 30$

$4 \cdot \frac{30}{5} = 24 \qquad \frac{24}{\sigma 24°}$

1) The date is called "epoch" the zodiacal sign "stationary point". Cf., e.g., p. 36, 16

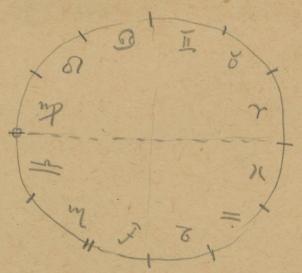
4. ♀

$t = \alpha \cdot 8 + \beta$

if $\beta = 1, 3, 4, 6, 7$ (and 8) stationary

if $\beta = 2, 5$ direct

$\beta = 1$	Phamenoth (XII)	10	in ♈ 1)
3	Phaothi (II)	10	♐
4	Payni (X)	22	♌
6	Tybi (V)	8	♑
7	Mesore (XII)	14	♎



Example:

(1) $t = 139(!) = 17 \cdot 8 + 3$

$\beta = 3$ ∴ stationary Phaothi (II) 10 ♐

from Phaothi (II) 10 to 30 : 20 d

Athyr (III) to Mechir (VI) : 120 d

given date: Phamenoth (XII) 18 : 18 d

158 d

− 120

38

38 : 25 = 1 + 13/25

♂ 0° + 1 sign + 15; 36 = ♒ (15; 36)

$\frac{30}{25} \cdot 13 = 15; 36$

Example:

(2) Hadrian 4 Athyr (III) 30

$t = 148 = 18 \cdot 8 + 4$

$\beta = 4$ ∴ Payni (X) 22 ♌

this is later than Athyr (III) 30

therefore return to

$\beta = 3$ ∴ Phaoti (II) 10 ♐

rest of Phaoti 20

from Athyr 30 to Mesore 30: 300

epagom. 5

325 of the preceding year

I, 1 until III, 30 90 " " actual year

415

− 120

295

295 : 25 = 11 + 20/25 · 30 ♂ 0° + 11 signs + 20 = ♐ 20

275

20

should be $20 \cdot \frac{30}{25} = 24$ =

Example:

(3) Hadrian 4 · Mechir (VI) 13

♀: $t = 149\,(!) = 18 \cdot 8 + 5^{-}$

$\beta = 5$ not stationary

preceding stat. pt. $\beta = 4$ :: Pagni (X) 22 ♌

rest of Pagni	8
Epiphi (XI)	30
Mesore (XII)	30
epagomen	5
	73
from I, 1 to VI 13	163
	236
	− 120
	116



$116 : 25^{-} = 4 + \frac{16}{25^{-}}$

should be $16\frac{30}{25} = 19;12$

~~♍~~ 0° + 4 signs + 16 = ♉ 16

☿: from I, 1 to VII, 13 163^{d}

$+ \quad 162$

325

$325 : 30 = 10 + \frac{25}{30}$

correct because $25\frac{30}{30} = 25$

♈ 0° + 10 signs + 25 = ♒ 25

I,23,24. The Duration of Pregnancy.

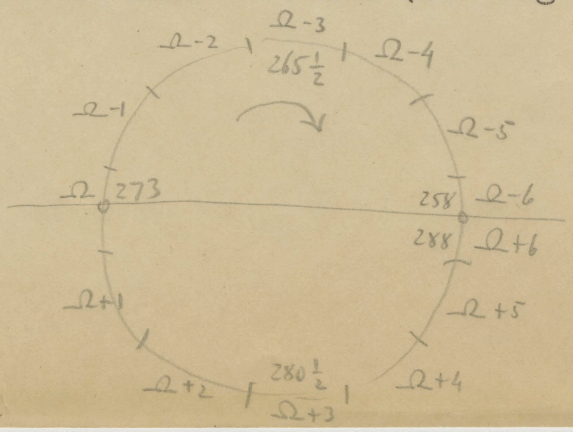
It is evidently the purpose of these two sections to meet the objection that the constellations at birth are of no significance because not the moment of birth but conception marks the beginning of human life. Ptolemy discards this point with a few remarks[1] whereas here a method is described to find the moment of conception by means of the position of

1) Tetrabiblos III,1 (Robbins 222/3 f.).

the moon at birth. It is my impression that the origin of this speculation can be found in the discussion of I,24. Following, however, the arrangement of the text we shall first describe the rules set forth in I,23.

Pregnancy is assumed to range normally between a minimum of 258^d and a maximum of 288^d with the mean value 273^d. Then the duration of pregnancy is computed as follows: the mean value corresponds to a position of the moon in the horoscopic sign at birth; the duration of pregnancy decreases linearly with the distance of the moon from the horoscope for the upper part of the ecliptic, but increases for the lower part of the ecliptic.

In other words: let Ω denote the horoscopic sign at birth, $\Omega - 1$, $\Omega - 2$, ... the preceding signs in the upper hemisphere, $\Omega + 1$, $\Omega + 2$, ... the subsequent signs in the lower hemisphere. Then we obtain the following table for the duration t of pregnancy as function of the position of the moon at birth (cf. Fig.):



corresponds to a lunar position λ we find for a lunar position λ' degrees distant the value $t = 273 \mp \frac{\lambda'}{30} \cdot 2\frac{1}{2}$ following our previous rule that t decreases (increases) by $2\frac{1}{2}^d$ for each zodiacal sign of the upper (lower) hemisphere, measured from Ω. This gives for the date of conception the formula

$$(1) \qquad t(c) = t(b) - t = t(b) + 92 \pm \frac{\lambda'}{30} 2\frac{1}{2} .$$

It is a rule of this type which we find applied in several examples.

As mentioned before section 24 seems to contain a hint towards a possible explanation of the ideas underlying this whole theory.[1] If we

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1) The mean value 273^d for the duration of pregnancy seems to have no foundation in the Egyptian tradition. The Edfu calendar puts the birth of Horus (on a second lunar day) 289^d after the conception (on a 29th lunar day); the Myth of Horus counts five days less. [I owe this information to Dr.R.Parker.] P.Lond. 130 gives 276 days; perhaps 3 days were added to the 273 days of pregnancy because of a doctrine mentioned by Bonnet-Lieder AG p. 488 n.1e.

compute the mean movement of the moon for 273 days (using $13;10,35^{o/d}$ as mean value of the daily movement) we obtain $59,57;9,15^o$ i.e. almost exactly 10 complete rotations or identical positions for t(b) and t(c). This fact may have suggested 273^d as the ideal mean value; the deviation of $\pm 15^d$ might then be considered as the equivalent of half a month more or less which would bring the moon at t(b) and t(c) in opposition. Finally a comparison is made with the moon one year before and one year after conception which corresponds closely to 13 rotations and 120°, thus producing a triangular aspect. Speculations of this type are contained in the first part of section 24. The remaining part of the section deals in a sketchy way with the case of birth seven months after conception.

of the more accurate values Zoroaster frgm. D15a (below p. -30-)

Details

50,6-17. The three values for pregnancy are given

$m = 258^d$ if moon setting after sun set

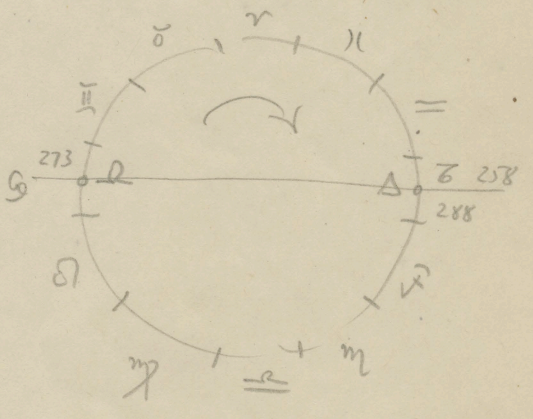
$\mu = 273^d$ if moon in Ω

$M = 288^d$ if moon in Δ

(This means, of course, that m holds for a position of the moon just above Δ, M below Δ.) Consequently the values for intermediate positions can be found by adding to 273^d (or subtracting from it) $2\frac{1}{2}^d$ for each zodiacal sign of elongation from Ω.

50,17-24. Example: values of t for each zodiacal sign, assuming that $\Omega = ♋$, $\Delta = ♑$. (Cf. Fig. [illegible].) The setting sign (Δ) is subdivided into two parts: above the midpoint we have $t = 258^d$, below the midpoint $t = 288^d$.

50,25-32. Example: t(b): Nero 8, Mesore (XII) 6/7, 11^h (astronomical counting from noon to noon; the equivalent in the Egyptian civil calendar is Mesore 6 11^h); moon in ♎, $\Omega = ♋$. Hence (according to the preceding example) $t = 280^d\ 12^h$. Now $365^d - 280^d\ 12^h = 84^d\ 12^h$. Thus t(c) = Mesore (XII) $6^d\ 11^h + 84^d\ 12^h$ = Phaophi (II) $2(5)^d$ ~~XXX~~ 23^h.[1] Check: From



1) Cf. the section on textual criticism.

Phaophi (II) 2(6)[1] to Mesore (XII) 6 elapsed 280^d. (This number is accurate enough for the computation of the position of the sun; cf. 52,24-29.)

50,32- 51,18. General rule. Let λ denote the longitude of the moon at birth, Ω and Δ the corresponding longitudes of horoscope and setting point. Then the duration t of pregnancy can be found as follows according to four possible cases:

a) Moon in upper hemisphere. $\lambda' = \lambda - \Delta$. Then $t = m + \frac{\lambda'}{30} \cdot 2\frac{1}{2}$.

b) (Moon in upper hemisphere.) $\lambda' = \Omega - \lambda$ Then $t = \mu - \frac{\lambda'}{30} \cdot 2\frac{1}{2}$.

c) Moon in lower hemisphere. $\lambda' = \lambda - \Omega$ Then $t = \mu + \frac{\lambda'}{30} \cdot 2\frac{1}{2}$.

d) (Moon in lower hemisphere). $\lambda' = \Delta - \lambda$ Then $t = M - \frac{\lambda'}{30} \cdot 2\frac{1}{2}$.

51,19 - 28. Example: t(b): Hadrian 10 Mechir (VI) 13/14 1^h day (astronomical counting equivalent to Mechir 14 1^h in the Egyptian civil calendar); $\lambda = \eta$ 7, $\Omega = \mathrm{mp}$ 7. Thus moon below horizon, (cf. Fig. III) hence

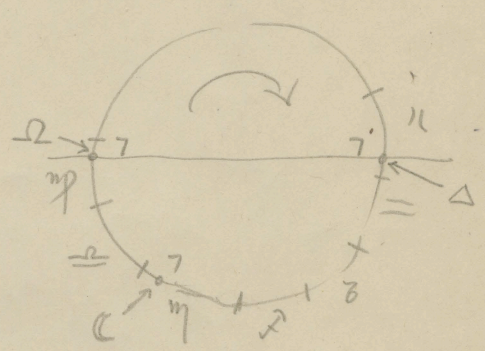
(case c) $\lambda' = \lambda - \Omega = 60^o$

$\frac{\lambda'}{30} \cdot 2\frac{1}{2} = 5$

$t = 273 + 5 = 278$

and (Mechir (VII) 14 - 278^d =)

Pachon (IX) 11 = t(c) .



51,28 - 32. Alternative solution of the preceding example, using for the computation of the date of conception a formula of type (1) p.26. Thus $92 - \frac{\lambda'}{30} \cdot 2\frac{1}{2} = 92 - 5 = 87$ and t(c) = Mechir (VI) 14 + 87 = Pachon (IX) 11 as before.

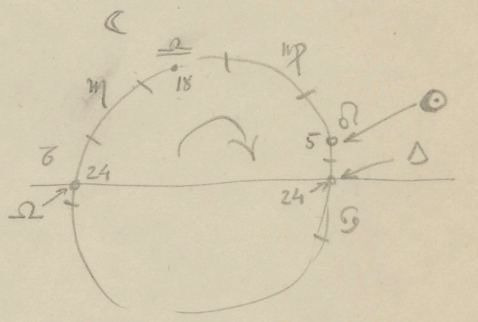
51,32 - 37. Alternative solution of the same example. According to case d): $\lambda' = \Delta - \lambda = 120^o$ and consequently $t = M - \frac{\lambda'}{30} \cdot 2\frac{1}{2} = 288 - 10 = 278^d$ as before.

52,1 - 8. Rule of type (1) for moon in the upper hemisphere (cf. case b). If $\lambda' = \Omega - \lambda$ then we have $t(c) = t(b) + 92 + \frac{\lambda'}{30} \cdot 2\frac{1}{2}$. Knowing t(c) and t(b) also t can be found (used in 52,24 - 29 for the computation of the solar position).

52,8-15. Rule of type (1) for moon in the lower hemisphere (cf. case c)). If $\lambda' = \lambda - \Omega$, then we have $t(c) = t(b) + 92 - \frac{\lambda'}{30} \cdot 2\frac{1}{2}$.[1)]

1) Cf. textcritical remarks.

52,16-24. Example: t(b): Trajan 17, Mesore (XII) 2 $11\frac{1}{2}^h$ day. Sun in ♌ 5, moon in λ = ♎ (18), Ω = ♉ 24 (cf. Fig. [illegible]). Hence moon in upper hemisphere (cf. case b)). Thus $\lambda' = \Omega - \lambda = 96^\circ$ thus $\frac{\lambda'}{30} \cdot 2\frac{1}{2} = 8$ and $t(c) = t(b) + 92 + \frac{\lambda'}{30} \cdot 2\frac{1}{2}$ = Mesore (XII) 2 + 92 + 8 = Athyr (III) 7. For the actual text cf. the textcritical remarks.



52,24-29. Continuation of the preceding example: find the solar position at t(c). If t(b) = Mesore XII (2) and t(c) = Athyr (III) 6[1)]

1) Cf. the textcritical remarks to the preceding paragraph.

then t = t(b) - t(c) = 266^d. Counting backwards 266° from the solar position ♌ 5 at birth one would obtain ♍ 9. The text says only that the sun is found in ♉, the horoscope. This error is probably caused by using ♎ 18, the longitude of the moon at birth, as starting point, because ♎ 18 - 266° = ♉ 22.which is the horoscopic sign.

52,30- 53,4. Three rules for finding the hour of conception are given. The details are not clear to me.

53,5-9. The title "On the seven-month(-children)" is insofar misleading as only a small part of this section (53,27-54,6) deals with birth after seven months. In general the problem seems to be to predict the duration of pregnancy but non assuming the moment of conception as known. Cf. the last textcritical remark.

53,10-17. If we call the position of the moon at conception c, the position one year before and one year afterwards -1 and +1 respec-

tively then the rule is given that pregnancy will be normal (i.e. 273^d) if -1, c, +1 form the triangular aspect. This is perhaps to be motivated by the observation that for the mean movement of the moon the same aspect would also hold for -1, b, +1 where b is the longitude of the moon at birth.[1)]

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1) Cf. above p. 23.

53,17-20. Quadrature of -1, c, +1 is considered as indicating shortest pregnancy (258^d).

53,20-23. Quadrature of c with one position , triangle with the other indicates t = 269^d. This figure is a new element; it might be significant that the mean moon moves in 269^d almost through 10 complete circles minus 60°.

53,23-28. If c is in quadrature with -1 but not related to +1 or both +1 and -1 are unrelated to c: the child will be non viable.

53,27- 54,6. Pregnancy will last 7 months only if +1 and -1 are diametrically opposite, or c and +1 or -1. The same will be the case if certain relations for the horoscope and the sun are satisfied.

Textual Criticism; Terminology

50,11/12: ἐν τῇ ἐπικαταδύσει τῆς Σελήνης οὔσης. It follows from the whole subsequent procedure that this must mean that the moon is in the west just before setting; hence the δυτικὴ μοῖρα is just above the setting point, in contrast to τῆς Σελήνης οὔσης ἐν τῇ δύσει (50,14) which is used for the position of the moon (exactly setting or) below the setting point.

50,15 and 17: μοίρας instead of ἡμέρας. The same error occurs in 25,15/16.

50,26: ὥρα ια΄. One should expect ἡμέρας ὥρα ια΄ as in 51,21.

50,28/29: τῶν τοῦ ἐνιαυτοῦ τξε΄ δ΄ ἡμερῶν; $365\frac{1}{4}$ is an error (later addition ?) for 365 because all computations are based on Egyptian years of 365^d only. This is also evident from this very passage where 280^d12^h are subtracted from the year and the result is given as 84^d12^h which requires a year of 365^d. The note in Kroll's apparatus "debebat ὧραι ς΄ " is wrong at any case because accepting the reading $365\frac{1}{4}$ the result would be 84^d18^h.

50,30: Kroll's note: "κξ΄ immo debebat λ΄ " is wrong. Mesore (XII) 6 + 84 = Phoophi (II) 25. Kroll obviously overlooked the epagomenal days. One has to restore κε΄ and not κξ΄.

50,31: κξ΄ : read κς΄ i.e. 26^d as approximation for 25^d23^h.

52,3 ἐκκρούσας : should be ἀναλαβών as in 51,4/5.

52,10/11 τὴν ἡμέραν : should be plural.

52,14/15: the whole sentence ᾗν προσθεὶς ... ὥρας does not belong here. It is a repetition of the rule $t = \rho + \frac{\lambda'}{30}\cdot 2\frac{1}{2}$ for case c) as given above in 51,14.

52,16-24: The elongation $\lambda' = \Omega - \lambda$ is said to be "approximately" 96°. This makes no sense because the positions are always given in full degrees even if the figure for the longitude of the moon is omitted here. Then it is said that 96 times $2\frac{1}{2}$ is $7\frac{1}{2}$ instead of 8. Probably the "Approximately" was intended to go after the $7\frac{1}{2}$, the scribe having not realized that the result is an integer. Otherwise 96 should be corrected to 90 and the position of the moon would have been ♎(24). Finally the text forms Mesore (XII) 2 + 99 = Athyr (III) 6 disregarding again $\frac{1}{2}$ day. Hence the final result is one day off the correct value.

53,10,13,16,18,26: γένεσις and γεννητικός must here refer to conception and not to birth, as usual. Yet conception is always σπορά on pp. 50-53. In 51,6,15,18 σπορά means duration of pregnancy.

Additional remarks to I, 23, 24.

According to CCAG 8, 2 (Hephaistion III, 6) p. 117, 1-3: "The followers of Petosiris say that the moon will be horoscopic in the same sign where she was found at the moment of conception; and where she passes by in the moment of birth there she will be horoscopic in the moment of conception".

R. Walzer, Galens Schrift „Über die Siebenmonatskinder"
Rivista degli Studi Orientali 15 (1935) p. 323 - 357.
Galen mentions 270^d or 273 $\frac{2}{3}$ ^{d} (p. 348).

Handbuch der Gynäkologie (Herausg. W. Stoeckel) XII, 1
Geschichte der Frauenheilkunde I
Paul Diepken, Die Frauenheilkunde d. alten Welt
München, J.F. Bergmann, 1937

Hermann Schoene, Galenos Schrift über die Siebenmonatskinder.
Quellen u. Studien z. Gesch. d. Naturwiss. u. d. Med. vol. 3 (1933)
p. 120 - 138

Censorinus, De die natali p. 16, p. 19: according to Pythagoras
7 months: 210 days "10-months-children": 274^d

Galen: between 190 and 200

Varro: 273^d (according to Aulus Gellius Noct. Att. III, X, 8)

F. Cumont L'opuscule de Jean Pédiasimos Περὶ
ἑπταμήνων καὶ ἐννεαμήνων Rev. Belge 2 (1923)
p. 5-21

"Zoroaster" frgm. O 15a (Bidez-Cumont, Mages II p. 162)

ordinary: $M = 4,48;20^d = 10 \cdot 27;20 + 15^d$

$\mu = 4,33;20^d = 10 \cdot 27;20^d$

$m = 4,18;20^d = 10 \cdot 27;20 - 15^d$

7-months-children:

$M = 3,26;20^d = 7 \cdot 27;20 + 15^d$

$\mu = 3,11;20^d = 7 \cdot 27;20^d$

$m = 2,56;20^d = 7 \cdot 27;20^d - 15^d$

Proclus In Plat. Rem. Publ. ed. Kroll II: p. 59,20 - 60,12

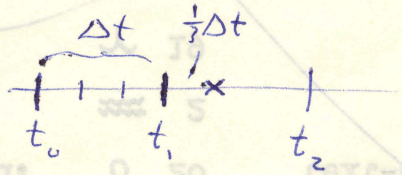
t_1 conception
t_0 preceding } conjunction
t_2 following } conjunction

$\Delta t = t_0 - t_1$

Rule: form $t_0 + \frac{4}{3}\Delta t = T$ if $T \begin{cases} > t_2 & 7\text{-month child} \\ < t_2 & 9\text{-month child} \end{cases}$

i.e. $T = t_1 + \frac{1}{3}\Delta t$

thus: if $\Delta t \begin{cases} > \\ < \end{cases}$ 3/4 syn. m. $\begin{cases} 9\text{-month child} \\ 7\text{-} \quad " \quad " \end{cases}$



III, 4

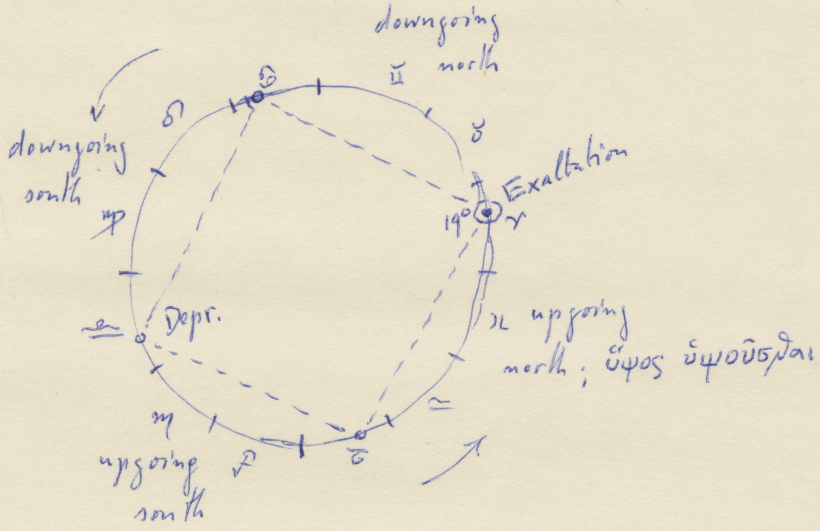
Kroll p. 140, 4 – 141, 15

Exaltations of the planets[1]: ☉ ♈ 19
☾ ♉ 3
♃ ♋ 15
♂ ♑ 28
♄ ♎ 21
☿ ♍ 15
♀ ♓ 27

Depressions: diametrically opposite

1) Kanonical positions but funny order of enumeration

Division of the zodiac according to the quadratures of the exaltation; e.g. for the sun:



Example for determination of winds

$\lambda_\odot$ = ♍ 22

quadrant: ♉ 19

$\Delta\lambda = 33^\circ = 2 \cdot 15 + 3$

Thus the ☉ is in 3rd wind at 3°, upgoing, north

Astrological consequences of "winds" thus found

Book IV

ch. 1, 3, 30 (p. 158 f. 205 f.)

IV, 1

p .... astronomically meaningful "period" (sidereal) of planets
+ 19^y for ☉ and 25^y for ☾ : total of these numbers : $129^y = \sum_1^7 p$

p/4 an artificial parameter for later use ; total: 32;15^y

$\frac{365;30}{129} = 2;50$ thus $2;50 \cdot \sum p = 365;30$ i.e. ≈ 1 year (in "days")

then "share" (ἐπιμερισμός) of a planet on ♄ is given by

IV, 3 :

$$\frac{p_{\text{♄}}}{4} \cdot 2;50 \cdot p_{\text{plan.}} = 7;30 \cdot 2;50 \cdot p_{\text{plan.}}$$

IV, 30 : repeats list of p and p/4 ; additional list of P i.e. the periods obtained from the total of ὅροι.

repeats (or completes) list of shares of ♄ (with inaccuracies and errors)

List of remaining combinations for "shares", e.g. for ♃

	IV, 1			IV, 3		IV, 30					
	p	p/4	2;50·p	♄: 7;30·2;50 p		p	p/4	P	♄ cf. IV, 3	♃: 3·2;50 p	
♄	30^y	7;30^y	[85^d]	637;30^d		30^y	7;30^y	57	637^d		
			1,25	10,37;30	10,37;30				10,37_		
♃	[12]	[3]	34	255		12	3	79	255	102	
				4,15	4,15				4,15	1,42	1,42
♂	15	3^y 9^m	42;30			15	3^y 9^m	66	318	127 12	
		3;45			5,18;45				5,18_	2,7	2,7;30
♀	8	2	22;40	170		8	2	82	368;18	67 12	
				2,50	2,50				6,8;18	1,7	1,8
☿	20	5	56;40			20	5	76	423;18	170 12	
					7,5				7,3;18	2,50	2,50
☉	19	4^y 9^m	52;50			19	4^y 9^m	120	433	161 6	
		4;45			6,36;15				7,13_	2,41;30	2,38;30
☾	25	6^y 3^m	70;50			25	6^y 3^m	108	531	212 6	
		6;15	1,10;50		8,57;15				8,51_	3,32;30	3,32;30
Σ	129^y	32^y 3^m	365;30^d					360°			
	2,9	32;15	6,5;30					+228			

VIII, 6

The first three section (p. 304, 2-22) deal with the computation of the rising times for ♈ ♉ and ♊ assuming the 2nd clima (Babylon) and System A. Accordingly we have

♈ rises in 20°

thus 1° in $\frac{2 \cdot 20}{60} = 0;40°$

Similarly one would obtain

♉	rising in 24°	thus 1° in	0;48
♊	" " 28°	" 1° "	0;56

By adding we obtain

♈	1° in 0;40	♉	1° in 20;48	♊	1° in 44;56
	2 1;20		2 21;36		2 45;52
	3 2;0		3 22;24		3 46;48
	4 2;40		4 23;12		4 47;44
	5 3;20		5 24;0		5 48;40
	etc.		etc.		etc.
	30° in 20°		30 in 44;0		30 in 72;0

All these rising times give the total from ♈ 0°.