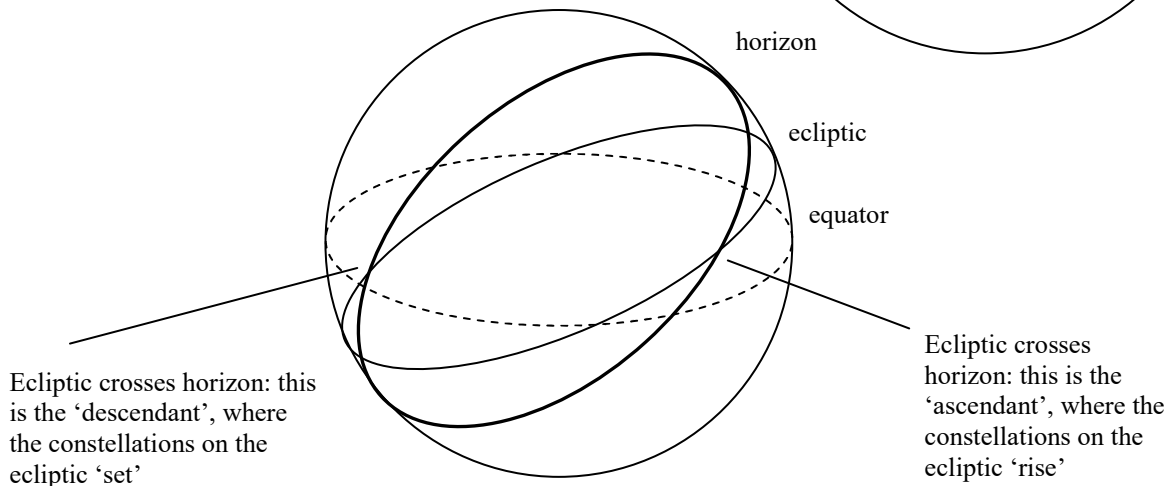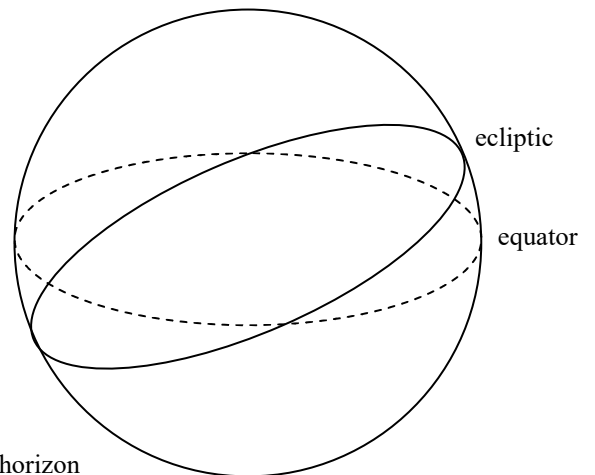# Astrology in the casebooks

Forman's and Napier's astrology was based on the zodiac – the group of constellations through which the sun moves on its apparent course around the earth. That course is a circle at some 23.5° to the equator, called the ecliptic. In the space of about a day, the constellations in the ecliptic rotate through 360° to return to their starting-point. One full rotation takes around 23 hours 55 minutes, so that at 9 AM today the constellations will be at the same position as at 9.05 AM yesterday. There is no seasonal variation.

ecliptic

equator

horizon

ecliptic

equator

Ecliptic crosses horizon: this is the 'descendant', where the constellations on the ecliptic 'set'

Ecliptic crosses horizon: this is the 'ascendant', where the constellations on the ecliptic 'rise'

The stars around the ecliptic were divided into twelve equally sized constellations – the signs of the zodiac – each sign occupying 30° of the full circle. These constellations move around the circle during the course of a day, so that each has a rising time and a setting time (just as the sun and moon do). The signs, in order, were: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius and Pisces. Geometrically, Aries was opposite (180° away from) Libra; Taurus was opposite Scorpio; Gemini was opposite Sagittarius; and so on.
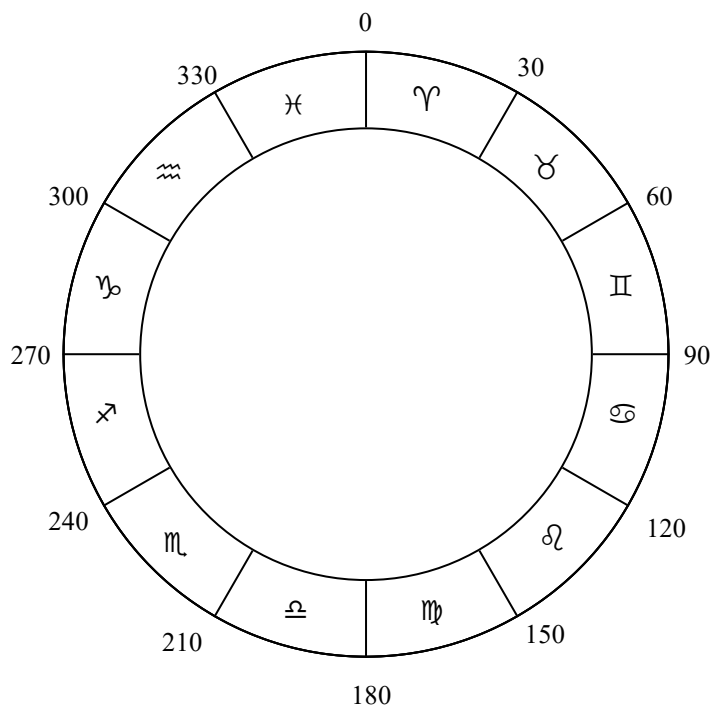
Dividing the ecliptic: Regiomontanus' method

Due north from the subject's point of view (on the horizon)

horizon

ecliptic

equator

The position of the zodiac with respect to the earth was described in terms of the 'houses', twelve areas of the ecliptic through which the constellations moved. There were different methods of determining where the houses were; the method used to draw up the tables used by Forman and Napier was that of Regiomontanus.
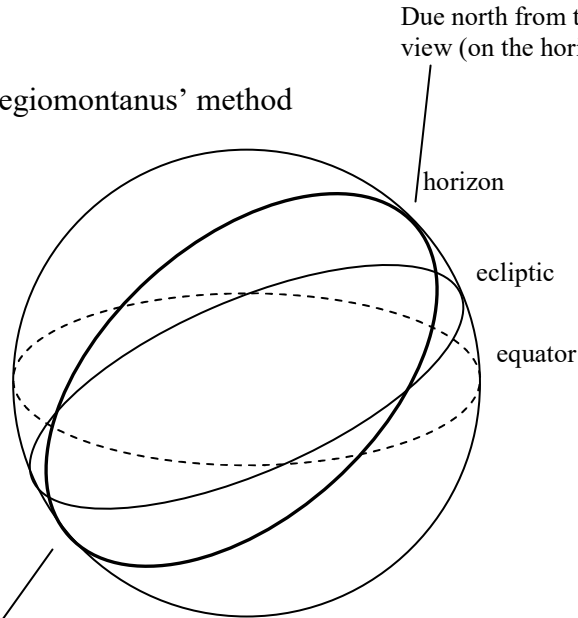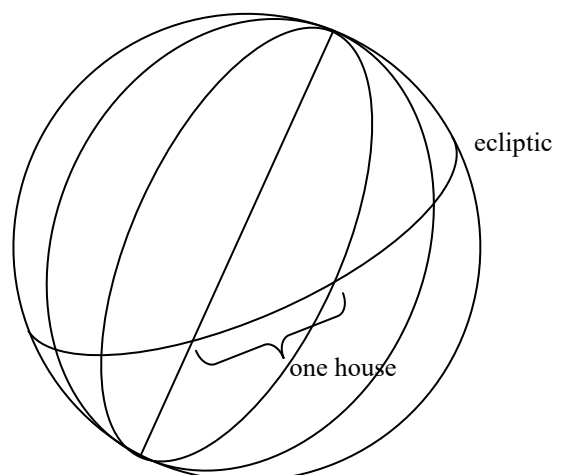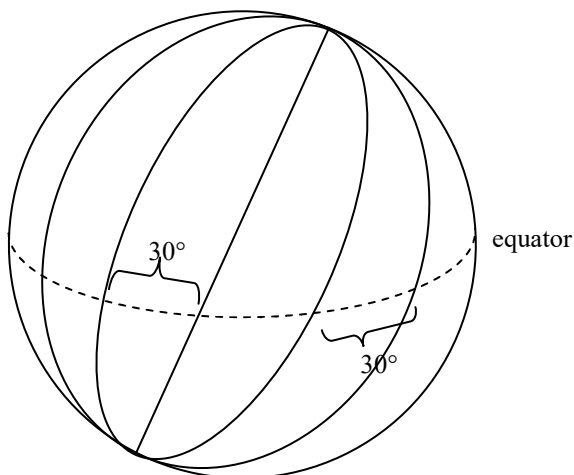
First, the northernmost and southernmost points on the horizon are marked (north and south from the subject's point of view). A 'great circle' drawn through these points will pass through the ecliptic and the equator. Note that these north and south points will only coincide with the earth's north and south poles if the subject is on the equator.
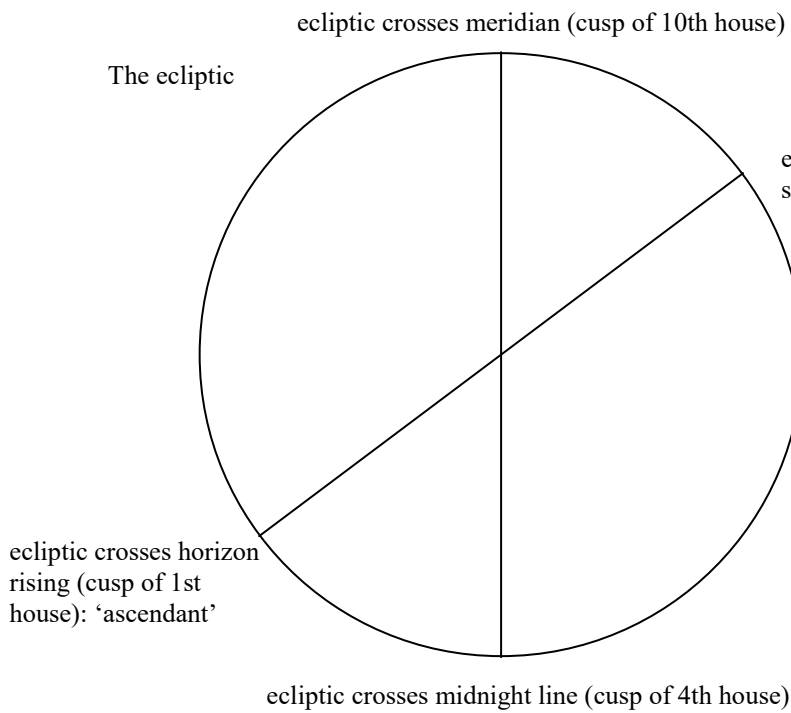
Due south from the subject's point of view (on the horizon)

great circle passing through horizon's north and south points
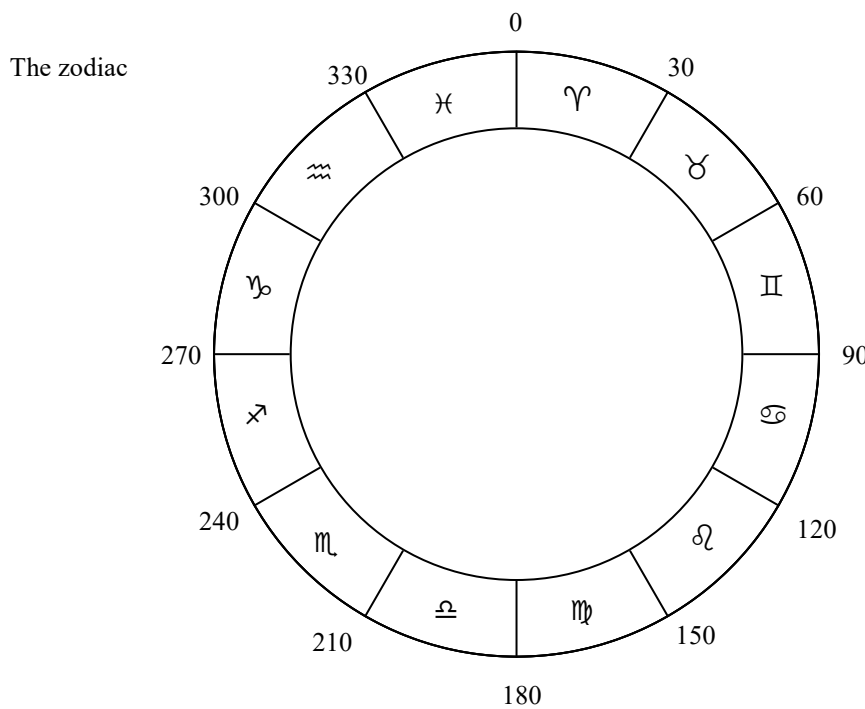
ecliptic

equator
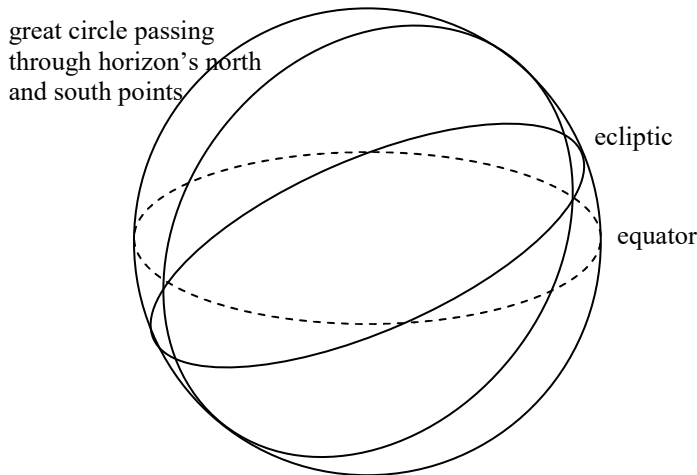
One of the great circles passing through the north and south points is the horizon itself; another, at 90° to it, is the meridian (which continues round on the other side of the earth as the 'midnight line'). Regiomontanus then added a further six great circles crossing the equator at 30° apart. To repeat, unless the subject is at the equator, the north and south points will not coincide with the poles so these lines will not run perpendicular to the equator but at an angle.

While these great circles cross the equator at evenly spaced intervals, because the ecliptic is at an angle to the equator the resulting divisions of the ecliptic (the houses) are *un*even. The effect is exaggerated at latitudes further from the equator (as the north and south points diverge increasingly from the poles). The result is that the houses range in size.

30°

equator

30°

ecliptic

one house

ecliptic crosses meridian (cusp of 10th house)

The ecliptic

ecliptic crosses horizon
setting (cusp of 7th house)

The 'houses' of the ecliptic are fixed for an observer at a particular latitude; the zodiac rotates through them. The 1st house begins at the ascendant, where the ecliptic crosses the horizon; directly opposite it is the 7th house (the descendant). The beginning of the 10th house (the meridian) is opposite the beginning of the 4th (the midnight line). The distribution of the houses around the circle is symmetrical so that the cusp (beginning) of house n is opposite the cusp of house $n+6$ (2nd opposite 8th, 3rd opposite 9th, and so on). This helps deal with the fact that only half of the houses are actually ever visible from any given position (7th to 12th); the remainder are below the horizon.

ecliptic crosses horizon
rising (cusp of 1st
house): 'ascendant'

ecliptic crosses midnight line (cusp of 4th house)

The zodiac

Compare that image with the zodiac: the zodiac is regular in distribution and the ecliptic isn't. More signs of the zodiac will fit into the three houses between the cusp of the 4th and that of the 7th than will fit into the three houses between the cusps of the 7th and 10th. The symmetrical nature of both figures is helpful in casting the figure. Work out where the zodiac is in relation to the cusp of the 1st house, and you know what to fill in for the 7th; if it's the 14th degree of Aries at the cusp of the 1st, you know it will be the 14th degree of Libra at the cusp of the 7th.

In the course of 23 hours and 55 minutes, then, the zodiac rotates completely through the twelve houses and returns to its initial position. Key to drawing up an astrological figure is determining where the zodiac is in this cycle. Calculated to the nearest degree, there are 360 different possibilities. The astrologer discovered the correct one using an ephemeris, which recorded where the planets were in relation to the zodiac at a particular time of day (usually noon). An example of a row from the table of an ephemeris corresponding to 1 December 1596 is shown below.

☉	☽	♄	♃	♂	♀	☿	☊
20 ♐ 7	5 ♍	22 ♍	1 ♉ 28	4 ♐ 40	3 ♏ 0	22 ♐ 46 Re	0 ♈ 36

The first column specifies that (at noon) the sun was 20° 7" into Sagittarius. However, we know that at noon, the sun is at the meridian, and we also know that the meridian is the cusp of the 10th house. So we know that the cusp of the 10th house at noon was 20° 7" Sagittarius (or 20° to the nearest degree). This can now be looked up in a 'table of houses', which lists cusps for 10th, 11th, 12th, 1st, 2nd and 3rd houses (recall that the remaining houses can be worked out once these are known).

Time from noon	10th house	11th house	12th house	1st house	2nd house	3rd house
17:16	20 ♐	3 ♑	21 ♑	5 ♓	5 ♉	5 ♊

The table gives a 'Time from noon' for when the 20th degree of Sagittarius is at the cusp of the 10th house: 17:16. In modern astrology this is sometimes called the 'sidereal time' (though this isn't a term to be found in Forman's writing), and it is a time that has been adjusted so that a complete cycle takes 24 hours rather than 23 hours 55 minutes (in other words, each 'sidereal' minute is very slightly less than a 'solar' minute). At a given 'sidereal time' the position of the zodiac will always be the same. At noon on 1 December 1596 the 'sidereal time' was 17:16. As Forman is casting not for noon but for 2:15 PM, he adds a further 2 hours 15 minutes onto this time (over this interval the difference between solar and sidereal time is negligible, so he does not adjust the 2 hours 15 minutes before adding). He then looks this time (or as near as he can find) up under the 'Time from noon' column to discover the cusps for 2:15 PM on that day:
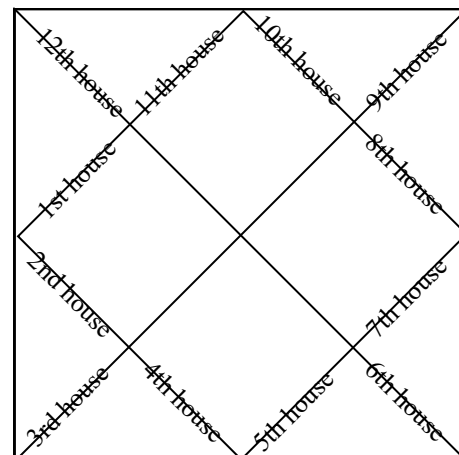
Time from noon	10th house	11th house	12th house	1st house	2nd house	3rd house
19:31	21 ♑	9 ♒	15 ♓	18 ♉	21 ♊	7 ♋

For morning times, the astrologer should (strictly) work from noon the previous day then add on twelve hours plus the time AM (so for 9 AM add 21 hours). Forman and Napier always seem to work from noon on the day in question instead.

Forman also tends to write this time down by the figure, perhaps to help him as he goes back and forth copying the relevant information out: '19 31'. On this occasion (vol. 1, f. 129v) Forman writes out the whole sum; while this is unusual for Forman, it is typical for Napier:

$$
\begin{array}{r}
17\ 16 \\
\underline{2\ 15} \\
19\ 31
\end{array}
$$

With the cusps of six houses for the correct time, Forman can begin filling in his chart. This is the type of chart he used, with the cusps identified. In filling such a chart in, he would copy the contents of each of the cells in the table (from '10th house' to '3rd house') onto the relevant lines.

The result for our example (the table row is reproduced again here) is below. The details present in the left hand chart are taken directly from the table; the opposite signs are then placed in the opposite houses to produce the right hand chart. Forman marks the ascendant (cusp of the 1st house) with the 'Ass' or 'Asst' (though this is rarely legible).

| Time from noon	10th house	11th house	12th house	1st house	2nd house	3rd house
19:31	21 ♑	9 ♒	15 ♓	18 ♉	21 ♊	7 ♋
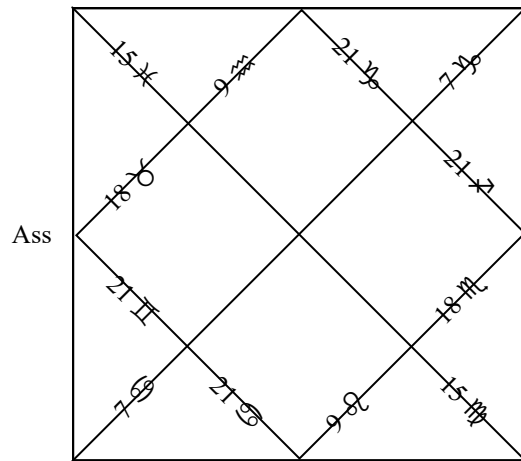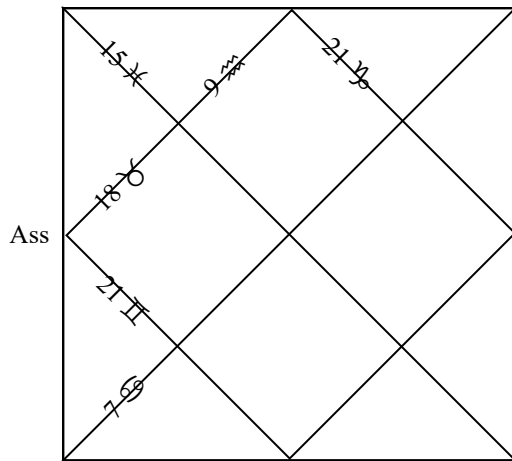
For the rest of the chart, we return to the ephemeris and its planetary positions for noon on the day in question:

☉	☽	♄	♃	♂	♀	☿	☊
20 ♐ 7	5 ♍	22 ♍	1 ♉ 28	4 ♐ 40	3 ♏ 0	22 ♐ 46 Re	0 ♈ 36

The 'caput draconis', 'dragon's head' or 'north node' (☊) is the point at which where the moon's orbit crosses the ecliptic on its way north; there is a corresponding 'cauda draconis', 'dragon's tail' or 'south node' (☋), where the moon's orbit crosses the ecliptic on its way south. Forman marked these on figures and discussed them in the way he discussed planets. (Note that the symbol for the north node is easily confused with that of Leo. In particularly careless writing Forman sometimes writes the north node as W and the south node as M.)

These planetary positions are now copied into the chart. Strictly speaking they should be adjusted for time; this is done by noting from the ephemeris how far a planet is moving in a day, then dividing this figure by 24 to give an hourly total. The distance moved in an hour is multiplied by the number of hours since noon and added on to the ephemeris figure. Forman and Napier do not seem to do this; where the planetary positions vary on a given day it seems usually to be down to differing degrees of precision in recording. The exception is the moon, which moves in the region of 12 to 14 degrees per day, or around half a degree each hour.
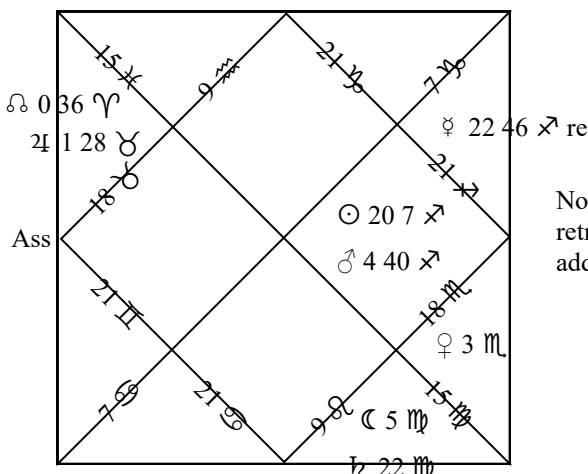
Note that the 'Re' by the position for Mercury indicates that it is retrograde; the planet is moving backwards. Forman dutifully adds 're' to the planetary positions where necessary.

Now the astrologer checks further details in the ephemeris and adds them below the chart (in the form shown on the right). Each month in the ephemeris has a second table, on which are listed lunar conjunctions and the like (the moon's 'aspects'). For 1 December 1596 it specifies that the moon is in square with Mars at 2 PM; the question was cast for just after this time, so that the two planets are moving away from square (i.e. 'separatur a'). For the following day, the ephemeris predicts that the moon will be square to the sun at 7:46 PM, so that on 1 December the moon is approaching or 'applying to' ('ap') square with the sun. (Note that on the chart Mars is listed as 4° 40" in Sagittarius, the moon 5° in Virgo; the two signs are about 90° apart.) The chart also tells Forman that there is a square between Saturn and Mercury. Interestingly, he adds that there is a conjunction between the sun and Mercury, and infers therefore a square between Saturn and the sun; but these are listed in the ephemeris for 2 December, not 1, so the conjunction should have 'ap' by it and the square between Saturn and the Sun may not have happened at all.

Luna sep[aratur] a ♂ ap □ ☉
□ ♄ ☿
♂ ☉ ☿
□ ♄ ☉

These are the different 'aspects' that can be noted:
♂ ('conjunction') indicates that two planets are at the same point along the ecliptic
☍ ('opposition') indicates that two planets are 180° apart
△ ('trine') indicates that two planets are 120° apart
□ ('quartile' or 'square') indicates that two planets are 90° apart
✳ ('sextile') indicates that two planets are 60° apart (note: in modern notation this asterisk is on its side)

One final detail remains to be added: above and below the 'Ass' or 'Asst' note midway down the left hand side of Forman's charts are usually two planetary symbols. The planet above is the 'lord of the ascendant'. Each sign of the zodiac has a planet as its 'lord': Mars is lord of Aries and Scorpio, for instance. (See the table for a list.) The planet that rules over the sign on the cusp of the 1st house is the figure's lord of the ascendant. In the case of our chart, the ascendant sign is Taurus, so the lord of the ascendant is Venus.

Aries	Mars
Taurus	Venus
Gemini	Mercury
Cancer	Moon
Leo	Sun
Virgo	Mercury
Libra	Venus
Scorpio	Mars
Sagittarius	Jupiter
Capricorn	Saturn
Aquarius	Saturn
Pisces	Jupiter

The other planetary symbol is the 'lord of the hour'. Just as the day had a planetary ruler (the moon for Monday, Mars for Tuesday, Mercury for Wednesday), so each hour had one too. The hours were unequal (that is, with a daytime hour as 1/12 of the daylight period, varying during the course of a year) and the first hour of the day (beginning at dawn) had the same ruler as the day. Subsequent hours were ruled by the planets in rotation: Saturn, Jupiter, Mars, sun, Venus, Mercury, moon (then back to Saturn). So on Monday the first hour was the moon, followed by Saturn then Jupiter then Mars; on Thursday Jupiter was the first hour, followed by Mars, sun, Venus (and so on). Note that Forman's records of when consultations took place use equal (so-called 'natural' or clock) hours; it is only his record of the ruling planet that observes unequal hours. Occasionally this piece of information is missing from an entry. Our entry was in the hour of Saturn, the tenth hour on a Wednesday at the height of Winter when daytime hours were around 39 minutes long in our terms.

The chart is now complete: it shows the position of the zodiac at the time in question, and the positions of the planets on that day; it lists their aspects. It makes explicit the lord of the ascendant and the lord of the hour. Using these indicators, and with the twelve houses as a framework (each house having particular significations depending on topic), the astrologer provides an interpretation.

☊ 0 36 ♈
♃ 1 28 ♉
♀
Ass
♄
☿ 22 46 ♐ re
☉ 20 7 ♐
♂ 4 40 ♐
♀ 3 ♏
☾ 5 ♍
♄ 22 ♍
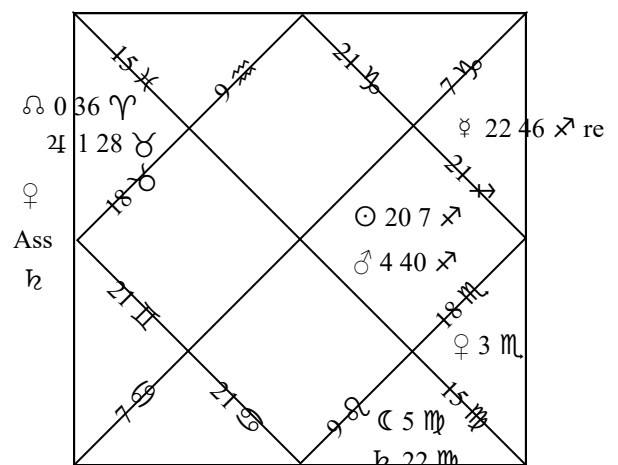
Luna sep[aratur] a ♂ ap □ ☉
□ ♄ ☿
♂ ☉ ☿
□ ♄ ☉

Reversing the process: working out dates and times

An important corollary of all this is that, given the ephemeris and table of houses used by the astrologer (or tolerably similar substitutes), it is fairly straightforward to reverse-engineer the chart to work out the time and date for which it was cast.

The date is most easily obtainable using the planetary positions, as these are copied directly from the ephemeris for the day in question: the sun's position at noon is recorded straight onto the chart; this, in combination with the positions of other planets, should be enough information to spot the day in the ephemeris. This is presumably true *simpliciter*, though without some advance hint at the year, and preferably month, it would be a major task. If (as is usually the case) the date can be narrowed down to a particular month or two, then the job is trivial. It can be confirmed by checking the lunar aspects in the second table of the ephemeris, though these are perhaps less reliable.

Given a date, the time can then be calculated using the 'sidereal time' noted by Forman. If we know that the (sidereal) time for which the chart was cast was '19 31', and we can use the ephemeris to look up the solar position at noon, then turn to the table of houses and find that this gives '17 16' for the day in question, we can see easily that 2 hours 15 minutes have been added on – which suggests a time of 2:15 PM. As Napier tends to write the whole sum out, he actually provides the time to be looked up without further work (in this case '2 15'). Remember that for AM times, the amount added will be twelve hours plus the time (so, for instance, 22 hours for 10 AM). Remember also that while in theory this ought to be added to the noon sidereal time *for the day before*, this is a nicety not observed by Forman and Napier.

In absence of an ephemeris to check, or to be particularly careful, it is also possible to find out exactly what Forman thought the time for noon that day was by looking for other charts cast that day (with known consultation times) and working backwards from those. If a consultation known to have taken place at 4 PM has the sidereal time '21 16', then take four hours away to get '17 16', which can then be used to work out any missing times for that day.

It is worth noting also that given a fragment of chart, as little as one or two cusps, it is possible to reconstruct the rest. The position of the zodiac in relation to one house fixes its position in relation to the others. If one knows, for instance, that the cusp of the 12th house is at the 15th degree of Pisces, and the 1st at the 18th degree of Taurus, it is a trivial task to examine the relevant table of houses and discover the 'sidereal time' for which the chart was drawn up (and to discover what the remaining cusps should have been).

The golden rule, of course, is to beware odd-looking answers. Forman and Napier both made mistakes; if the result is an unlikely time or day, it's probably best to err on the side of caution.

Johannes Stadius' *Ephemerides* (which include ephemerides and tables of houses for various latitudes) provide a good approximation for Forman, and the book is available from Google Books. The table of houses for a latitude of 51° is on pp. 87–92 (which corresponds to pp. 102–107 if you use the automatic 'page find' function); the ephemerides themselves run through Forman's period, with March 1596 beginning on p. 612 (p. 637 on the computer) and December 1601 ending on p. 785 (p. 812 on the computer). Forman seems to have used different ephemerides in different years. Remarks by Napier indicate that he used Stadius for dates up to 1599, and sometimes ephemerides by Cyprianus Leovitius; for dates in the seventeenth century he variously used David Origanus, Martinus Everartus, and occasionally Johannes Kepler and Tycho Brahe, sometimes cross-referencing two ephemerides and noting their divergences.