

HOW TO READ AN EPHEMERIS

by David Dukelow

An Information Special from Astro Communications Services, Inc.

An ephemeris is a collection of tables that show the positions of the planets. Usually some other data is shown too. In this **Information Special**, I'll show you how to look up where the planets were when you were born. Much of this is easier than you might think.

Look at the illustrations. The first is the natal chart of talk show host Phil Donahue and the second is an ephemeris page for the month he was born. The ephemeris page is from *The American Ephemeris for the 20th Century, Revised Fifth Edition*, which is calculated for midnight. The word "midnight" can be troublesome. When referring to a time of day, it refers to the last instant of the day. But when an ephemeris is termed a midnight ephemeris, it means the first instant of the day. Yes, it ought to be called a zero-hour ephemeris in this case, but the word midnight has stuck, so we're stuck with it too. We also sell a century ephemeris that is calculated for noon of each day. The comments given here apply to it as well, but the exact numbers shown will be different. I will comment on our decade ephemerides (the plural of ephemeris) at the end of this **Information Special**.

Let's see how the chart and the ephemeris page relate to each other. An ephemeris is a reference book. The one illustrated has positions listed for Greenwich, England, at the first instant of each day. Why is this? You must have some standard reference place unless you calculate an ephemeris for each and every time zone around the world. It is not economically feasible to publish that many ephemerides. The standard reference place has become Greenwich. For hundreds of years, longitude — how far East or West around the globe you are — has been measured from this town, which is near London. Almost all ephemerides are set for Greenwich. Since Phil was born in Cleveland, Ohio at 11:25 AM, the positions in his chart will not exactly match the positions given in the ephemeris for zero hours.

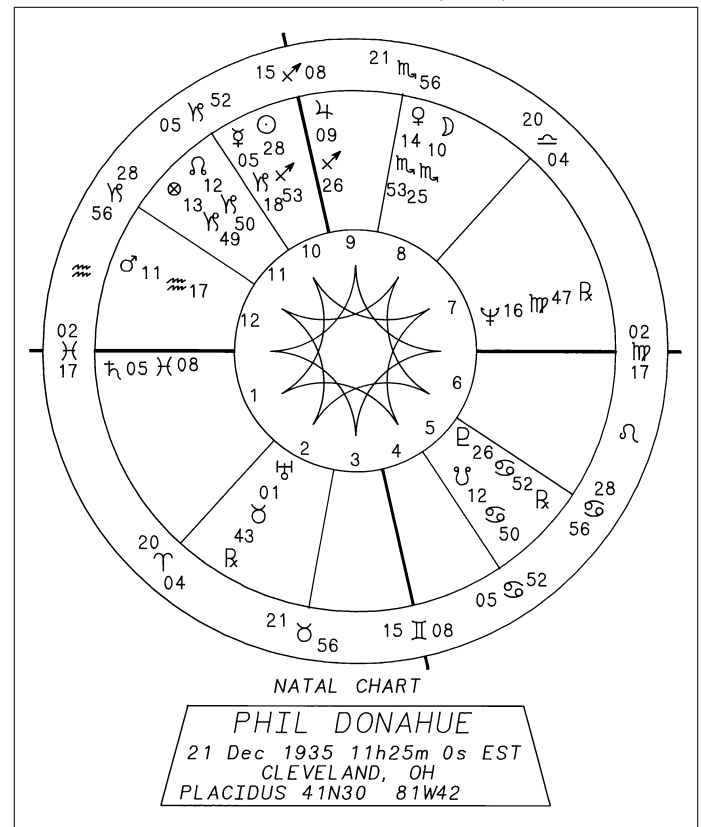
When a natal chart is calculated, the computer adjusts for the time difference. This is why it is important to know where someone was born. The local clock time, the time zone, and the use of standard or daylight time all have a bearing on the differences between the tabular positions and the actual positions. I'll write more about time conversion later.

When you first look at the ephemeris page shown on page three, you see that it is divided into three parts. The top two give the months of November and December of 1935, while the bottom gives some specialized data. The word "Longitude" does not refer to geographical longitude, but to zodiacal longitude. These are the positions of the planets by sign and degrees within each sign.

When you refer to the table you look at a row — read across the page column by column. The first column gives the day of the month and the day of the week. The next column refers to "Sid. Time." This is **sidereal time**. Unless you are calculating charts yourself, you really have no need to refer to this column. Sidereal time is a kind of time that astronomers use in their calculations — it does not refer to the sidereal zodiac. Whether you use the standard Western zodiac, which is the tropical zodiac, or any of the

several sidereal zodiacs, when you calculate charts you use sidereal time. So *ignore* this column unless you want to wade through instructions on how to calculate charts.

The third column refers to the position of the Sun ☉ at the beginning of each day. The position for December 21st is shown as 28 11 26 or 28 degrees, 11 minutes, 26 seconds. The sign the Sun is in is shown at the top of the third column, and here it is Sagittarius ♐. Always read up the column for the sign from whatever date you are referring to. (Someone born on the 25th of December would have a Capricorn ♑ Sun.) By the 21st the Sun had moved to 28 degrees 11 minutes and 26 seconds of Sagittarius. Each degree of the zodiac is divided into 60 minutes and each minute is divided into 60 seconds. An ephemeris has to be precise, so all of this accuracy is necessary. (Remember: we are talking about degrees and minutes in the zodiac — measuring angular distance — not degrees and minutes of time.) Roughly speaking, 11 minutes is about 1/6th of a degree. On Phil's chart, however, the Sun is shown at almost 29 degrees. The difference between the position in the chart and that shown in the ephemeris comes from the fact that he was born about halfway through the day and in Cleveland, Ohio, which is 5 time zones (hours) from Greenwich.



Next, look at the Moon ☾ in Phil's chart (above). It is at 10♏25. This means 10 degrees and 25 minutes of Scorpio — about 10½ degrees. In the ephemeris there are two columns for the Moon. Because the Moon travels very rapidly, and because

sometimes it travels more quickly or more slowly than at other times, it is best to give the Moon's position twice each day. The column just after the Sun column gives the Moon at the beginning of the day, and the next column, which is labeled "Noon D," is the position for noon at Greenwich. Since Phil's Moon is at about 10 degrees and the noon position is $8^{\circ}8'48''$, we can see that Phil was born a little past noon according to the clock at Greenwich. As you've probably guessed by now, positions in the chart wheel are rounded to the nearest degree and minute. In Astro's black and white Basic Natal Chart (BNC), the *unrounded* positions are listed outside of the chart wheel.

The Moon moves quickly, compared to everything else. The Moon circles the zodiac in about 28 days. It changes sign about every 2½ days. You can see about when it moved into Sagittarius, the sign after Scorpio, if you look down the two columns. See the entry on the 23rd for the noon position? It is $3^{\circ}21'4''$, so we know that a little before noon at Greenwich on the 23rd the Moon moved into Sagittarius.

If you want to see the exact time at Greenwich that the Moon moved into Sagittarius, look at the bottom of the ephemeris page. There are several boxes in the bottom section of the page. The third and fourth boxes tell you when the Moon changes sign. Since December is at the bottom of the page, the *second* of these two boxes gives the data we want. Find the row there that begins with the number 22. The times for *two* events are given in that line. The first piece of information, the one listed on the left side, shows when the Moon makes the last aspect in a sign. Here, it says that on the 22nd, the last aspect the Moon made while in Scorpio was a trine (equal to 120° ; the little triangle symbol) to Pluto ♅ at the time of 23:48. This is the time expressed in 24-hour clock style, or 11:48 PM in Greenwich. If we convert this to the time in Cleveland, we have to *subtract* five hours (only four hours if daylight time had been in effect). So at 6:48 PM in Cleveland the Moon made the trine to Pluto. The time the Moon moved into Sagittarius is the *second* piece of information (on the *right* side of that box). It indicates that the Moon moved into Sagittarius at 5:45 on the morning of the 23rd. The time between the last aspect of the Moon and its entry into the next sign is really variable. It can range from a few minutes to more than a day.

Before discussing the next column, two words need to be introduced. These are **Direct** and **Retrograde**. All of the planets move around the Sun in the same direction, but from our vantage point all of the planets (except the Sun and Moon) appear to move backward from time to time. This occurs when Earth passes (or is passed by) other planets. This is somewhat like two cars moving at a high rate of speed on a highway. If one starts out ahead of you but is traveling slower than you, then you'll eventually overtake it. For a moment while you are passing it looks like it is standing still and then backing up from you. The situation is similar here. The apparent *backward* motion is referred to as **Retrograde**; the usual apparent *forward* motion through the zodiac is known as **Direct**.

After the Noon column for the Moon is a column labeled True ♁. This is the exact position of the North Node of the Moon. The Node is not a planet, but its position can be calculated on a daily basis as if it were a planet. The Node is a point where the plane of the Moon's orbit crosses the plane of the ecliptic. Remember that the apparent path of the Sun through the constellations is called the

ecliptic. The Moon's orbit is not exactly in the ecliptic, but rather in a plane tilted slightly with respect to the ecliptic. The average movement of the Node is always backward through the zodiac. To be consistent with the use of **Retrograde** and **Direct** when someone refers to the apparent movement of the planets, we label the usual motion of the Moon's Node as **Retrograde**. This usage is standard. Just remember that here, **Retrograde** and **Direct** refer to movement through the zodiac.

Because everything in the solar system is affected by everything else, both the Earth and Moon are subject to perturbations. This means slight irregularities in their orbital patterns. Thus, the precise motion of the North Node is difficult to calculate. In many older books only the Mean (average) Node was given. But computers don't mind doing all of the extra calculations necessary to calculate the exact (true) position, so this is what is given. As a result of this, a wobble shows up as the Node "moves" forward and backward. This is why the column of positions shows the Ds and Rs. The letter D stands for **Direct** and the letter R stands for **Retrograde**. These just mean forward and backward. For example, on the 3rd of December the Node went from being direct to retrograde; this is indicated by the letter R on that date. Then it changed from retrograde to direct on the 12th. Since Phil was born on the 21st, and the letter R appears a few days above this, we know that the North Node was retrograde when he was born. In fact, it is for most people, since the North Node spends most of its time appearing to go backwards. Because of this average backwards motion, the North Node is not labeled as being retrograde in the plotted natal chart, though this fact is given in the upper left of our black and white natal chart, the BNC.

The Nodes of the Moon (North and South) are always exactly opposed to each other. Two nodes exist because the "circles" (actually, ellipses) of the Earth's and Moon's orbit intersect at two points. Since Donahue's North Node is at $12^{\circ}35'$, his South Node is at $12^{\circ}50'$. Note that points that are opposed are also in opposite houses. The North Node, by the way, takes about 18.6 years to go all the way around the zodiac. The North Node is sometimes called the Dragon's Head and the South Node is sometimes called the Dragon's Tail.

The last eight columns give the positions of the rest of the planets — Mercury on out through Pluto. Note that Mercury had moved into the sign of Capricorn just two days before Phil was born. The exact day and time is given in the little box at the lower left which is labeled "Planet Ingress." An ingress is a movement into something. You see that Mercury moved into Capricorn on the 18th at 8:28 Greenwich time. The time that the Sun moved into Capricorn is given just below it. In general, the first few entries refer to the month at the top of the page, then there is a blank line, and then the data for the lower month is given.

I think you will understand how to locate the planets' positions by now. I don't want to belabor this, but please note the position of Neptune, in the next to the last column. Scan down this column. It was at $16^{\circ}40.5'$ at the beginning of the month. By the time Phil was born it had changed direction. On the 19th it made what is called a **station**. You see the letter R there. So it went from being direct to being retrograde. The exact time is given at the bottom left of the page in the first box. The next to the last line there reads " Ψ R 19 15:58." This says that on the 19th, Neptune went

retrograde at 15:58 hours, or 3:58 PM. Again, this is Greenwich time. Furthermore, note that both Pluto and Uranus were retrograde at the beginning of the month. The sign a planet is in is given first, and then if it is retrograde it is noted in the second row. If you look up into November you see that they were each retrograde at the beginning of November too. It is nice to have this pointed out, but even if it were not pointed out you could see it if you looked closely at the numbers. If you look at the minutes column for Neptune you see that it increased, then appeared to stop for a day or so, and then decrease. Oftentimes the outer planets — Jupiter thru Pluto — move less than a degree in a month. Neptune is an example of this here.

As for the other boxes at the bottom of the page, we should look at the last two. The one labeled "D Phases & Eclipses" is easy. These are just the ordinary phases of the Moon. It is standard to give this data in terms of zodiacal longitude. This is done as if you were standing at the center of the earth. Of course no one is at the center of the earth, but we do get a consistent way of presenting the Moon phase data.

The last box gives some miscellaneous data. The Julian day number is just the number of the day counting from the beginning of the century. Delta T is a time difference that accounts for how much the earth's spin varies because of earthquakes, the effects of

NOVEMBER 1935

Day	Sid. Time	☉	☽	Noon	True Ω	♀	♁	♂	♃	♅	♁	♄	♆	♇	♈
1 F	2 37 25	7m 38 14	0 48 21	7 21 26	14 59 5.9	19 13.2	22 10.4	2 27 24.3	28 27.0	3 32.9	3 32.9	16 7.1	27 24.7	27 24.7	27 24.7
2 Sa	2 41 22	8 38 18	1 58 1	7 58 1	14 58.6	19 13.2	23 10.4	3 9.1	28 27.0	3 32.9	3 32.9	16 8.6	27 24.7	27 24.7	27 24.6
3 Su	2 45 18	9 38 23	2 22 41	8 41 16	14 58.9	21 1.4	24 1.3	3 53.9	28 40.0	3 31.7	3 15.4	16 10.1	27 24.5	27 24.5	27 24.5
4 M	2 49 15	10 38 30	2 53 11	9 38 30	14 59.3	22 5.0	24 52.9	4 38.8	28 53.0	3 31.2	3 12.9	16 11.6	27 24.4	27 24.4	27 24.4
5 Tu	2 53 11	11 38 38	3 53 9	10 38 38	14 58.5	23 13.9	25 45.3	5 23.8	29 6.0	3 30.9	3 10.5	16 13.1	27 24.3	27 24.3	27 24.3
6 W	2 57 8	12 38 48	4 53 21	11 38 48	14 55.6	24 27.4	26 38.4	6 8.8	29 19.1	3 30.6	3 8.1	16 14.5	27 24.1	27 24.1	27 24.1
7 Th	3 1 4	13 38 59	5 53 49	12 38 59	14 50.4	25 44.8	27 32.1	6 53.9	29 32.2	3 30.5	3 5.7	16 15.9	27 23.9	27 23.9	27 23.9
8 F	3 5 1	14 39 11	6 53 51	13 39 11	14 42.9	27 5.5	28 26.6	7 39.1	29 45.3	3 30.4	3 3.3	16 17.2	27 23.6	27 23.6	27 23.6
9 Sa	3 8 57	15 39 26	7 54 0	14 39 26	14 33.8	28 29.1	29 21.6	8 24.3	29 58.4	3 30.5	3 0.9	16 18.6	27 23.4	27 23.4	27 23.4
10 Su	3 12 54	16 39 41	8 54 15	15 39 41	14 24.3	29 54.9	0 17.3	9 9.6	0 11.6	3 30.7	2 58.5	16 19.9	27 23.1	27 23.1	27 23.1
11 M	3 16 51	17 39 59	9 54 22	16 39 59	14 15.6	30 22.8	1 13.6	9 54.9	0 24.7	3 30.9	2 56.1	16 21.2	27 22.8	27 22.8	27 22.8
12 Tu	3 20 47	18 40 19	10 54 31	17 40 19	14 8.5	2 52.2	2 10.4	10 40.3	0 38.0	3 31.3	2 53.8	16 22.4	27 22.5	27 22.5	27 22.5
13 W	3 24 44	19 40 40	11 54 41	18 40 40	14 3.7	3 22.9	3 7.9	11 25.7	0 51.2	3 31.8	2 51.4	16 23.7	27 22.1	27 22.1	27 22.1
14 Th	3 28 40	20 41 3	12 54 51	19 41 3	14 0.1	4 16.8	4 5.8	12 11.2	1 4.4	3 32.4	2 49.1	16 24.9	27 21.7	27 21.7	27 21.7
15 F	3 32 37	21 41 28	13 55 0	20 41 28	14 0.9	5 7.2	5 4.3	12 56.8	1 17.7	3 33.1	2 46.8	16 26.0	27 21.3	27 21.3	27 21.3
16 Sa	3 36 33	22 41 55	14 55 1	21 41 55	14 1.8	6 0.8	6 3.3	13 42.4	1 31.0	3 33.9	2 44.6	16 27.2	27 20.9	27 20.9	27 20.9
17 Su	3 40 30	23 42 23	15 55 2	22 42 23	14 3.0	7 2.8	7 2.8	14 28.0	1 44.3	3 34.8	2 42.3	16 28.3	27 20.5	27 20.5	27 20.5
18 M	3 44 27	24 42 54	16 55 3	23 42 54	14 3.6	8 2.7	8 2.7	15 13.7	1 57.6	3 35.8	2 40.1	16 29.4	27 20.0	27 20.0	27 20.0
19 Tu	3 48 23	25 43 26	17 55 4	24 43 26	14 2.9	9 3.1	9 3.1	15 59.5	2 11.0	3 36.9	2 37.8	16 30.4	27 19.5	27 19.5	27 19.5
20 W	3 52 20	26 44 0	18 55 5	25 44 0	14 2.2	10 3.6	10 3.6	16 45.3	2 24.3	3 38.1	2 35.6	16 31.4	27 19.0	27 19.0	27 19.0
21 Th	3 56 16	27 44 36	19 55 6	26 44 36	13 55.5	11 53.1	11 53.1	17 31.2	2 37.7	3 39.4	2 33.5	16 32.4	27 18.4	27 18.4	27 18.4
22 F	4 0 13	28 45 13	20 55 7	27 45 13	13 48.9	18 28.0	12 6.9	18 17.1	2 51.1	3 40.8	2 31.3	16 33.4	27 17.9	27 17.9	27 17.9
23 Sa	4 4 9	29 45 52	21 55 8	28 45 52	13 41.0	20 3.0	13 9.0	19 3.1	3 4.5	3 42.4	2 29.2	16 34.3	27 17.3	27 17.3	27 17.3
24 Su	4 8 6	0 46 33	22 55 9	29 46 33	13 32.6	21 38.0	14 11.5	19 49.1	3 17.9	3 44.0	2 27.1	16 35.2	27 16.6	27 16.6	27 16.6
25 M	4 12 2	1 47 15	23 55 10	30 47 15	13 24.5	23 12.9	15 14.3	20 35.2	3 31.3	3 45.7	2 25.0	16 36.0	27 16.0	27 16.0	27 16.0
26 Tu	4 15 59	2 47 59	24 55 11	31 47 59	13 17.5	24 47.8	16 17.5	21 21.3	3 44.7	3 47.5	2 23.0	16 36.9	27 15.3	27 15.3	27 15.3
27 W	4 19 55	3 48 44	25 55 12	32 48 44	13 12.3	26 22.6	17 21.0	22 7.4	3 58.1	3 49.5	2 21.0	16 37.7	27 14.7	27 14.7	27 14.7
28 Th	4 23 52	4 49 30	26 55 13	33 49 30	13 9.1	27 57.4	18 24.9	22 53.6	4 11.5	3 51.5	2 19.0	16 38.4	27 14.0	27 14.0	27 14.0
29 F	4 27 49	5 50 18	27 55 14	34 50 18	13 8.0	29 32.0	19 29.0	23 39.9	4 24.9	3 53.7	2 17.1	16 39.2	27 13.2	27 13.2	27 13.2
30 Sa	4 31 45	6 51 6	28 55 15	35 51 6	13 8.4	30 6.6	20 33.5	24 26.2	4 38.3	3 55.9	2 15.2	16 39.9	27 12.5	27 12.5	27 12.5

DECEMBER 1935

Day	Sid. Time	☉	☽	Noon	True Ω	♀	♁	♂	♃	♅	♁	♄	♆	♇	♈
1 Su	4 35 42	7 51 56	29 55 16	36 55 16	13 9.8	31 41.1	21 38.3	25 12.5	4 51.7	3 58.2	2 13.3	16 40.5	27 11.7	27 11.7	27 11.7
2 M	4 39 38	8 52 47	30 55 17	37 55 17	13 11.4	4 15.6	22 43.3	25 58.9	5 5.1	4 0.7	2 11.4	16 41.2	27 10.9	27 10.9	27 10.9
3 Tu	4 43 35	9 53 38	31 55 18	38 55 18	13 12.3	5 49.9	23 48.7	26 45.3	5 18.5	4 3.2	2 9.6	16 41.7	27 10.1	27 10.1	27 10.1
4 W	4 47 31	10 54 30	32 55 19	39 55 19	13 12.0	7 24.2	24 54.3	27 31.7	5 31.9	4 5.8	2 7.9	16 42.3	27 9.3	27 9.3	27 9.3
5 Th	4 51 28	11 55 23	33 55 20	40 55 20	13 10.3	8 58.5	26 0.2	28 18.1	5 45.3	4 8.6	2 6.1	16 42.8	27 8.4	27 8.4	27 8.4
6 F	4 55 25	12 56 16	34 55 21	41 56 16	13 7.1	10 32.7	27 6.3	29 4.6	5 58.7	4 11.4	2 4.4	16 43.3	27 7.6	27 7.6	27 7.6
7 Sa	4 59 21	13 57 11	35 55 22	42 57 11	13 3.0	12 6.9	28 12.7	29 51.2	6 12.1	4 14.3	2 2.8	16 43.8	27 6.7	27 6.7	27 6.7
8 Su	5 3 18	14 58 6	36 55 23	43 58 6	12 58.5	13 41.1	29 19.4	0 37.7	6 25.4	4 17.3	2 1.1	16 44.2	27 5.8	27 5.8	27 5.8
9 M	5 7 14	15 59 2	37 55 24	44 59 2	12 54.5	15 15.4	0 26.2	1 24.3	6 38.8	4 20.5	1 59.5	16 44.6	27 4.8	27 4.8	27 4.8
10 Tu	5 11 11	16 59 59	38 55 25	45 59 59	12 51.2	16 49.6	1 33.3	2 10.9	6 52.1	4 23.7	1 58.0	16 45.0	27 3.9	27 3.9	27 3.9
11 W	5 15 7	18 0 57	39 55 26	46 0 57	12 49.2	18 23.9	2 40.7	2 57.5	7 5.4	4 27.0	1 56.5	16 45.3	27 2.9	27 2.9	27 2.9
12 Th	5 19 4	19 1 56	40 55 27	47 1 56	12 48.5	19 58.3	3 48.2	3 44.2	7 18.7	4 30.4	1 55.0	16 45.6	27 2.0	27 2.0	27 2.0
13 F	5 23 0	20 2 56	41 55 28	48 2 56	12 49.0	21 32.7	4 56.0	4 30.9	7 32.0	4 33.8	1 53.6	16 45.8	27 1.0	27 1.0	27 1.0
14 Sa	5 26 57	21 3 56	42 55 29	49 3 56	12 50.3	23 7.2	6 4.0	5 17.6	7 45.2	4 37.4	1 52.2	16 46.1	26 60.0	26 60.0	26 60.0
15 Su	5 30 54	22 4 58	43 55 30	50 4 58	12 52.0	24 16.8	7 12.2	6 4.3	7 58.5	4 41.1	1 50.9	16 46.3	26 58.9	26 58.9	26 58.9
16 M	5 34 50	23 6 1	44 55 31	51 6 1	12 53.6	26 41.5	8 20.5	6 51.8	8 11.7	4 44.8	1 49.6	16 46.4	26 57.9	26 57.9	26 57.9
17 Tu	5 38 47	24 7 4	45 55 32	52 7 4	12 54.7	27 51.4	9 29.1	7 37.8	8 24.9	4 48.7	1 48.4	16 46.5	26 56.8	26 56.8	26 56.8
18 W	5 42 43	25 8 8	46 55 33	53 8 8	12 55.1	29 26.4	10 37.8	8 24.6	8 38.1	4 52.6	1 47.2	16 46.6	26 55.7	26 55.7	26 55.7
19 Th	5 46 40	26 9 14	47 55 34	54 9 14	12 54.6	31 1.6	11 46.7	9 11.5	8 51.2	4 56.6	1 46.0	16 46.7	26 54.6	26 54.6	26 54.6
20 F	5 50 36	27 10 20	48 55 35	55 10 20	12 53.3	2 36.9	12 55.8	9 58.3	9 4.3	5 0.7	1 44.9	16 46.7	26 53.5	26 53.5	26 53.5
21 Sa	5 54 33	28 11 26	49 55 36	56 11 26	12 51.5	4 12.4	14 5.1	10 45.2	9 17.4	5 4.9	1 43.8	16 46.7	26 52.4	26 52.4	26 52.4
22 Su	5 58 29	29 12 34	50 55 37	57 12 34	12 49.4	5 48.0	15 14.5	11 32.0	9 30.5	5 9.1	1 42.8	16 46.6	26 51.3	26 51.3	26 51.3
23 M	6 2 26	0 13 43	51 55 38	58 13 43	12 47.4	7 23.8	16 24.1	12 18.9	9 43.5	5 13.5	1 41.8	16 46.5	26 50.1	26 50.1	26 50.1
24 Tu	6 6 23	1 14 52	52 55 39	59 14 52	12 45.8	8 59.8	17 33.8	13 5.8	9 56.5	5 17.9	1 40.9	16 46.4	26 49.0	26 49.0	26 49.0
25 W	6 10 19	2 16 1	53 55 40	60 16 1	12 44.6	10 35.9	18 43.6	13 52.8	10 9.4	5 22.4	1 40.0	16 46.2	26 47.8	26 47.8	26 47.8
26 Th	6 14 16	3 17 11	54 55 41	61 17 11	12 44.1	12 12.2	19 53.6	14 39.7	10 22.4	5 27.0	1 39.2				

to move around the Sun. Finally, the Mean Node of the Moon is given. The Mean Node, which some people prefer, especially for the branch of astrology known as horary, is always within a couple of degrees of the True Node. It is uniformly retrograde.

By now I've described everything on the page except for a few of the items in the box at the lower left. I mentioned the Neptune station earlier. Other items include the dates and times at which planets have zero declination, which is to say the times at which they are exactly on the celestial equator (a projection of the Earth's equatorial plane into the heavens). Declination is the angular distance north or south of the celestial equator. At 22:17 on the 3rd of December, the Moon was at zero declination (i.e., exactly on the equator) and was moving northward (N). At 9:22 on December 17th, the Moon was again on the equator, but moving southward (S). Also in this box at the lower left are the dates and times at which the outer planets make exact aspects to each other. For example, in December Uranus was exactly 135° (☐ tri-octile or sesquiquadrate) from Neptune on the 18th at 10:51 Greenwich time.

Our decade ephemerides, such as the one covering 1991 to 2000, have a larger page size than the century ephemerides. They have much more data. Most astrologers get everything they need from the century ephemerides. Generally the longitude positions of the planets are all that astrologers wish to know, perhaps with some ingress or aspect information (from the boxes at the bottom of the century ephemeris pages). Some astrologers, however, want more detailed aspect information or wish to work with declination or latitude figures. For them, our decade ephemerides are best.

People need to know how to convert Greenwich time to their local clock time. This is fairly easy. Since we in the US are *west* of Greenwich, we *subtract* hours from the Greenwich times. How many hours are subtracted depends on how many time zones you are from Greenwich. When Standard time is in effect, you subtract five hours for Eastern time (zone 5), six hours for Central, seven hours for Mountain, and eight hours for Pacific. For example, you see that Jupiter and Saturn were exactly 90 degrees from each other (square) on November 26 at 5:59 AM Greenwich time. Daylight time was not in effect, so you use the amounts just given. For someone in New York City, subtract five hours, giving 0:59 AM. This is 12:59 AM in nonmilitary time, or almost 1 AM. In Los Angeles, California, however, which is in time zone 8, you get 21:59 hours on the 25th. (The change of day is important. When the number you need to subtract from isn't big enough, do this: since one day = 24 hours, subtract one from the date, add 24 hours to the time in the ephemeris, and then subtract the hour amount necessary.)

If we were looking at a summer month when daylight time was in effect, for each of the time zones we'd subtract one hour less. That is, for Eastern Daylight time subtract four hours from the

times in the ephemeris, for Pacific Daylight times, subtract seven hours from the ephemeris times, and so on. Just remember that ephemeris times are for Greenwich standard time, also known as GMT for Greenwich Mean Time. *Daylight time is never used in an ephemeris.* You have to make the conversion yourself. (Some publishers produce handy annual pocket-sized calendars in which the times are converted for daylight time, but this is a slightly different issue.)

And there is yet another way to hear what the difference is between your clock time and Greenwich mean time. If you have access to a short wave radio, tune in the National Bureau of Standards' radio stations WWV that broadcast on the frequencies of 5, 10, and 15 MHz. These just give the time. There is a signal that ticks off the seconds and a few seconds before the minute a voice will announce something like, "At the tone coordinated universal time is..." This is GMT. Then you can just count out the difference in hours. This is a *very* accurate time source.

Another point that confuses some beginners is where the house cusps come from. They don't come from an ephemeris. An ephemeris, as you can see, just gives the positions of the planets and the Node of the Moon. The cusps are calculated separately according to your favorite method. The default at Astro is to use the Placidus house system. Some people prefer to use the Koch house system. Most house systems share certain features. That is, the Ascendant, Descendant, Midheaven, and IC (4th house cusp) will be identical in several major systems: Placidus, Koch, Campanus, Regiomontanus, Porphyry, etc. Once the house cusps — the dividing lines between the pie-shaped wedges in the natal chart — are determined, then the planets are put in. Some calculation is necessary to get the exact planetary positions because few people are born at exactly zero hours Greenwich time. Either of our books, *The American Book of Tables* (for Placidus houses) or *The Koch Book of Tables* (for the Koch house system), will show you how to do this — step-by-step. It's too involved to show here.

INFORMATION SPECIALS OF RELATED INTEREST

- IASPX — Aspects (what they are, how to see them)
- ICSX — Constellations/Signs—What's the difference?
- ICUSX — Custom House Tables & Custom Ephemerides
- IECLX — Eclipses and Moon Phases
- IGLOSX — Glossary of Astrological Terminology
- IGRTX — Graphic Ephemerides
- IKEYSX — Astro Keys (Keywords for all signs, aspects, etc.)
- ISIDX — Sidereal Astrology
- ITIMEX — Time (daylight, war, Illinois problem, etc.)
- ITX — Transits (philosophical issues)
- ITRANX — How to Use an Ephemeris to See Transits
- IXBX — Extra Bodies (Chiron, Transpluto, Lilith, etc.)