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THE
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No. 16 will be Published on the 1st of July, 1847.
(19) June 1st, an Ephemeris for 1821-Price 1s.

## CONTENTS OF THE ARCANA.

Astronomical Problems (continued) ..... .... Page 209

## OF THE ASTRO-PHILOSOPHER.

| Scientific Notices of Comets in | General (Continued) | 197 |  |
| :--- | :---: | :---: | :---: |
| Remarkable Nativity | $\ldots .$. | $\ldots .$. | $\ldots .$. |
| Violent Death | $\ldots .$. | $\ldots$. | $\ldots$. |
| Small Pox |  |  |  |
|  |  |  | 202 |
|  |  |  |  |

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## EXAMPLE．

Jupiter＇s declination is $16^{\circ} 22^{\prime}$ ．
Sol acquires $16^{\circ} 22^{\prime}$ in 15 m 3，the Right A scension $317^{\circ} 32^{\prime}$

| A．R．of the Midheaven | 301 | 8 |  |
| :--- | :--- | :--- | :--- |
|  |  | 8 |  |
| M．C．parallel of Jupiter | 16 | 24 |  |

## Problem lxxyif．

132．To direct the Ascendant to the parallel of any Planet＇s declination．

Rule 1．－Any place in the Ecliptic in which the Sun meets the declination of the star to whole parallel the Ascendant is directed．

Rule 2．－Then find the Oblique Ascension of the Sun，by Problem 45 ，under the pole of the Birth place，from which subtract the Ob－ lique Ascension of the Ascendant for（51）the arc of direction．

## EXAMPLES，

The Sun＇s declination is $20^{\circ} 36^{\prime}$ ．
Sol acquires $20^{\circ} 36^{\prime}$ in 28 万 5 ，R．A．of which is $120^{\circ} 12^{\prime}$ Sol＇s Ascensional difference $28 \quad 14$

Oblique Ascension of the Parallel 9158
St．btract the Oblique Ascension of the Ascendant $=318$
Arc of Direction $60 \quad .50$

Venus＇s declination is $8^{\circ} 28^{\prime} \mathrm{N}$ ．
Sol acquires the $8^{\circ} 28^{\prime}$ in 8 玱 37，this Pight Ascension is $116^{\circ} 15^{\prime}$
Take from this the Oblique Ascension of the Ascendant $\quad 31 \quad 8$
The Ascendant to parallel of Venus in zodiac 85

## Problem lxxviif．

133．To direct the Sun，Moon，and Planets to aspects of their own places in Mundo．
Rule．－Take the proportional part of their own Semi－arcs for the Arcs of Direction．

> EXAMPLE.

The Sun to his own semisquare．
Sol＇s semi－arc is $61^{\circ} 40^{\prime}$ ，the half is $30^{\circ} 50^{\prime}$ ，the Arc of Direction．
Sol＇s sextile，take two－thirds of $61^{\circ} 40^{\prime}$ ，equal $\odot *$ 米 $\odot, 41^{\circ} 6^{\prime}$ ．
The Moon to her sextile－her semi－arc is $61^{\circ} 46^{\prime}$ ，two－thirds（2）＊（2）， $41^{\circ} 11^{\prime}$ Are of Direction．

$$
\text { G } g
$$

## Problem inxix.

134. To direct all the Planots to their own aspects, also the time of aspect as they form by their daily or secondary motion.

Rule 1.-Look to the Ephemeris when the Planet directed passes the degrees and minutes of the slower Plauets.

Rule 2.-Subtract the place of the swifter Planet from that of the slower on the noon previous to the formation of aspect, which difference retain.

Rule 3.-Then subtract the place of the slower Planet from that of the swifter on the noon after aspect; add the two differences together; the sum call the second distance.

Rule 4.-Then, by diurnal logarithms, take out the first difference, from which subtract the 2nd, and the remainder will be the log. time of aspect.

Rule 5.-Account one day's motion a year ; two hours a month ; four minutes a day.

## EXAMPLE.

When will Mars arrive at the square of Jupiter, by Ephemeral motion, which is 16 m 57 ?

Now, Mars moves to 16857 at 12 minutes past midnight of July 2nd, which is equal 38 days, 20 hours, 12 minutes after birth, the time answering to this is 38 years, 10 month, 3 days, or March 28th, 1858.

Mars, from noon, July 2nd, to 3rd, moves 43 minutes, and before he comes to $16 \bigcirc 57$, has to move 22 minutes.

The Diurnal log. of 22 minutes is 1,8159
Subtract Mars log. of daily motion, 43 minutes $1,5 ? 49$
This log. answers to 12 hours, 16 minutes ,2910

## Problem lexx.

135. To direct the Sun or Moon to parallel in mundo, direct direction.

Rule 1.-Take that Star's meridian distance which moves conversly , and call it the primary distance.

Rule 2.-Add the Arithmetical Complement of the Proportional Log. of the Sun or Moon's semi-arc and the Proportional Log. of the Sun or Moon's Meridian distance to the Log. of the Planet's semi-arc, and the sum of the three lines will be the Planet's second distance.

Rule 3.-The difference between the Planet's. M. D. and its second distance ; or, if the Planet pass the Meridian to form the parallel, their sum will be the Arg of Direction.

## EXAMPLE 1.

Find the arc of $\odot$ Par. H. D. D.
N.B. As the $\odot$ is below the Earth H will form the parallel below; therefore H's semi-nocturnal are must be used.


EXAMPLE 2.
Find the Arc of (5) Par. H. D. D.

| As the (3)'s S. D. A. | $124^{\circ} 42$ | 9,8406 |
| :---: | :---: | :---: |
| Is to (2)'s. Mer. distance | $119 \quad 37$ | ,1775 |
| So is Hg's. S. D. A. | 5656 | ,4999 |
| H's. 2nd distance from Mer | 5436 | ,5180 |
| H H's. true Meridian distan | ce $38 \quad 24$ |  |

$\begin{array}{lll}\text { To Hrs. } 2 \text { nd distance from Mer. } & \text { 54 } & 36 \\ \text { Sub. He's. true Meridian distance } & 38\end{array}$
Arc of Direction (3) Par. Hु. D. D. 1612

## Problem lxxxi.

136. To direct the Sun or Moon to mundane Parallels (converse).

This is reversing the operation of the last Problem.
Rule 1.-Add together the Prop. Log. (Ar. Co.) of the Planet's semi-arc and the Log of the Planet's M. D. to the Sun or Moon's semi-arc, and the sum call the second distance of Sun or Moon from the Meridian.

Rule 2.-The difference between the Sun or Moon's Meridian Distance and Second Distance is the Arc of Direction: or if it pass the Meridıan to form the parallel, the sum must be taken.

## EXAMPLE.



## Problem laxxil.

## 137. To direct the Sun or Moon to any aspect in mundo, direct direction.

When the Sun or Moon are supposed to remain fixed in the place they were at birth, and the planets Herschel, Saturn, Jupiter, Mars, Venus, or Mercury, are moved on to form the aspects, according to the regular motion of the heavens, the direction is called drect direction.

Rule 1.-Add together the Pro. Log. (Ar. Co.) of Sun or Moon semi-arc and the Log. of the distance of Sun or Moon from the cusp of the preceding or succeeding house, to the log. of semi-arc of the planet and the sum is the second distance of that Planet.

Rule 2.-Add or subtract it from the Planet's primary distance, as (100).

EXAMPLE 1.
Direct the $\odot$ to the $\square$ of 4 by Direct Direction.

$\begin{array}{llll}\text { To } 2 \mathrm{~s} \text { second distance from 10th } & 0 & 41 \\ \text { Subtract from 2f's Meridian distance } & 18 & 30\end{array}$
2,4216

Arc of Direction $\odot \square \downarrow$ D. D. 1749
Add one-third 2f's semi-diurnal Arc 2246
Arc of $\odot \triangle \psi$ D. D. $40 \quad 35$

Thus you may obtain, by adding or subtracting, as the case may be, the Proportional part of the Semi-arc of the Planet directed, all the other directions after one direction is obtained.

```
                                    EXAMPLE 2.
    Find the Arc of (% % % D.D.
        As C's semi-diurnal Arc 1240 42' Prop.log.(Ar. Co.) 9,8406
        Is to (Cl's dist. outside 1st 5 5 1, 491
        So is \'s semi-diurnal Arc 86 56 ,3161
        To 2nd distance of T% from 11th 3
        Add Are of Asc. 米 \
        Arc of Direction (%) * h D. D. }33
Subtract one-half the space of '2's house}144\quad2
Leaves Arc of Direction (%) S}\square\mathrm{ W D.D. 18 39
    To this add \frac{1}{2} of 万's semi-arc 43 28
Gives the Arc of Diraction (%) \square
```

EXAMPLE 3.
Direct the Moon to the opposition of Herschel, Direct Direction.
N. B.-When Herschel comes to the opposition of the Moon's direct motion in this Nativity, he will be below the Earth, consequently his semi-nocturnal arc must be used.


## Problem lxxxiti.

## 138. To direct the Sun or Moon to ary aspect in mundo (converse).

When the Sun or Moon, above the Earth, is moved onwards to form the aspect, from the East towards the West, or belon the Earth, from the West towards the East, it is termed a Converse Direction.

Rule 1.-Add together the Pro. Log. (Ar. Co.) of semi arc of the Planet to which the Sun or Moon is directed, to that Planet's distance within or without a certain house (94 and 96), and the semi-arc of the Sun or Moon, and the sum is the second distance of Sol or Luna from the house which forms the required aspect.

Rule 2.-If this second distance be on the same side of the cusp whence the primary was taken, the difference will be the arc of direction; but if the Sun or Moon pass the cusp to form the aspect, the sum will be the arc of direction. (100).

## EXAMPLE 1.

Required the arc of $\odot \triangle H$ converse.
As the semi-arc of H $56^{\circ} 56^{\prime}$ Prop. log. Ar. Co. 9,5001
Is to H's distance from 8th outside $0 \quad 26$ So is $\odot$ 's semidiurnal are $118 \quad 14$ ,1825
To ©'s and distance outside the 12 th $0 \quad 54$
Add $\odot$ 's distance from 12th $40 \quad 2$
2,3010
Arc of Direction $\odot \triangle H$ con. $40 \quad 56$
Sub. half space of $\odot$ 's Diurnal house 1942
Arc of $\odot$ sesquisquare H con. 2114
Add half $\odot$ 's semi-arc $\quad 59 \quad 7$

$$
\text { Arc of } \odot \square \mathrm{H}_{\mathrm{H}} \text { con. } \overline{8021}
$$

Thus you will perceive, that having worked one direction, others may be generally obtained from it, by the proportional parts of the semi-are of that luminary directed.
N. B.-That semi-arc, whether diurnal or nocturnal, must be taken where the planet or luminary is, when the aspect is completed. The Sun, at the Queen'sbirth, was under the Earth, but when he formed the above aspects converse with Herschel he was above the Earth, consequently his semi-diurnal are must be taken.

## EXAMPLE $2:$.

Direct Moon to resquisquare Sun converse,

| As the semi-nocturnal arc of $\odot$ | $61^{\circ} 46^{\prime}$ | 9,5355 |
| :---: | :---: | :---: |
| Is to $\odot$ 's distance inside lst | 037 | 2,4652 |
| So is (-)'s somi-diurnal are | 12442 | ,1594 |
| To (2)'s second distance | 115 | 2,1601 |

If we subtract this second distance from the are of Asc. semisquare Moon mundo $57^{\circ} 16^{\prime}$, it leaves the arc of direction Moon semisquare Sun converse $56^{\circ} 1^{\prime}$, it is also Sun semisquare Moon direct direction, and by adding the proportional parts of Moon's semi-arc, the other aspect's arcs may be found as we did with the Sun's.

## Problem lxxxiv.

139. To direct the Sun, Moon, or any Planet, to any aspects of the Part of Fortune.
From the manner in which we have taught the calculation of this mundane point, and what we have before spoken about it, it will be seen, that as the degrees of distance from the Part of Fortune from a house are those on the Equator, it may justly be allowed 90 degrees for its semi-arc in all cases, and it will bring out the corrections correctly (98).

Rule 1.-Add the log. 9,6990 (Ar. Co. of 90 degrees) to its distance from any house it may be near, and the log. of the semi-arc of the Planet directed, and the sum will be the log of the Planet's sccond distance.

Rule 2.-Add or subtract the second distance, (100).
EXAMPLE.
Required the arc of $\oplus \square 4$, in Queen Victoria's nativity.
As Prop, Log. of $90^{\circ}$, its Ar. Co. 9,6990 Is to $\oplus$ dist. from lot $4034^{\prime}$ Prop. log. 1,5957 So is 2 's semi-arc $68 \quad 18 \quad, 4209$

To 24 's dist. past 13th $328 \quad 1,7156$ Add 2 's Mer. dist. $18 \quad 30$

Are of Direction $\oplus \square \psi \quad 21 \quad 58$

## EXERCISES.

1. What is the Part of Fartone to the body of Sol? Ans. $6{ }^{\circ} 36^{\prime}$.
2. What is the Part of Fortune to the gemisquare of Saturn P Ans. 19031 /.
3. What is the Part of Fortune to the semisquare of Mars? Ans. $31^{\circ} 48^{\prime}$.
4. What is the Part of Fortune to the semisquare of Venus? Ans. $37057^{\prime}$.
5. What is the Part of Fortune to the sextile of Mars? Ans. $48^{\circ} 2^{\prime}$.
6. What is the Part of Fortune to the equare of Saturn? Ans. $62^{\circ} 59^{\prime}$.

## Problem lxxxy.

## 140. To direct any Planet to the parallel of the Part of Fortunc.

Rule 1.-Add the log. 9,6990 (Ar. Co. of 90 degrees) to log. of pars. M. D., and the log. of Planet's semi-are, and the sum will be the $\log$ of the second distance from the Meridian.

Rule 2.-Take the second distance from the Planet's M. D., or add it to for the arc of direction, (100).

EXAMPLE.
Direct $\oplus$ to parallel of Hg .
As Prop. log. of $90^{\circ}$, its Ar. Co. 9,6990
Is to $\oplus$ 's Meridian distance $85^{\circ} 26^{\prime}$ Prop. log. ,3236
So is semi-are of Herschel 5656 ,4999
To H's 2nd distance from Meridian $54 \quad 3 \quad, 5225$
From Herschel's 2nd distance from Meridian $54^{\circ} 3^{\prime}$ Subtract Herschel's true Meridian distance $38 \quad 24$

Are of direction $\oplus$ Par. H H $15 \quad 39$

## Problem lxxxyi.

## 141. To direct the Sun or Moon to Rapt Parallels in Mundo.

Rapt parallels-meaning being carried away-are the joint approach of two Stars conversely to the 10 th and 4 th houses-an arc of extraordinary strength, even where life and death are concerned.

Rule 1.-Add the semi-arcs together, diurnal if above the Earth, and nocturnal if below, of the Sun or Moon and Planet, and take half-as the sum may not exceed 180 degrees.

Rule 2.-Take half the difference between the A. R. of the Sun and Moon and that of the Planet-as the parallel is always formed by Right Ascension.

Rule 3.-Take half of the semi-arc of the body that applies to the Meridian when the parallel is formed, which is the primary distance.

Rule 4.-Add the log. (Ar. Co.) of the sum of half the semi-arcs and the body applying to the Meridian; and half the difference of their A. R. and the sum will be the second distance of the body applying to the Meridian; which double.

Rule 5.-From the distance of the applying body from the Meridian subtract the second distance, which will be the arc of direction (100).

## EXAMPLE 1 .



## EXAMPLE 2.

Direct the Moon to the Rapt Parallel of Jupiter.


As the first of those three terms is greater than the Prop. logarithms extend, since they only go up to 180 degrees, we will take half the first and third terms, and the result will be the same.


EXEIOCISES.

1. What is the R. P. of Moon and Herschel? Ans. $11^{\circ} 8^{\prime}$
2. What is the R. P. of Sun and Herschel?' Ans. $12042^{\circ}$.
3. What is the R. P. of Sun and Jupiter? Ans. $25^{\circ} 15^{\circ}$.

## Another Problem.

There is a Rapt Parallel which is sometimes formed by one Planet being above the Earth and another below, when it is formed; but as both semi-ares must be worked of one denomination, viz. either both Diurnal or both Nocturnal, then, in such cases, we have to work with one of the Planets exactly as though it was in its opposite place.

## EXAMPLE.

As there is not such a position in the Queen's nativity to illustrate the Rule, we must imagine one.

Suppose Herschel, in the Queen's nativity, had been in $23^{\circ}$ II $20^{\prime}$ with $0^{\circ} 8^{\prime}$ North latitude, but the Sun and all the other positions the same as they are; then the Rapt Parallel would still have been exactly the same as it is, and we should have calculated it in the same way as we have done in the last Problem.

## Problem lxxxpif.

## 142. To find the Place of the Zodiacal Aspects of the Sun, and his declination at that place.

Rule.-Find, as in a Speculum, the aspects the Sun can form during a life time, and mark his declination at that Zodiacal point where the aspect falls, by either Problems 30 , or 28 , or 31 .

The Sun to the
Semisquare of Mars falls in 2 II 38, R. A. $60^{\circ} 33^{\prime}$, its Dec. $20^{\circ} 46^{\prime}$, its tangent 9,57886.
Semisquare of Venus falls in 11 II 35, R. A. $70^{\circ}$ 2', its $^{2}$ Dec. $222^{\circ} 15^{\prime}$, its tangent 9,661184.

Trine of Jupiter falls in 16 II 57 , R. A. $75^{\circ} 49^{\prime}$, its Dec. $222 \circ^{\circ} 53^{\prime}$, its tangent 9,62538.
Sextile of Mars falls in 17 II 58 , R. A. $76^{\circ} 33^{\prime}$, its Dec. $22^{\circ} 57^{\prime}$, its tangent 9,62679.
Semisquare of Mercury falls in 23 I 15 , R. A. $82^{\circ} 39$, its Dec. $23^{\circ} 21^{\prime}$, its tangent 9,63518.
Opposition of Herschel falls in $23 \Pi 20$, R. A. $82^{\circ} 44^{\prime}$, its Dec. $23^{\circ} 21^{\prime}$, its tangent 9,63518.

Sextile of Venus falls in 26 II 36, R. A. $86^{\circ} 17^{\prime}$, its Dec. $23^{\circ} 28^{\prime}$, its tangent 9,63761.

Parallel of Herschel falls in 27 II 0, R. A. $86^{\circ} 44^{\prime}$, its Dec. $23^{\circ} 26^{\prime}$, its tangent 9,63692.
Square of Saturn falls in 28 II 46, R. A. $88 \circ 40^{\prime}$, its Dec. $23 \circ \unrhd 8^{\prime}$, its tangent 9,63761.
Sesquisquare of Jupiter falls in 1 eo 57 , R. A. $92^{\circ} 62^{\prime}$, its Dec. $23^{\circ} 28^{\prime}$, its tangent 9,63761.

## Problem lxxxviit.

143. To direct the Sun to any conjuncticn, parallel, or aspect of any Planet in the Zodiac, direct.

Rule 1.-If the birth be between midnight and noon, find the Oblique Ascension of Sol under his own pole; or, if birth took place between noon and midnight, find his Oblique Decension under his pole.

Rule 2.-Find the declination of the place of the aspect-add the tangent of dec. to the tangent of Sol's pole. The sum is the sine of the aspects asc, difference under that pole, by which asc. diff. find its
oblique ascension or oblique decension. Work by Table of Ase. Difference.
Rule 3.-Subtract that of the Sun from that of the aspect for the arc of direction.

## EXAMPLE.

Direct the $\odot$ to a $\square$ of $h$ in the zodiac in Queen Victoria's nativity.
Saturn is in 28 ) ( 46 , the $\odot$ comes to his $\square$ in 28 II 46, by the Tables the R.A. of that place is $88^{\circ} 40$, its declination is $23^{\circ} 28^{\circ}$.

$$
\begin{aligned}
& \text { To the tangent of } 23^{\circ} 28^{\prime}=9,637611^{\prime} \\
& \text { Add tangent of }{O^{\prime} \text { 's pole } 51 \quad 16=0,095852^{\prime}}^{\text {Sum is sine of Asc. Diff. } 32 \quad 46=9,733463}
\end{aligned}
$$

As we want the Oblique Ascension, and the Declination is North, we subtract the Asc. Diff. from the Right Ascension $88^{\circ} 40^{\prime}$

$$
\text { Subtract Ascensional Difference } 3246
$$

$\begin{array}{cccc}\text { Oblique Ascension under }(\odot) \text { 's pole } & 55 & 54 \\ \text { Subtract } \odot \text { 's Oblique Ascension } & 32 & 2\end{array}$ Arc of Direction $\odot \square$ b zod. 2352

By the following method the Sun may be directed in the Zodiae without having recourse to Tables of R. A., Declination, \&c.

Rule.- Note the longitude of the aspect and take its longitudinal distance from the nearest equinox, add its tangent to the cosine of Obliquity of Ecliptic, the sum is the tangent of Right Ascension. Then to the sine of R.A. add the tangent of Obliquity, also the tangent of Sun's pole; the sum of these three Logarithms gives the sine of Ascensional Difference, which apply as before taught.

## RXAMPLE.

Direct the $\odot$ to the sesquisquare of 4 in the zodiac.
The sesquisquare falls in 1 oo 57 , its distance from that $\bumpeq 8803$.
To the tangent of $\bumpeq 88^{\circ} \quad 3^{\prime}=1,467920$
Add cosine Obl. of Ecliptic $2328=9,962508$
Sum is tangent of R. A. from $\bumpeq 8752=1,430428$
Then, to the sine of R. A. $87 \quad 52=9,999699$
Add $\left\{\begin{array}{l}\text { tangent Obliq, of Ecliptic } 23 \\ 28\end{array}=9,637611\right.$
$\left\{\right.$ tangent of $\odot^{\prime}$ 's pole $\quad \delta 1 \quad 16=0,095852$
Sum is sine of Asc. Diff, under $\bigcirc^{\prime}$ pole $3245=9,733162$

> Then, by subtracting $87^{\circ} 52^{\prime}$ from $180^{\circ}$ we have the R. A. of $44^{\prime}$ sesquisquare aspect 920 Subtract, as declination is North Sa $8^{\prime}$

Ob. Asc. of aspect undect under $\odot$ 's pole $59 \quad 23$
Subtract $\bigcirc$ 's Oblique Ascension $\quad 32 \quad 2$
The Arc of Direction $\odot$ sesquisquare 24 zod. 2721

## Problem lxxxix.

## 144. To direct the Sun to parallels in the Zodiac.

Rule 1.-Find where the Sun meets with the Declination of the Planet in the Radix, by Problem 20, or the two last Rules.

Rule 2.-Find the A. R. of the longitude the Sun is in at that deelination without latitude, by Problem 26.
Rule 3.-Add the tangent of the declination to the tangent of Sun's pole, and the sum is the sine of Asc. Difference of the aspect under that pole. Hence, you see, all you want is the Asc. Diff:

Rule 4.-Find the Ob. Asc., or Ob. Dec., as before; from which subtract that of the Sun for the arc of direction.

## EXAMPLE.

Direct the Sun to the Zodiacal parallel of Herschel, in the Nativity of Queen Victoria.
Note.-The Sun will touch the parallel of Herschel twice, once before he arrives at his greatest Declination, which is $23^{\circ} 28^{\prime}$, and once after: we will work the first by the first Rules, and the second by the other. The Sun will touch the first Par. in $27 \amalg 0$, its R. A. is $86^{\circ} 44^{\prime}$, then to the tangent of Declination add tangent of Sol's pole, sum is sine of Ascensional Difference.

(-) Par. of $\mathrm{H}=21 \quad 59$
The next Par. we shall calculate by the other Rules of the last Problem.
To the tangent of H's decl. $23{ }^{\circ} 26^{\prime}=9,636919$
Add the cotangent of $2328=0,362389$
Gives sine R. A. from $\bumpeq 8646=9,999308$
Then, to sine R. A. $86 \quad 46=9,999308$
Add $\left\{\begin{array}{l}\text { Tangent of Obl. of Ecliptic } 23 \quad 28=9,637611\end{array}\right.$
\{Tangent of $\odot$ 's pole $\quad 5116 \equiv 0,095852$
Gives sine of Asc. diff. $32 \quad 43=9,732771$
Then, from $180^{\circ}$ subtract the distance in R. A. from $\bumpeq 86^{\circ} 46^{\prime}$, it leaves the R. A. of Par. H1 $93^{\circ} 14^{\prime}$.

$$
\begin{array}{ccc}
\text { From this R. A. } & \begin{array}{ll}
93^{\circ} & 14 \prime \\
\text { Subtract the Asc. diff. } & 32
\end{array}{ }^{\prime}
\end{array}
$$

Leaves Ob. Asc. of Par. His under ©'s pole 6031
Subtract Obl. Avc, of $\odot \quad$ ditto $\quad 32$
© Par. of H 2829

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