

INVESTIGATION
OF THE
MOTION OF HALLEY'S COMET
FROM 1759 TO 1910,

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INVESTIGATION

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THIS work was undertaken with the object of predicting the date of perihelion passage in 1910 and the other elements of the orbit as accurately as possible. It was necessary to commence with the return of 1759 in order to make a redetermination of the mean motion in 1835, owing to the very large discordance between the results of Pontécoulant and those of Rosenberger (combined with Damoiseau's results from eccentric anomaly 296° to 360° , as Rosenberger did not carry his computations beyond the former point).

Their respective values for n , the mean daily motion, at the 1835 perihelion are $46''\cdot4586$, $46''\cdot5088$. These differ by $0''\cdot05$, or $\frac{1}{360}$ of the value of n . The difference between the periodic times deduced from these values is $\frac{1}{360}$ of the period, or about one month. So large an element of uncertainty could not be tolerated, and it was imperative to make a recomputation of the motion for the revolution preceding 1835 to settle the question.

We come now to describe the method that we have followed. Rosenberger showed clearly that, to secure accuracy, it was necessary to frequently rectify the orbit, in order to prevent the assumed elliptical path from diverging widely from the actual path of the comet. Now this frequent rectification is an exceedingly troublesome process, and does away with much of the advantage that there is in assuming that the comet is moving in an ellipse; hence, it was decided to discard the elliptical hypothesis altogether, and to proceed by mechanical quadratures. This requires the

knowledge of the comet's rectangular co-ordinates on two given dates. The attractions of the sun and planets are computed, and the second differences of the co-ordinates readily follow. The position of the comet at the end of another time-interval is quickly found by extrapolation with sufficient accuracy to compute the new values of the attractions, and consequently the path of the comet is built up, arc by arc, till the whole revolution is accomplished. It is clear that the time-interval adopted cannot be the same throughout. It was in the first instance taken as 2 days in the neighbourhood of perihelion, and it was doubled at arbitrarily chosen epochs (thus always remaining a power of 2) till it became 256 days when the comet was near the minor axis of the orbit, or about 7 years from perihelion. It remained at this value through the whole of the outer half of the orbit, and was then diminished by successive halving, in the regions of the orbit adjacent to the perihelia of 1759 and 1910. Subsequently supplementary calculations of the attractions at half the former time-intervals were made from 4608 days preceding the 1835 perihelion to 4608 days following it. These have served as a check on the earlier calculations, but it was not found practicable to use the new values in the actual determination by quadratures of the comet's path, which therefore still depends on the earlier calculations alone. An estimate of the effect of the corrected values on the time of perihelion in 1910 has, however, been made.

As our real object was to find the difference in length of the two revolutions, 1759—1835, 1835—1910, it was convenient to take our initial epoch at the 1835 perihelion passage, and work forward and backward from this date. It was desirable to make our initial assumptions as near as possible to the truth; we decided that the five constants of the orbit other than the mean motion might safely be taken from Westphalen's discussion of the observations made in 1835 (*Astr. Nach.* Vols. XXIV., XXV.).

He made no attempt to redetermine the mean motion in 1835, but provisionally assumed the Rosenberger-Damoiseau value, and obtained all his elements in terms of an undetermined quantity Δa , which is 100 times the correction required by the assumed semi-axis major of the orbit. For convenience we collect his final elements, (*Astr. Nachr.*, Vol. XXV. p. 189):—

$$\begin{array}{llll}
 T = 1835 \text{ Nov. 15.} & 9453928 \text{ Paris M.T.} & - 0.00036367 \Delta a & \pm 0.00005702 \\
 \Omega = 55^\circ 9' 59''.335 & + 0''.38880 \Delta a & & \pm 1.8948 \\
 i = 162 \ 14 \ 54.874 & - 0.29215 \Delta a & \left. \begin{array}{l} \text{Mean Equinox of} \\ 1835 \text{ Nov. 16} \end{array} \right\} & \pm 0.9477 \\
 \omega = 110 \ 38 \ 27.148 & + 0.02262 \Delta a & & \pm 1.8639 \\
 q = 0.58656948 & - 0.0000034598 \Delta a & & \pm 0.000001296 \\
 a = 17.987910 & + 0.01 \Delta a. & &
 \end{array}$$

In order to determine the quantity Δa we made a preliminary investigation, by

Pontécoulant's method, of the revolution preceding 1835. The object of this investigation was merely to obtain as close a determination of n and a in 1835 as possible, as a preliminary to our mechanical quadratures. We have used all the results given by us in the *Monthly Notices* of the Royal Astronomical Society (Vol. LXVIII., March 1908, p. 392) and have calculated the Jupiter and Saturn perturbations by the same method as that which was followed for the revolution 1835—1910 (*Monthly Notices*, R.A.S., Vol. LXVII., Nos. 6 and 8). The following Table gives the perturbations obtained for the separate planets (neglecting Mars and Mercury) and the sums for all the planets.

u denotes the eccentric anomaly of the comet.

Revolution 1759—1835.			
Planet.	Limits of u .	$\int dn$.	$\int d\zeta$.
Venus	0°—30° (with definite integral)	+ "0077	+ 215"
"	330°—360° " " "	— "0058	0
Earth	0°—30° " " "	+ "0262	+ 731
"	330°—360° " " "	+ "0038	0
Jupiter	0°—90°	+ "0190	+ 574
"	90°—270° definite integral	— "2604	+ 734
"	90°—270° mechanical quadratures	+ "0023	+ 50
"	270°—360°	+ "6736	— 131
Saturn	0°—90°	— "0072	— 176
"	90°—270° definite integral	+ "0390	+ 2085
"	90°—270° mechanical quadratures	— "0047	+ 46
"	270°—360°	— "1175	+ 25
Uranus	0°—360° from Pontécoulant	+ "0094	+ 229
Neptune	0°—360°	+ "0014	— 4
Sum		+ "3868	+ 4378

Now following Pontécoulant's method, we have the equation

$$\frac{360^\circ - \int d\zeta}{n \text{ in } 1759} = \text{observed period in days} = 28006^{\text{d}}.37.$$

$$\text{From this equation } n \text{ in } 1759 = 46''.1189$$

$$\text{apply } \int dn = +0.3868$$

$$n \text{ in } 1835 = 46.5057$$

$$\text{The corresponding value of } a \text{ in } 1835 = 17.98871$$

Comparing this with Westphalen's value we see that the quantity Δa is equal to +0.080.

Hence the following is the orbit that we adopt in 1835 for the purpose of commencing our mechanical quadratures.

It is to be noted that we take all these elements as definitive, except the mean

motion. Our mechanical quadratures for the revolution 1759—1835 indicated that our tabular period was too long by $0^d.55$, i.e. that n required a correction of $+0''.0009$.

The result for the following revolution was, however, not quite consistent with this, since the mechanical quadratures here indicated that our tabular period was too short by $2^d.15$, or that n required a correction of $-0''.0035$. This latter quantity includes the correction $+0^d.40$ to our predicted date in 1910 indicated by the revision of the work. The mean of the two revolutions gives the correction $-0''.0013$ to n in 1835, making its definitive value $46''.5044$.

$$\begin{aligned} T &= 1835 \text{ Nov. } 15. \quad 9453637 \text{ Paris M.T.} \\ \Omega &= 55^\circ \quad 9' \quad 59''.37 \\ i &= 162 \quad 14 \quad 54 \cdot 85 \\ \omega &= 110 \quad 38 \quad 27 \cdot 15 \end{aligned} \left. \vphantom{\begin{aligned} T \\ \Omega \\ i \\ \omega \end{aligned}} \right\} \text{Mean Equinox of 1835 Nov. } 16. \\ q &= 0.58656920 \\ a &= 17.98871 \\ n &= 46''.5057$$

Since perihelion passage occurred just before noon on 1835 Nov. 16 we have reckoned all our dates in mean solar days, counting from Paris Mean Noon on that day. We have used the usual astronomical unit of length; the mean ecliptic of 1835 Nov. 16 is taken as the plane of reference for the co-ordinates, x being drawn towards the First Point of Aries, y towards longitude 90° in the ecliptic, and z towards the north pole of the ecliptic.

Our memoir therefore is principally concerned with the solution of the following gravitational problem :—

A particle, whose co-ordinates on 1835 Nov. 16.0 and 1835 Nov. 18.0 are as follows (referred to the centre of gravity of the solar system),

Day.	x .	y .	z .
0	+0.311082620	−0.471220200	+0.167061003
+2	+0.259146677	−0.506048643	+0.159779449

moves under the attractions of the Sun, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. It is required to trace its motion forwards to 1910 and backwards to 1759.

The origin of co-ordinates has been placed at the centre of gravity of the solar system. This is obviously convenient when the comet is at a considerable distance, and it seemed best to make no change of continuity, but to adopt the same system throughout.

As a preliminary, heliocentric co-ordinates of the planets had to be calculated, and from these the co-ordinates of the sun relatively to the centre of gravity of the solar system were obtained. The masses used for the planets are those given in the Intro-

duction of Newcomb's Tables of the Sun. The logarithm of the mass of the Sun multiplied by the square of 64 days, and divided by the cube of the astronomical unit of length, is taken as 0.0835228.

The planetary co-ordinates were obtained as follows :—

Neptune's place was computed from Newcomb's Tables at intervals of 1024 days, until the date when its place was given in the Nautical Almanac. For dates before 1830 the tabular longitude and latitude corrected from the observations, and the tabular radius vector for all the other planets were taken from the Greenwich Planetary Reductions, 1750 to 1835, using the nearest dates available, and correcting to the date required by the application of the planet's motion. From 1830 to 1833 the Berliner Jahrbuch was used, and from 1833 the Nautical Almanac. Corrections to tabular longitude and latitude have been applied from the annual volumes of the Greenwich Observations whenever they are sensible. The planetary places were corrected for Precession, Nutation, and motion of Ecliptic. They were reduced to rectangular co-ordinates by the formulæ :—

$$\begin{aligned}x &= r \cos \text{latitude} \cos \text{longitude} \\y &= r \cos \text{latitude} \sin \text{longitude} \\z &= r \sin \text{latitude}.\end{aligned}$$

Beyond the limiting days -320 and $+448$ the Sun and Venus were supposed to form a centrobaric system. Heliocentric co-ordinates of Venus were no longer computed and the mass of Venus was added to that of the Sun. A similar remark applies to the Earth and Mars, with limiting days -608 and $+608$.

The Notes on the Title-Pages of Tables I., II., III. sufficiently explain the contents of these Tables.

EXPLANATION OF TABLE IV.

This Table contains the separate attractions of the four larger planets, also those of the Sun combined with the planets Mars, Earth, Venus, also the resultant attractions X, Y, Z in the directions of the axes. Near perihelion, the attractions of the Earth and Venus are printed instead of those of Uranus and Neptune. The axes of x , y , z are drawn towards the equinox, longitude 90° , and the north pole of the ecliptic of 1835 Nov. 16. The first column gives the date counted in mean solar days from 1835 Nov. 16, Paris Mean Noon. The intervals in days are always powers of 2, and they change only by being doubled or halved; they can be inferred by taking the difference of consecutive numbers in the date column.

The first four columns of the X, Y and Z portions of the Table give for the four largest planets the component attraction multiplied by the square of the interval. When a date belongs to two groups, the quantities are multiplied by 4 as we pass from the group with smaller intervals to the group with the intervals doubled.

The next column gives a similar quantity for the Sun combined with the three small planets. It is to be noted that beyond the regions where the attractions of the three small planets are separately computed and printed in Table III., the system of the Sun and these planets is supposed centrobaric. The limits for which Venus is separately calculated are -320 to $+408$; the limits for the Earth and Mars are -608 to $+608$.

It may be explained that the attractions of the three last-named planets have not been separately considered as we approach the perihelia of 1759 and 1910, because their action is small and comes too late to affect the date of perihelion passage. In 1759 the date of perihelion of the tabular orbit is all that we require for our present purpose; for 1910 it was considered better to wait until the orbit is revised with the aid of the observations in 1909, 1910, before introducing the separate effect of the small planets.

The next columns headed X, Y, Z give the sums for the Sun and planets. The calculated quantities for the small planets may be found in another table (Table III.). In most cases the quantities set down for the planets have been calculated, but in a few cases they have been interpolated.

EXPLANATION OF TABLE V.

Table V. gives the developed co-ordinates x, y, z of the comet referred to the centre of gravity of the solar system, together with their successive differences. These co-ordinates have been developed from second differences which differ from the quantities X, Y, Z of Table IV. simply by the "Reduction." This quantity would be zero for infinitely small time intervals, but is sensible for the time intervals actually used. The formula for the Reduction is in the case of x

$$+\frac{1}{12}X_2 - \frac{1}{240}X_4 + \frac{1}{1951}X_6$$

where X_2, X_4, X_6 denote the second, fourth and sixth differences of X: with similar formulæ for y and z . It may be remarked that the X_6 term is hardly ever sensible, and it would be useless to continue the series further.

The Reduction is not printed separately, but may be readily inferred by subtracting X, Y or Z of Table IV. from the corresponding second difference of Table V. The initial values of x, y, z from which the development is commenced are given on page 6.

Between the dates -4608 and $+4608$ the differences are not printed beyond the second. Instead of the third difference the corresponding column contains the second difference resulting from the revision of the work with half the original intervals. The quantities given in this column are therefore about one-quarter of those in the preceding column. The last column gives the difference between the new second difference (reduced to the same interval as the old) and the old.

The decimal point is not printed in the difference-columns, but its position may be inferred by the spaces which are left after the third and sixth decimals.

NUMERICAL EXAMPLES.

To supplement the explanation, we consider in detail day -352, section y (Tables IV. and V.).

Let us begin with the column headed "Sun," noting that the entry in this column includes Venus, the Earth and Mars. The system Sun-Venus is treated as centrobaric; the separate attractions of the Earth and Mars are given in Table III.

From Table V. the co-ordinates of the comet relatively to the centre of gravity of the solar system are:—

$$x = +0.4128227 \quad y = +4.71076644 \quad z = -0.75250730.$$

From Table II. the co-ordinates of the centre of gravity of the Sun and Venus relatively to the centre of gravity of the solar system are:—

$$x = -0.0007789 \quad y = -0.0018722 \quad z = -0.0000565.$$

By subtraction, the co-ordinates of the centre of gravity of the Sun and Venus relatively to the comet are:—

$$x = -0.4136012 \quad y = -4.7126386 \quad z = +0.7524508.$$

With these last values of x, y, z , putting $r^2 = x^2 + y^2 + z^2$, we calculate

$$X = \frac{k}{r^3}x \quad Y = \frac{k}{r^3}y \quad Z = \frac{k}{r^3}z$$

where $\log. k = 8.2773439$ as given in another Table (page 15).

We thus obtain $Y = -0.0008119748$ (Sun and Venus only) or -0.0008119788 (Sun, Venus, Earth, Mars).

Similarly for Jupiter; his heliocentric co-ordinates, given in Table II., are:—

$$x = +2.00064 \quad y = +4.63594 \quad z = -0.6150.$$

Hence for Jupiter relatively to the comet

$$x = +1.58704 \quad y = -0.07670 \quad z = +0.69095.$$

Also from another table $\log. k = 5.25725$ (page 15).

We then obtain $Y = -0.000002666$ (Jupiter only).

And similarly for the other planets.

It is to be noted that whenever any planetary attractions are uncomputed for a certain date, their values are first estimated by extrapolation, but as soon as a date is reached for which the attraction of the planet in question is *calculated*, the intermediate values are revised by careful interpolation, and the intermediate co-ordinates of the comet are recomputed with the revised values.

A specimen sheet is given on page 11, showing the actual method by which the quadratures were carried out, and also the method of predicting the values of the comet's co-ordinates for new dates. It may be remarked that since the predictions are only required for the purpose of calculating attractions, and since the attractions are only a small fraction of the co-ordinates themselves, approximate values of the co-ordinates suffice for calculating attractions. In making a prediction we have only to guess at one quantity, viz. $\frac{1}{12} X_2$, and it is not difficult to do this by extrapolation with second differences. In only a very few cases was the prediction so much in error that it was necessary to recompute the solar attraction; for the planets such recomputation was never necessary.

THE REDUCTION.

We have used this term to denote the quantity that, being applied to the whole component attraction multiplied by the square of the interval, gives the second difference of the corresponding co-ordinate.

We here investigate the formula; for simplicity we suppose the interval unity, and the co-ordinate x .

Then let $x = x_0 + x_1t + x_2t^2 + x_3t^3 + x_4t^4 + x_5t^5 + x_6t^6 + \&c.$

Then $X = \frac{d^2x}{dt^2}$ multiplied by square of the interval (or unity) $= 2x_2 + 6x_3t + 12x_4t^2 + 20x_5t^3 + 30x_6t^4 +$

Now let $X_2, X_4, X_6, \&c.$ denote the second, fourth, sixth . . . difference of X : noting that the differences of powers of t are as shown in the following table:—

	t^2	t^4	t^6
2nd difference	2	2	2
4th „	0	24	120
6th „	0	0	720

we have

$$\begin{aligned} X_2 &= 24x_4 + 60x_6 + 112x_8 \\ X_4 &= \quad + 720x_6 + 6720x_8 \\ X_6 &= \quad \quad \quad 40320x_8. \end{aligned}$$

Also the second difference of x is

$$2x_2 + 2x_4 + 2x_6 + 2x_8 + \dots$$

Also the value of $X = 2x_2$

So that the reduction is

$$\begin{aligned} &2x_4 + 2x_6 + 2x_8 \\ \frac{1}{12} X_2 &= 2x_4 + 5x_6 + \frac{28}{3}x_8. \end{aligned}$$

$$-\frac{1}{240} X_4 = -3x_6 - 28x_8$$

$$\frac{31}{60480} X_6 = +\frac{62}{3} x_8$$

Hence the reduction is

$$\frac{1}{12} X_2 - \frac{1}{240} X_4 + \frac{31}{60480} X_6$$

SPECIMEN COPY OF ONE OF THE COMPUTING SHEETS. INTERVAL 64 DAYS.

Day.	α First Six Decimal Places.	First Difference.	Second Difference.	X minus Last Column in Eighth Decimal.	$\frac{1}{12}$ Second Difference of X .	Adjust- ment.	In Units of Eighth Decimal.		
		In Sixth Decimal.	In Eighth Decimal.	Sum = Correction to Second Difference.	Correction to First Difference.		Correction to α .		
+25984	-1.994 574	+172 579	+1878	+ 115	- 62	-1	+ 52	- 34	+ 46
26048	1.821 995	174 457	1899	- 10	88	0	- 98	+ 18	+ 12
26112	1.647 538	176 356	1906	+ 210	121	0	+ 89	- 80	+ 30
26176	1.471 182	178 262	1901	176	170	+2	+ 8	+ 9	- 50
26240	1.292 920	180 163	1875	200	251	2	- 49	+ 17	- 41
26304	1.112 757	182 038	1817	418	384	2	+ 36	- 32	- 24
26368	0.930 719	183 855	1713	626	603	2	+ 25	+ 4	- 56
26432	0.746 864	185 568	1535	1001	966	2	+ 37	+ 29	- 52
26496	0.561 296	187 103	1241	1387	1585	2	- 196	+ 66	- 23
26560	0.374 193	188 344	+ 747	2756	2695	2	+ 63	- 130	+ 43
26624	-0.185 849	189 091	- 80	+5088	-4815	+2	+275	- 67	- 87
26688	+0.003 242	+ 189 011						+208	-154
+26752	+0.192 253								+ 54

Day.	Attraction of Sun.	Attraction of Planets.	Sum = X.	First Difference = X ₁ .	Second Difference = X ₂ .	Third Difference = X ₃ .	Fourth Difference = X ₄ .	Fifth Difference = X ₅ .	Sixth Difference = X ₆ .
In Eighth Decimal.									
+ 25984	+ 1 843 49	+ 8 42	+ 1 851 91	+ 27 24	- 7 49	- 3 06			
26048	1 873 05	6 10	1 879 15	19 75	10 55	3 99	- 93		
26112	1 896 74	+ 2 16	1 898 90	+ 9 20	14 54	5 88	1 89	- 96	
26176	1 911 36	- 3 26	1 908 10	- 5 34	20 42	5 88	3 76	1 87	- 91
26240	1 912 23	9 47	1 902 76	25 76	30 06	9 64	6 40	2 64	77
26304	1 892 37	15 37	1 877 00	55 82	46 10	16 04	10 19	3 79	1 15
26368	1 841 18	20 00	1 821 18	101 92	72 33	26 23	17 33	7 14	3 35
26432	1 742 19	22 93	1 719 26	174 25	115 89	43 56	30 72	13 39	6 25
26496	1 569 26	24 25	1 545 01	290 14	190 17	74 28	58 92	28 20	14 81
26560	1 279 21	24 34	1 254 87	480 31	323 37	133 20	- 121 22	- 62 30	- 34 10
26624	+ 798 22	23 66	+ 774 56	803 68	- 577 79	- 254 42			
26688	- 6 54	22 58	- 29 12	- 1 381 47					
+ 26752	- 1 389 27	- 21 32	- 1 410 59						

It should be explained that on days for which some of the planetary attractions are not computed, their values are estimated by *extrapolation*, and the quadratures carried on till the date when the attraction of the planets in question is calculated. The attractions for intermediate dates are then carefully interpolated and the work of quadratures repeated on another sheet (known as the *duplicate* sheet). The column called "adjustment" is a rough estimate of the term involving the *fourth* difference of X. Its accurate value is used on the duplicate sheet.

SPECIMEN OF A PREDICTION OF AN x CO-ORDINATE.

Day + 26112 x co-ordinate	- 1.64753770	{ including correction in Final column
Preceding first difference of x	+ .17445718	{ including correction in penultimate column
X attraction	+ 189890	
Estimate of $\frac{1}{12}$ second difference of X	- 38	

$$\text{Sum} = x \text{ co-ordinate for day + 26176} - 1.47118200$$

The last term is the only part of the prediction that requires guesswork. For convenience it is always so chosen as to make the last two figures in the sum 00. The value of the co-ordinate thus predicted is *always* sufficiently near the truth for computing the attractions of the *planets*, and *nearly always* suffices for the Sun. In a few cases only has the predicted value proved to be so much in error that a recomputation of the Sun's attraction was necessary.

Our calculations have been carried to day - 27776 for the 1759 perihelion, and to day + 27072 for that of 1910, whereas the dates of perihelion passage are about - 28006, + 27180.

Our reason for stopping at the latter point was that we had (in 1910) gone as close to perihelion as was proper, if we continued to neglect the small planets: it was considered better to postpone the investigation of their action, until the orbit of the comet in 1910 was accurately known from observation.

We determined to bring the comet to perihelion from the last of our computed dates on the assumption of undisturbed elliptic motion.

We found by geometrical methods the best ellipse (on the assumption that the Sun alone was acting) that would satisfy the calculated rectangular co-ordinates on the days + 26912, + 26944, + 27040, + 27072.

The mean of these dates is + 26992, or about 188 days before perihelion. It is of course impossible to find one ellipse to represent these 4 dates with perfect accuracy,

but we obtained the following, as the ellipse which, according to our prediction, would most closely represent the motion during the last five months of 1909.

Date of Osculation 1909 Oct. 11.

$$T = +27180^d.147 = 1910 \text{ Apr. } 17.147 \text{ Paris M.T.}$$

$$\begin{array}{lcl} \omega = 111^\circ 40' 38'' & \left. \begin{array}{l} \text{Equinox and} \\ \text{Ecliptic of} \end{array} \right\} & = 111^\circ 42' 16'' \left. \begin{array}{l} \text{Equinox and} \\ \text{Ecliptic} \end{array} \right\} \\ \Omega = 56 \ 12 \ 34 & & = 57 \ 16 \ 12 \\ i = 162 \ 12 \ 28 & \left. \begin{array}{l} 1835 \text{ Nov. } 16 \\ \text{of } 1910.0. \end{array} \right\} & = 162 \ 12 \ 42 \end{array}$$

$$e = 0.967281$$

$$q = 0.58715$$

$$n = 46''.6747 \qquad a = 17.94527$$

T (corrected) = 1910 April 16.61 Greenwich M.T., this being formed by the application of the correction $-0^d.53$, found below.

We also found that the date of perihelion passage might have been obtained with great exactness (to 0.02 of a day) from the days $+26912$ and $+26944$.

We therefore infer that the date of perihelion passage in 1759 might be obtained with sufficient accuracy from our two final places for days -27744 and -27776 , these being about as far from perihelion as the previous pair.

As the date of perihelion in 1759 is all that we require, we did not go further with the quadratures but we deduced

$$T = -28006^d.98 \text{ in our tabular orbit.}$$

But from observation we have

$T = -28006^d.43$, since the observed period was -28006.37 , and perihelion in 1835 was 0.06 days before our zero epoch.

Hence we are using too small a mean motion in our tabular orbit, the tabular period being 0.55 longer than the observed period. The effect of this error will be nearly the same in the 1910 perihelion, and we conclude that we must subtract $0^d.53$ from the tabular time of perihelion in 1910. The diminution from $0^d.55$ to $0^d.53$ is due to the shorter periodic time in the second revolution.

The above results were all deduced before the revision of the orbit from day -4608 to $+4608$ was undertaken. This revision was carried out after the observations of the comet in 1909 showed that the actual date of perihelion in 1910 was some three days later than our predicted date. The time intervals adopted for the first investigation were halved in the revision of the orbit, and the work was carried to an additional place of decimals; a few errors in the former work were also detected and corrected. It was not practicable to correct the developed co-ordinates for the whole revolution by these revised values of X , Y , Z , but the effect

of the revision on the time of perihelion in 1910 has been approximately determined as follows:—

Since in an elliptical orbit $\frac{v^2}{\mu} = \frac{2}{r} - \frac{1}{a}$ it follows that if v be given a small alteration δv at any point, the resulting variation of $\frac{1}{a} = -$ the variation in $\frac{v^2}{\mu} = \frac{-2v\delta v}{\mu}$.

And further, if v_x, v_y, v_z be the component velocities, $v^2 = v_x^2 + v_y^2 + v_z^2$. Whence $v\delta v = v_x \delta v_x + v_y \delta v_y + v_z \delta v_z$.

And since a does not vary much from 18, the variation of $a = -324$ times the variation of $\frac{1}{a} = \frac{+648 v\delta v}{\mu}$.

And the variation of the period in days $= +\frac{3}{2} a^{\frac{3}{2}} (365\frac{1}{4}) \times$ variation in a .

Again in a circular orbit of radius unity $\frac{v^2}{\mu} = 1$.

Whence if the interval of time be two days, $\mu = \left(\frac{4\pi}{365\frac{1}{4}}\right)^2$.

And for each doubling of the interval of time we must multiply μ by 4.

Now $\delta v_x, \delta v_y, \delta v_z$ are given in the column "New minus Old" in Table V., and the resolved velocities are obtained by taking the differences of consecutive co-ordinates in the x, y, z columns in the sense later co-ordinate - earlier. The following are the logarithms that, added to log. "New minus Old" + log. resolved velocity, give log. correction in days to T in 1910. The correction is plus when "New minus Old" has the same sign as the resolved velocity, otherwise minus.

2 ^d	4 ^d	8 ^d	16 ^d	32 ^d	64 ^d	128 ^d	256 ^d
9.1047	8.5026	7.9006	7.2985	6.6965	6.0944	5.4923	4.8903.

The corrections may be found separately for the x, y, z co-ordinates and then added together.

The following are the resulting corrections to T in 1910:—

Limiting Dates.	Correc- tion.	Limiting Dates.	Correc- tion.	Limiting Dates.	Correc- tion.	Limiting Dates.	Correc- tion.
	d		d		d		d
-4480 to -3200	-004	-384 to -320	+022	-30 to -16	+120	+160 to +304	+108
-3072 to -2560	+001	-304 to -240	+090	-14 to 0	+280	+320 to +608	-346
-2432 to -1920	000	-240 to -160	+131	+2 to +14	+014	+640 to +1216	-004
-1792 to -1280	-028	-152 to -80	+078	+16 to +30	-289	+1280 to +2432	-010
-1216 to -640	-015	-76 to -40	-064	+32 to +76	+167	+2560 to +4352	-005
-608 to -416	-092	-36 to -32	-001	+80 to +152	+307		
Sum	-138		+196		+599		-257

To these we may add the following corrections outside the above limits; the co-

ordinates of the comet have been developed from second differences erroneous by the following amounts in the eighth decimal: Day +5376, z diff. 10 too small; Day +13568, y diff. 14 too small; Day +17408 z diff. 8 too small.

The corresponding corrections to T in 1910 are $-^d\cdot001$, $+^d\cdot0004$, $+^d\cdot0002$.

Hence the total correction to T in 1910 is $+^d\cdot40$, and the revised predicted date of perihelion is 1910 April 17^h01 G.M.T.

The observed value of T is 2^d·68 later, and we consider that at least two days of this discordance must be due to causes other than errors of calculation or errors in the adopted positions and masses of the planets.

In conclusion we consider that our method, if pressed to the extreme accuracy of which it is capable, will give results of a higher degree of accuracy than any previously published method of dealing with this comet; in fact, that any deviation of observation from theory to the extent of more than a fraction of a day would indicate the action of unknown or non-gravitational forces. We do not claim that our actual work reaches quite this standard of accuracy, as owing to pressure of time it has not been possible to do the whole of the work in duplicate, though it has been examined by differencing in a way that could not fail to detect large errors. Had time permitted we should have computed the old planetary places with the best modern tables, but in practice we found it necessary to utilise the results of the "Greenwich Planetary Observations."

Formula giving component attractions multiplied by the square of the interval

$$X = \frac{k}{r^3} x \quad Y = \frac{k}{r^3} y \quad Z = \frac{k}{r^3} z$$

where x, y, z are the co-ordinates of the attracting mass relatively to the comet.

Log. k is given in the following table of double entry, with arguments Planet and Interval.

Planet.	Interval in Days.							
	2 ^d .	4 ^d .	8 ^d .	16 ^d .	32 ^d .	64 ^d .	128 ^d .	256 ^d .
Neptune	2·7823	3·3844	3·9864	4·5885	5·1905	5·7926	6·3947	6·9967
Uranus	2·7161	3·3182	3·9202	4·5223	5·1244	5·7264	6·3285	6·9305
Saturn	3·5290	4·1310	4·7331	5·3351	5·9372	6·5393	7·1413	7·7434
Jupiter	4·05313	4·65519	5·25725	5·85931	6·46137	7·06343	7·66549	8·26755
Mars	0·5828	1·1848	1·7869	2·3890	2·9910			
Earth	1·5555	2·1576	2·7596	3·3617	3·9638			
Venus	1·4626	2·0646	2·6667	3·2687	3·8708			
Sun	7·0732228	7·6752828	8·2773428	8·8794028	9·4814628			
Sun + Venus			8·2773439	8·8794039	9·4814639			
Sun + Venus + Earth + Mars ... }					9·4814653	0·0835253	0·6855852	1·2876452

The planetary masses are taken from Newcomb's Tables of the Sun.

The following Tables are given to facilitate the reduction of the epochs in the Tables (which are reckoned in mean solar days, counting forward and backward from Paris Mean Noon of 1835, Nov. 16 as the zero epoch) to the calendar dates:—

Paris Mean Noon.	Paris Mean Noon.	Paris Mean Noon.	Paris Mean Noon.
1759 Jan. 1 = -28077	1797 Jan. 1 = -14197	1835 Nov. 16 = 0	1874 Jan. 1 = +13926
1759 Mar. 12 = -28007	1798 Jan. 1 = -13832	1836 Jan. 1 = + 46	1875 Jan. 1 = +14291
1760 Jan. 1 = -27712	1799 Jan. 1 = -13467	1837 Jan. 1 = + 412	1876 Jan. 1 = +14656
1761 Jan. 1 = -27346	1800 Jan. 1 = -13102	1838 Jan. 1 = + 777	1877 Jan. 1 = +15022
1762 Jan. 1 = -26981	1801 Jan. 1 = -12737	1839 Jan. 1 = + 1142	1878 Jan. 1 = +15387
1763 Jan. 1 = -26616	1802 Jan. 1 = -12372	1840 Jan. 1 = + 1507	1879 Jan. 1 = +15752
1764 Jan. 1 = -26251	1803 Jan. 1 = -12007	1841 Jan. 1 = + 1873	1880 Jan. 1 = +16117
1765 Jan. 1 = -25885	1804 Jan. 1 = -11642	1842 Jan. 1 = + 2238	1881 Jan. 1 = +16483
1766 Jan. 1 = -25520	1805 Jan. 1 = -11276	1843 Jan. 1 = + 2603	1882 Jan. 1 = +16848
1767 Jan. 1 = -25155	1806 Jan. 1 = -10911	1844 Jan. 1 = + 2968	1883 Jan. 1 = +17213
1768 Jan. 1 = -24790	1807 Jan. 1 = -10546	1845 Jan. 1 = + 3334	1884 Jan. 1 = +17578
1769 Jan. 1 = -24424	1808 Jan. 1 = -10181	1846 Jan. 1 = + 3699	1885 Jan. 1 = +17944
1770 Jan. 1 = -24059	1809 Jan. 1 = - 9815	1847 Jan. 1 = + 4064	1886 Jan. 1 = +18309
1771 Jan. 1 = -23694	1810 Jan. 1 = - 9450	1848 Jan. 1 = + 4429	1887 Jan. 1 = +18674
1772 Jan. 1 = -23329	1811 Jan. 1 = - 9085	1849 Jan. 1 = + 4795	1888 Jan. 1 = +19039
1773 Jan. 1 = -22963	1812 Jan. 1 = - 8720	1850 Jan. 1 = + 5160	1889 Jan. 1 = +19405
1774 Jan. 1 = -22598	1813 Jan. 1 = - 8354	1851 Jan. 1 = + 5525	1890 Jan. 1 = +19770
1775 Jan. 1 = -22233	1814 Jan. 1 = - 7989	1852 Jan. 1 = + 5890	1891 Jan. 1 = +20135
1776 Jan. 1 = -21868	1815 Jan. 1 = - 7624	1853 Jan. 1 = + 6256	1892 Jan. 1 = +20500
1777 Jan. 1 = -21502	1816 Jan. 1 = - 7259	1854 Jan. 1 = + 6621	1893 Jan. 1 = +20866
1778 Jan. 1 = -21137	1817 Jan. 1 = - 6893	1855 Jan. 1 = + 6986	1894 Jan. 1 = +21231
1779 Jan. 1 = -20772	1818 Jan. 1 = - 6528	1856 Jan. 1 = + 7351	1895 Jan. 1 = +21596
1780 Jan. 1 = -20407	1819 Jan. 1 = - 6163	1857 Jan. 1 = + 7717	1896 Jan. 1 = +21961
1781 Jan. 1 = -20041	1820 Jan. 1 = - 5798	1858 Jan. 1 = + 8082	1897 Jan. 1 = +22327
1782 Jan. 1 = -19676	1821 Jan. 1 = - 5432	1859 Jan. 1 = + 8447	1898 Jan. 1 = +22692
1783 Jan. 1 = -19311	1822 Jan. 1 = - 5067	1860 Jan. 1 = + 8812	1899 Jan. 1 = +23057
1784 Jan. 1 = -18946	1823 Jan. 1 = - 4702	1861 Jan. 1 = + 9178	1900 Jan. 1 = +23422
1785 Jan. 1 = -18580	1824 Jan. 1 = - 4337	1862 Jan. 1 = + 9543	1901 Jan. 1 = +23787
1786 Jan. 1 = -18215	1825 Jan. 1 = - 3971	1863 Jan. 1 = + 9908	1902 Jan. 1 = +24152
1787 Jan. 1 = -17850	1826 Jan. 1 = - 3606	1864 Jan. 1 = + 10273	1903 Jan. 1 = +24517
1788 Jan. 1 = -17485	1827 Jan. 1 = - 3241	1865 Jan. 1 = + 10639	1904 Jan. 1 = +24882
1789 Jan. 1 = -17119	1828 Jan. 1 = - 2876	1866 Jan. 1 = + 11004	1905 Jan. 1 = +25248
1791 Jan. 1 = -16754	1829 Jan. 1 = - 2510	1867 Jan. 1 = + 11369	1906 Jan. 1 = +25613
1791 Jan. 1 = -16389	1830 Jan. 1 = - 2145	1868 Jan. 1 = + 11734	1907 Jan. 1 = +25978
1792 Jan. 1 = -16024	1831 Jan. 1 = - 1780	1869 Jan. 1 = + 12100	1908 Jan. 1 = +26343
1793 Jan. 1 = -15658	1832 Jan. 1 = - 1415	1870 Jan. 1 = + 12465	1909 Jan. 1 = +26709
1794 Jan. 1 = -15293	1833 Jan. 1 = - 1049	1871 Jan. 1 = + 12830	1910 Jan. 1 = +27074
1795 Jan. 1 = -14928	1834 Jan. 1 = - 684	1872 Jan. 1 = + 13195	1910 Apr. 19 = +27182
1796 Jan. 1 = -14563	1835 Jan. 1 = - 319	1873 Jan. 1 = + 13561	

The following Table gives the number of days to be added to the day number for Jan. 1 of any year to obtain that for the first day of any other month:—

	Com- mon Year.	Leap Year.		Com- mon Year.	Leap Year.		Com- mon Year.	Leap Year.		Com- mon Year.	Leap Year.
Jan. 1	0	0	April 1	+ 90	+ 91	July 1	+ 181	+ 182	Oct. 1	+ 273	+ 274
Feb. 1	+ 31	+ 31	May 1	+ 120	+ 121	Aug. 1	+ 212	+ 213	Nov. 1	+ 304	+ 305
March 1	+ 59	+ 60	June 1	+ 151	+ 152	Sept. 1	+ 243	+ 244	Dec. 1	+ 334	+ 335

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1910 September 2.*

TABLE I.

This Table gives for every date for which the attractions were computed :

(I.) The heliocentric co-ordinates of Neptune.

(II.) The heliocentric co-ordinates of Uranus.

The dates are given in days counting from 1835 Nov. 16. Paris mean noon.

The mean ecliptic of 1835 Nov. 16 is taken as the plane of reference for the co-ordinates, x being drawn towards the first point of Aries, y towards longitude 90° in the ecliptic, and z towards the north pole of the ecliptic.

Day.	Heliocentric Co-ordinates of Neptune.			Heliocentric Co-ordinates of Uranus.			Day.	Heliocentric Co-ordinates of Neptune.			Heliocentric Co-ordinates of Uranus.		
	x .	y .	z .	x .	y .	z .		x .	y .	z .	x .	y .	z .
- 27776	-22'650	+19'792	+ '145	+20'083	+ 0'302	- '259	+ 512	+17'728	-24'329	+ '061	+18'168	- 8'471	- '268
27520	23'176	19'186	'170	20'035	1'260	'255	640	18'066	24'068	'051	18'379	8'049	'270
27136	23'933	18'254	'206	19'878	2'690	'247	704	...	...	...	18'47	7'82	'27
26368	25'328	16'302	'278	19'226	5'505	'227	1024	18'987	23'341	+ '012	18'908	6'711	'271
25600	26'571	14'241	'349	18'154	8'200	'203	1280	19'629	22'799	- '012	19'225	5'810	'270
24576	27'957	11'346	'441	16'113	11'497	'163	1536	20'201	22'280	'038	19'476	4'890	'271
23552	29'018	8'326	'526	13'433	14'338	'118	2048	21'371	21'146	'087	19'863	3'009	'268
22528	29'756	5'233	'606	10'198	16'596	'067	2560	22'464	19'962	'137	20'054	- 1'100	'263
21504	30'165	+ 2'052	'679	6'533	18'147	- '013	3584	24'45	17'42	'24	19'85	+ 2'74	'25
20480	30'240	- 1'147	'745	+ 2'596	18'907	+ '040	4608	26'14	14'69	'33	18'88	6'47	'22
19456	29'954	4'332	'802	- 1'446	18'832	'093	5632	27'54	11'79	'42	17'17	9'94	'18
18432	29'339	7'458	'849	5'434	17'914	'140	6656	28'63	8'76	'51	14'79	13'01	'14
17408	28'405	10'501	'887	9'170	16'147	'182	7680	29'38	5'61	'59	11'81	15'57	'09
16384	27'159	13'434	'916	12'465	13'595	'215	8704	29'79	- 2'41	'66	8'34	17'48	- '04
15360	25'599	16'219	'935	15'137	10'370	'237	9728	29'85	+ 0'82	'73	4'50	18'64	+ '01
14336	23'754	18'816	'942	17'049	6'635	'247	10752	29'57	4'04	'79	+ 0'48	18'97	'07
13312	21'654	21'201	'941	18'110	+ 2'568	'244	11776	28'95	7'21	'84	- 3'56	18'46	'12
12288	19'314	23'360	'929	18'260	- 1'638	'230	12800	27'98	10'31	'87	7'44	17'10	'16
11264	16'751	25'263	'906	17'483	5'765	'204	13824	26'69	13'28	'90	10'96	14'90	'20
10240	13'996	26'878	'873	15'833	9'601	'167	14848	25'09	16'09	'92	13'95	11'98	'23
9216	11'094	28'186	'829	13'418	12'964	'123	15360	...	...	...	15'18	10'28	'24
8192	8'067	29'184	'777	10'371	15'714	'073	15872	23'20	18'71	'93	16'23	8'46	'24
7680	6'516	29'565	'748	8'648	16'829	+ '045	16384	...	...	...	17'08	6'54	'24
6656	3'363	30'076	'682	4'934	18'461	- '009	16896	21'02	21'13	'92	17'71	4'53	'25
5632	- 0'172	30'242	'610	- 0'999	19'264	'062	17408	...	...	...	18'12	2'46	'24
4608	+ 3'015	30'068	'530	+ 2'974	19'238	'113	17920	18'60	23'29	'91	18'29	+ 0'36	'24
3584	6'164	29'560	'445	6'809	18'415	'160	18432	...	...	...	18'24	- 1'75	'23
2560	9'251	28'725	'354	10'393	16'840	'200	18944	15'96	25'17	'89	17'95	3'84	'22
2048	10'761	28'185	'307	12'034	15'794	'217	19456	14'58	26'00	'87	17'44	5'87	'20
1536	12'243	27'558	'259	13'562	14'580	'232	19968	13'15	26'76	'85	16'70	7'84	'18
1280	12'966	27'221	'235	14'266	13'932	'239	20480	11'68	27'44	'83	15'76	9'70	'17
1024	13'680	26'858	'211	14'942	13'239	'245	20992	10'18	28'05	'80	14'64	11'44	'14
640	14'734	26'282	'175	15'885	12'142	'253	21504	8'64	28'56	'78	...	...	...
512	15'075	26'088	'161	16'176	11'768	'255	22016	7'08	29'00	'75	11'87	14'50	'10
320	15'597	25'775	'144	16'606	11'177	'258	22528	5'50	29'34	'72	...	...	...
160	16'018	25'500	'129	16'942	10'678	'260	23040	3'90	29'60	'69	8'54	16'89	+ '05
80	16'2	25'4	'1	17'10	10'42	'26	23296	3'10	29'70	'67	...	...	...
32	16'35	25'29	'12	17'199	10'273	'262	23552	2'30	29'78	'66	...	...	...
- 4	...	...	...	17'253	10'184	'262	23808	1'49	29'85	'64	...	...	...
0	16'425	25'245	'110	17'262	10'169	'263	24064	+ 0'69	29'87	'62	4'81	18'50	- '01
+ 24	...	...	...	17'308	10'093	'263	24320	- 0'12	29'88	'60	...	...	...
32	16'5	25'2	'1	17'3	10'1	'3	24576	0'93	29'87	'58	...	...	...
36	16'5	25'2	'1	17'3	10'1	'3	24832	1'73	29'85	'56	...	...	...
44	16'6	25'2	'1	17'3	10'0	'3	25088	2'54	29'80	'54	- 0'87	19'27	'06
60	16'6	25'1	'1	17'4	10'0	'3	25600	4'14	29'63	'49	...	...	...
80	16'6	25'1	'1	17'42	9'91	'26	26112	5'74	29'38	'45	+ 3'10	19'22	'11
128	16'768	25'005	'101	17'517	9'757	'264	26368	6'53	29'29	'43	4'09	19'08	'13
160	16'851	24'948	'098	17'759	9'653	'264	26752	7'714	28'937	'395	5'53	18'78	'14
+ 320	+17'260	-24'661	+ '082	+17'869	- 9'127	- '266	+ 26944	- 8'30	+28'78	- '38	+ 6'24	-18'59	- '15

TABLE II.

This Table gives :

- (I.) Heliocentric co-ordinates of Saturn for every date for which the attractions of Saturn were independently computed.
 (II.) Heliocentric co-ordinates of Jupiter for every date for which the attractions of Jupiter were independently computed.
 (III.) The co-ordinates of the Sun referred to the centre of gravity of the Solar System for every date of the original computation and for most of the dates of the revised computation. Those of the latter that are not printed may be readily obtained by simple interpolation.

The dates are given in days counting from 1835 Nov. 16. Paris mean noon.

The mean ecliptic of 1835 Nov. 16 is taken as the plane of reference for the co-ordinates, x being drawn towards the first point of Aries, y towards longitude 90° in the ecliptic, and z towards the north pole of the ecliptic.

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	x .	y .	z .	x .	y .	z .	x .	y .	z .
- 27776	+ 9'3585	- 2'3930	- '3363	+ 2'4119	- 4'5124	- '0396	- '004 693	+ '003 964	+ '000 137
27744	...	...	...	...	...	...	'004 896	'003 789	'000 143
27712	...	...	...	...	...	...	'005 094	'003 604	'000 149
27680	...	...	...	...	...	...	'005 284	'003 410	'000 154
27648	9'4675	1'6952	'3517	3'2055	3'9369	'0592	'005 466	'003 207	'000 160
27616	...	...	...	...	...	...	'005 641	'002 995	'000 165
27584	...	...	...	...	...	...	'005 807	'002 773	'000 171
27552	...	...	...	...	...	...	'005 965	'002 544	'000 176
27520	9'5294	1'4899	'3664	3'8809	3'2103	'0770	'006 113	'002 307	'000 180
27488	...	...	...	...	...	...	'006 252	'002 063	'000 185
27456	...	...	...	...	...	...	'006 380	'001 811	'000 190
27424	...	...	...	...	...	...	'006 498	'001 553	'000 194
27392	9'5385	- 0'2763	'3790	4'4095	2'3615	'0919	'006 605	'001 289	'000 197
27360	...	...	...	...	...	...	'006 701	'001 020	'000 201
27328	...	...	...	...	...	...	'006 785	'000 746	'000 205
27328	...	...	...	...	...	...	'006 785	'000 746	'000 205
27264	9'4917	+ 0'4369	'3890	4'7672	1'4225	'1032	'006 918	+ '000 186	'000 210
27200	...	...	...	...	...	...	'007 002	- '000 388	'000 215
27136	9'3922	1'1477	'3968	4'9378	- 0'4284	'1106	'007 036	'000 970	'000 219
27072	...	...	...	...	...	...	'007 020	'001 555	'000 222
27008	9'2372	1'8518	'4022	4'9127	+ 0'5827	'1139	'006 952	'002 139	'000 223
26944	...	...	...	...	...	...	'006 834	'002 717	'000 223
26880	9'0309	2'5457	'4055	4'6921	1'5708	'1125	'006 667	'003 284	'000 222
26816	...	...	...	...	...	...	'006 448	'003 834	'000 219
26752	8'7688	3'2247	'4064	4'2836	2'4967	'1062	'006 186	'004 364	'000 215
26752	8'7688	3'2247	'4064	4'2836	2'4967	'1062	'006 186	'004 364	'000 215
26624	8'4582	3'8858	'4050	3'7056	3'3239	'0956	'005 530	'005 345	'000 204
26496	8'0924	4'5200	'4009	2'9827	4'0201	'0815	'004 719	'006 194	'000 189
26368	7'6819	5'1292	'3945	2'1446	4'5619	'0644	'003 785	'006 888	'000 170
26240	7'2195	5'7044	'3855	1'2246	4'9324	'0452	'002 759	'007 408	'000 148
26112	6'7172	6'2480	'3744	+ 0'2600	5'1213	- '0237	'001 677	'007 745	'000 124
25984	6'1662	6'7472	'3603	- 0'7128	5'1253	'0000	- '000 575	'007 894	'000 096
25856	5'5809	7'2089	'3443	1'6617	4'9491	+ '0232	+ '000 516	'007 860	'000 069
25728	...	...	...	...	...	...	'001 566	'007 649	'000 043
25600	4'3063	7'9849	'3059	3'3674	4'1059	'0621	'002 544	'007 280	'000 019
25600	4'3063	7'9849	'3059	3'3674	4'1059	'0621	'002 544	'007 280	+ '000 019
25344	2'9215	8'5533	'2602	4'6339	2'7417	'0958	'004 186	'006 143	- '000 028
25088	+ 1'4548	8'8982	'2068	5'3341	+ 1'0359	'1174	'005 311	'004 615	'000 065
24832	- 0'0520	9'0093	'1480	5'3955	- 0'7951	'1250	'005 840	'002 899	'000 091
24576	1'5533	8'8828	'0857	4'8122	2'5326	'1179	'005 753	- '001 203	'000 103
24320	3'0103	8'5224	- '0209	3'6660	3'9675	'0967	'005 118	+ '000 273	'000 103
24064	4'3860	7'9375	+ '0446	2'0670	4'9179	'0637	'004 028	'001 352	'000 092
- 23808	- 5'6480	+ 7'1464	+ '1086	- 0'2097	- 5'2456	+ '0230	+ '002 661	+ '001 899	- '000 073

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	x.	y.	z.	x.	y.	z.	x.	y.	z.
— 23552	— 6'7680	+ 6'1742	+ '1698	+ 1'6785	— 4'8749	— '0209	+ '001 223	+ '001 833	— '000 050
23296	7'7206	5'0483	'2265	3'3253	3'8235	'0621	— '000 031	+ '001 163	'000 029
23040	8'4803	3'7964	'2777	4'4787	2'2141	'0938	'000 869	— '000 001	'000 015
22784	9'0355	2'4512	'3224	4'9477	— 0'2706	'1111	'001 113	'001 455	'000 013
22528	9'3843	+ 1'0502	'3598	4'6395	+ 1'7254	'1114	— '000 674	'002 940	'000 024
22272	9'5137	— 0'3760	'3890	3'6013	3'4457	'0935	+ '000 398	'004 152	'000 052
22016	9'4294	1'7945	'4095	2'0071	4'6348	'0613	'001 940	'004 861	'000 089
21760	9'1380	3'1723	'4207	+ 0'1093	5'1349	— '0203	'003 712	'004 920	'000 133
21504	8'6532	4'4854	'4231	— 1'8031	4'9089	+ '0241	'005 442	'004 303	'000 178
21248	7'9881	5'7054	'4165	3'4751	4'0248	'0649	'006 892	'003 083	'000 216
20992	7'1598	6'8083	'4016	4'7081	2'6226	'0977	'007 876	— '001 400	'000 245
20736	6'1877	7'7752	'3791	5'3597	+ 0'8985	'1191	'008 264	+ '000 554	'000 260
20480	5'0913	8'5879	'3488	5'3765	— 0'9365	'1258	'008 010	'002 583	'000 259
20224	3'8954	9'2340	'3117	4'7472	2'6556	'1168	'007 111	'004 433	'000 242
19968	2'6239	9'7028	'2684	3'5611	4'0601	'0952	'005 659	'005 946	'000 210
19712	— 1'3064	9'9876	'2200	1'9246	4'9665	'0607	'003 763	'006 934	'000 164
19456	+ 0'0376	10'0818	'1674	— 0'0594	5'2424	+ '0189	+ '001 640	'007 269	'000 111
19200	1'3784	9'9814	'1107	+ 1'8167	4'8176	— '0246	— '000 493	'006 882	— '000 054
18944	2'6939	9'6899	+ '0521	3'4322	3'7193	'0649	'002 373	'005 801	'000 000
18688	3'9585	9'2172	— '0074	4'5445	2'0715	'0956	'003 758	'004 146	+ '000 045
18432	5'1475	8'5667	'0661	4'9572	— 0'1094	'1116	'004 457	'002 142	'000 076
18176	6'2359	7'7489	'1236	4'5878	+ 1'8718	'1106	'004 383	+ '000 076	'000 090
17920	7'2020	6'7781	'1787	3'5022	3'5571	'0916	'003 593	— '001 751	'000 087
17664	8'0226	5'6713	'2300	+ 1'8772	4'6972	'0586	'002 250	'003 095	'000 069
17408	8'6803	4'4480	'2765	— 0'0320	5'1444	— '0179	— '000 591	'003 809	'000 043
17152	9'1635	3'1342	'3171	1'9362	4'8654	+ '0276	+ '001 111	'003 854	+ '000 009
16896	9'4404	1'7545	'3512	3'5805	3'9363	'0674	'002 619	'003 297	— '000 019
16640	9'5179	— 0'3384	'3779	4'7747	2'5032	'0996	'003 757	'002 268	'000 043
16384	9'3810	+ 1'0850	'3959	5'3822	+ 0'7620	'1194	'004 392	— '000 946	'000 057
16128	9'0288	2'4824	'4048	5'3486	— 1'0708	'1252	'004 474	+ '000 472	'000 061
15872	8'4654	3'8225	'4045	4'6725	2'7768	'1153	'004 000	'001 787	'000 052
15616	7'6984	5'0720	'3944	3'4422	4'1491	'0923	'003 054	'002 811	'000 033
15360	6'7429	6'1978	'3747	— 1'9716	5'0114	'0581	'001 758	'003 385	— '000 007
15104	5'6158	7'1667	'3450	+ 0'0882	5'2352	+ '0161	+ '000 289	'003 375	+ '000 025
14848	4'3458	7'9517	'3066	1'9521	4'7590	— '0279	— '001 127	'002 791	'000 055
14592	2'9657	8'5296	'2609	3'5396	3'6125	'0678	'002 251	+ '001 607	'000 080
14336	1'5036	8'8849	'2075	4'6019	— 1'9334	'0964	'002 855	— '000 020	'000 092
14080	+ 0'0015	9'0069	'1487	4'9562	+ 0'0415	'1122	'002 774	'001 863	'000 090
13824	— 1'4952	8'8904	'0864	4'5312	2'0094	'1096	'001 956	'003 631	'000 070
13568	2'9613	8'5387	— '0216	3'3935	3'6652	'0894	— '000 470	'005 034	+ '000 033
13312	4'3462	7'9608	+ '0439	+ 1'7410	4'7528	'0557	+ '001 481	'005 831	— '000 018
13056	5'6174	7'1751	'1078	— 0'1826	5'1453	— '0138	'003 654	'005 907	'000 076
12800	6'7466	6'2067	'1690	2'0727	4'8134	+ '0303	'005 752	'005 240	'000 135
12544	7'7061	5'0808	'2260	3'6933	3'8378	'0705	'007 541	'003 915	'000 190
12288	8'4727	3'8289	'2775	4'8434	2'3744	'0991	'008 823	— '002 090	'000 231
12032	9'0347	2'4837	'3224	5'4039	+ 0'6183	'1205	'009 481	+ '000 039	'000 264
11776	9'3839	+ 1'0801	'3596	5'3181	— 1'2117	'1250	'009 459	'002 255	'000 278
11520	9'5137	— 0'3487	'3886	4'6010	2'8992	'1144	'008 769	'004 341	'000 276
11264	9'4298	1'7698	'4089	3'3355	4'2380	'0902	'007 493	'006 090	'000 258
11008	9'1388	3'1502	'4200	— 1'6609	5'0564	'0554	'005 764	'007 330	'000 227
10752	8'6536	4'4634	'4221	+ 0'2235	5'2301	+ '0131	'003 778	'007 933	'000 187
10496	7'9881	5'6835	'4152	2'0756	4'7041	— '0306	+ '001 767	'007 842	'000 142
10240	7'1595	6'7866	'3999	3'6314	3'5158	'0702	— '000 010	'007 083	'000 099
9984	6'1870	7'7536	'3771	4'6489	— 1'8076	'0988	'001 318	'005 787	'000 064
9728	5'0922	8'5667	'3468	4'9485	+ 0'1782	'1130	'001 978	'004 178	'000 041
9472	3'8979	9'2132	'3097	4'4703	2'1358	'1062	'001 928	'002 551	'000 033
9216	2'6280	9'6823	'2665	3'2894	3'7561	'0873	'001 231	'001 189	'000 041
8960	— 1'3121	9'9675	'2181	+ 1'6012	4'8023	'0531	— '000 066	'000 320	'000 058
8704	+ 0'0303	10'0621	'1655	— 0'3257	5'1402	— '0105	+ '001 317	'000 069	'000 083
8448	1'3734	9'9650	'1096	2'2083	4'7565	+ '0335	'002 656	'000 450	'000 107
— 8192	+ 2'6911	— 9'6768	+ '0516	— 3'8015	+ 3'7369	+ '0732	+ '003 725	+ '001 378	— '000 127

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	α .	β .	z .	α .	β .	z .	α .	β .	z .
— 7936	+ 3'9579	— 9'2074	— '0073	— 4'9099	+ 2'2444	+ '1011	+ '004 344	+ '002 702	— '000 136
7680	5'1489	8'5598	'0663	5'4208	+ 0'4759	'1208	'004 413	'004 236	'000 136
7424	6'2402	7'7448	'1239	5'2849	— 1'3505	'1247	'003 893	'005 774	'000 122
7168	7'2093	6'7769	'1791	4'5231	3'0166	'1129	'002 809	'007 112	'000 094
6912	8'0338	5'6729	'2305	3'2200	4'3206	'0876	+ '001 250	'008 064	'000 054
6656	8'6945	4'4525	'2772	— 1'5226	5'0941	'0525	— '000 639	'008 474	— '000 006
6400	9'1806	3'1415	'3180	+ 0'3676	5'2147	+ '0097	'002 664	'008 231	+ '000 048
6144	9'4592	1'7590	'3520	2'2060	4'6363	— '0338	'004 580	'007 299	'000 101
5888	9'5385	— 0'3401	'3785	3'7303	3'3999	'0726	'006 140	'005 724	'000 147
5632	9'4031	+ 1'0861	'3964	4'6971	— 1'6591	'1003	'007 108	'003 663	'000 180
5376	9'0525	2'4841	'4054	4'9378	+ 0'3343	'1132	'007 322	+ '001 366	'000 197
5120	8'4904	3'8248	'4051	4'4003	2'2777	'1076	'006 734	— '000 870	'000 193
4864	7'7247	5'0749	'3951	3'1717	3'8635	'0851	'005 428	'002 743	'000 170
4608	6'7693	6'2017	'3754	1'4549	4'8550	'0509	'003 603	'004 017	'000 133
4480	6'223	6'703	'361	+ 0'4986	5'0859	'0296	'002 578	'004 387	'000 110
4352	5'6423	7'1717	'3457	— 0'4765	5'1384	— '0071	'001 523	'004 575	'000 085
4224	5'023	7'589	'327	1'4328	5'0053	+ '0151	— '000 476	'004 573	'000 060
4096	4'3723	7'9578	'3073	2'3435	4'7034	'0366	+ '000 537	'004 398	'000 034
3968	3'694	8'274	'285	3'1778	4'2375	'0572	'001 884	'004 052	+ '000 009
3840	2'9923	8'5368	'2616	3'9098	3'6368	'0760	'002 341	'003 563	— '000 015
3712	2'270	8'744	'236	4'5094	2'9247	'0920	'003 078	'002 953	'000 037
3584	1'5325	8'8036	'2086	4'9712	2'1230	'1051	'003 687	'002 242	'000 056
3456	0'785	8'985	'180	5'2810	1'2507	'1154	'004 157	'001 448	'000 074
3328	+ 0'0323	9'0172	'1502	5'4350	+ 0'3402	'1223	'004 478	— '000 601	'000 088
3200	— 0'717	8'990	'120	5'4220	— 0'5782	'1252	'004 645	+ '000 270	'000 099
3072	1'4628	8'9023	'0883	5'2504	1'4793	'1243	'004 650	'001 141	'000 106
2944	2'203	8'755	'056	4'9196	2'3360	'1197	'004 506	'001 985	'000 110
2816	2'9277	8'5522	— '0239	4'4446	3'1242	'1117	'004 221	'002 779	'000 111
2688	3'632	8'293	+ '009	3'7925	3'8173	'1003	'003 799	'003 498	'000 108
2560	4'3118	7'9794	'0419	3'1059	4'3956	'0859	'003 262	'004 123	'000 103
2560	4'3118	7'9794	'0419	3'1059	4'3956	'0859	'003 262	'004 123	'000 103
2496	4'642	7'802	'058	2'7539	4'6335	'0775	'002 954	'004 392	'000 099
2432	4'9630	7'6131	'0742	2'2806	4'8347	'0685	'002 623	'004 629	'000 095
2368	5'277	7'412	'090	1'8395	4'9984	'0591	'002 273	'004 834	'000 090
2304	5'5825	7'1987	'1060	1'3838	5'1224	'0492	'001 907	'005 004	'000 085
2240	5'879	6'974	'122	0'9167	5'2044	'0389	'001 528	'005 137	'000 079
2176	6'1666	6'7387	'1371	— 0'4422	5'2439	'0283	'001 139	'005 231	'000 073
2112	6'444	6'492	'152	+ 0'0358	5'2393	'0175	'000 744	'005 283	'000 067
2048	6'7117	6'2357	'1674	0'5133	5'1908	+ '0065	+ '000 347	'005 296	'000 060
1984	6'969	5'969	'182	0'9867	5'0977	— '0046	— '000 049	'005 277	'000 053
1920	7'2144	5'6933	'1967	1'4514	4'9609	'0156	'000 441	'005 220	'000 046
1856	7'449	5'408	'211	1'9035	4'7802	'0265	'000 823	'005 119	'000 039
1792	7'6719	5'1155	'2247	2'3385	4'5573	'0371	'001 192	'004 979	'000 033
1728	7'883	4'814	'238	2'7525	4'2930	'0474	'001 544	'004 802	'000 027
1664	8'0822	4'5064	'2513	3'1414	3'9898	'0573	'001 876	'004 590	'000 021
1600	8'269	4'191	'264	3'5011	3'6493	'0667	'002 184	'004 344	'000 015
1536	8'4431	3'8696	'2764	3'8282	3'2751	'0755	'002 463	'004 068	'000 010
1472	8'604	3'543	'288	4'1188	2'8695	'0834	'002 712	'003 763	'000 005
1408	8'7532	3'2094	'2998	4'3702	2'4367	'0906	'002 926	'003 434	— '000 001
1344	8'889	2'872	'311	4'5792	1'9801	'0969	'003 103	'003 084	+ '000 002
1280	9'0109	2'5305	'3215	4'7437	1'5044	'1022	'003 242	'002 715	'000 004
1280	9'0109	2'5305	'3215	4'7437	1'5044	'1022	'003 242	'002 715	'000 004
1248	...	...	...	4'8086	1'2607	'1045	'003 296	'002 526	'000 005
1216	9'1200	2'1850	'3315	4'8615	1'0139	'1066	'003 340	'002 334	'000 006
1184	...	...	...	4'9024	0'7645	'1084	'003 373	'002 140	'000 007
1152	— 9'2158	+ 1'8364	+ '3412	4'9311	0'5133	'1099	'003 396	'001 944	'000 007
— 1120	...	...	...	+ 4'9476	— 0'2608	— '1112	— '003 407	+ '001 747	+ '000 007

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	x.	y.	z.	x.	y.	z.	x.	y.	z.
— 1088	— 9'2980	+ 1'4887	+ '3503	+ 4'9519	— 0'0076	— '1122	— '003 408	+ '001 549	+ '000 007
1056	...	...	...	4'9438	+ 0'2456	'1129	'003 398	'001 352	'000 007
1024	9'3681	1'1318	'3589	4'9232	0'4981	'1133	'003 377	'001 156	'000 006
992	...	...	...	4'8904	0'7494	'1134	'003 346	'000 961	'000 005
960	9'4223	0'7766	'3670	4'8454	0'9989	'1133	'003 304	'000 767	'000 004
928	...	...	...	4'7883	1'2459	'1128	'003 251	'000 576	'000 003
896	9'4643	0'4204	'3746	4'7191	1'4897	'1121	'003 188	'000 388	+ '000 001
864	...	...	...	4'6381	1'7298	'1111	'003 114	'000 203	— '000 001
832	9'4928	+ 0'0635	'3816	4'5456	1'9657	'1099	'003 030	+ '000 023	'000 003
800	...	...	...	4'4417	2'1966	'1083	'002 936	— '000 153	'000 005
768	9'5079	— 0'2935	'3881	4'3267	2'4221	'1065	'002 833	'000 323	'000 008
736	...	...	...	4'2010	2'6415	'1044	'002 720	'000 488	'000 010
704	9'5097	0'6500	'3940	4'0649	2'8543	'1021	'002 598	'000 647	'000 013
672	...	...	...	3'9188	3'0601	'0995	'002 468	'000 799	'000 016
640	9'4983	1'0059	'3995	3'7630	3'2584	'0966	'002 329	'000 944	'000 020
640	9'4983	1'0059	'3995	3'7630	3'2584	'0966	'002 329 3	'000 944 1	'000 019 6
624	...	...	...	3'68150	3'35451	'09510	'002 255 0	'001 014 1	'000 021 4
608	9'4877	1'1832	'4020	3'5979	3'4487	'0936	'002 179 7	'001 081 6	'000 023 2
592	...	...	...	3'51197	3'54058	'09194	'002 103	'001 147	'000 025
576	9'4737	1'3601	'4043	3'4240	3'6305	'0903	'002 026 0	'001 209 5	'000 026 7
560	...	...	...	3'33383	3'71805	'08849	'001 947	'001 271	'000 029
544	9'4565	1'5366	'4065	3'2417	3'8034	'0867	'001 866 1	'001 329 8	'000 030 5
528	...	...	...	3'14759	3'88644	'08486	'001 784	'001 387	'000 033
512	9'4360	1'7126	'4086	3'0515	3'9672	'0830	'001 699 6	'001 442 4	'000 034 5
496	...	...	...	2'95369	4'04545	'08104	'001 614	'001 496	'000 037
480	9'4123	1'8877	'4106	2'8540	4'1213	'0791	'001 527 3	'001 546 8	'000 038 7
464	...	...	...	2'75268	4'19468	'07698	'001 438 7	'001 595 9	'000 040 9
448	9'3854	2'0628	'4124	2'6496	4'2656	'0749	'001 348 7	'001 642 7	'000 043 0
432	...	...	...	2'54509	4'33381	'07279	'001 257 2	'001 687 2	'000 045 2
416	9'3553	2'2368	'4141	2'43898	4'39954	'07061	'001 164 3	'001 729 4	'000 047 4
400	...	...	...	2'33143	4'46261	'06840	'001 070	'001 769	'000 050
392	...	...	...	2'27708	4'49323	'06726	'001 022	'001 788	'000 051
384	9'3220	2'4101	'4156	2'22245	4'52313	'06613	'000 974 3	'001 806 1	'000 051 9
376	...	...	...	2'16747	4'55233	'06498	'000 925	'001 824	'000 053
368	...	...	...	2'11217	4'58084	'06383	'000 877	'001 840	'000 054
360	...	...	...	2'05654	4'60873	'06257	'000 828	'001 857	'000 055
352	9'2856	2'5826	'4170	2'00064	4'63594	'06150	'000 778 9	'001 872 2	'000 056 5
344	...	...	...	1'94445	4'66242	'06032	'000 729	'001 887	'000 058
336	...	...	...	1'88796	4'68823	'05914	'000 679 5	'001 902 4	'000 058 9
320	9'2460	2'7543	'4182	1'77416	4'73780	'05673	'000 579 3	'001 929 2	'000 061 3
320	9'2460	2'7543	'4182	1'77416	4'73780	'05673	'000 579 3	'001 929 2	'000 061 3
304	9'2250	2'8397	'4188	1'65932	4'78459	'05429	'000 477 9	'001 952 5	'000 063 6
296	...	...	...	1'60153	4'80694	'05306	'000 427 1	'001 962 9	'000 064 8
288	9'2033	2'9249	'4193	1'54351	4'82859	'05182	'000 376 3	'001 972 6	'000 066 1
280	...	...	...	1'48526	4'84954	'05057	'000 325 3	'001 981 6	'000 067 5
272	9'1808	3'0099	'4198	1'42680	4'86979	'04932	'000 274 3	'001 989 9	'000 068 9
264	...	...	...	1'36813	4'88933	'04806	'000 223 2	'001 997 4	'000 070 3
256	9'1576	3'0946	'4202	1'30927	4'90816	'04680	'000 172 2	'002 004 3	'000 071 6
248	...	...	...	1'25022	4'92628	'04552	'000 121 3	'002 010 6	'000 072 6
240	9'1336	3'1791	'4206	1'19098	4'94369	'04424	— '000 070 4	'002 016 3	'000 073 6
224	9'1088	3'2633	'4210	1'0720	4'9764	'0417	+ '000 031 4	'002 025 9	'000 075 8
216	...	...	...	1'0123	4'9917	'0404	'000 082 6	'002 029 8	'000 077 0
208	9'0833	3'3472	'4214	0'9524	5'0062	'0390	'000 133 7	'002 033 2	'000 078 2
200	...	...	...	0'8924	5'0200	'0377	'000 184 8	'002 035 9	'000 079 5
192	— 9'0570	— 3'4309	+ '4217	0'8323	5'0331	'0364	'000 235 9	'002 038 1	'000 080 8
— 184	...	...	...	+ 0'7721	+ 5'0455	— '0351	+ '000 287 2	— '002 039 8	— '000 082 1

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
— 176	— 9°0299	— 3°5143	+ 4220	+ 0°7117	+ 5°0572	— 0°338	+ 000 338 5	— 002 040 9	— 000 083 3
168	...	...	...	0°6512	5°0681	0°325	000 389 9	002 041 4	000 084 5
160	9°0021	3°5975	4222	0°5906	5°0784	0°311	000 441 3	002 041 3	000 085 7
160	9°0021	3°5975	4222	0°5906	5°0784	0°311	000 441 3	002 041 3	000 085 7
156	...	...	...	0°5603	5°0833	0°304	000 467 1	002 041 1	000 086 4
152	...	...	...	0°5299	5°0879	0°297	000 493 0	002 040 7	000 087 1
148	...	...	...	0°4996	5°0924	0°291	000 518 8	002 040 2	000 087 9
144	8°9735	3°6803	4224	0°4092	5°0967	0°283	000 544 7	002 039 5	000 088 4
140	...	...	...	0°4389	5°1009	0°278	000 570 6	002 038 6	000 089 1
136	...	...	...	0°4084	5°1048	0°269	000 596 5	002 037 6	000 089 7
132	...	...	...	0°3781	5°1087	0°264	000 622 4	002 036 3	000 090 4
128	8°9442	3°7628	4226	0°3476	5°1122	0°255	000 648 4	002 034 9	000 091 1
124	...	...	...	0°3172	5°1156	0°250	000 674 4	002 033 3	000 091 8
120	...	...	...	0°2867	5°1188	0°242	000 700 4	002 031 6	000 092 4
116	...	...	...	0°2562	5°1217	0°237	000 726 4	002 029 7	000 093 0
112	8°9142	3°8450	4228	0°2258	5°1247	0°229	000 752 4	002 027 7	000 093 6
108	...	...	...	0°1952	5°1273	0°224	000 778 5	002 025 4	000 094 2
104	...	...	...	0°1648	5°1299	0°216	000 804 6	002 023 0	000 094 8
100	...	...	...	0°1343	5°1323	0°210	000 830 7	002 020 3	000 095 4
96	8°8834	3°9269	4229	0°1038	5°1343	0°203	000 856 7	002 017 5	000 096 0
92	...	...	...	0°0733	5°1364	0°196	000 882 7	002 014 6	000 096 6
88	...	...	...	0°0428	5°1381	0°190	000 908 7	002 011 5	000 097 3
84	...	...	...	+ 0°0124	5°1398	0°182	000 934 7	002 008 3	000 097 9
80	8°8520	4°0070	4220	— 0°0181	5°1411	0°175	000 960 7	002 005 0	000 098 6
80	8°8520	4°0070	4220	0°0181	5°1411	0°175	000 960 7	002 005 0	000 098 6
76	...	...	...	...	...	...	000 987 2	002 001 3	000 099 2
74	...	...	...	0°0639	5°1430	0°166	001 000 4	001 999 4	000 099 6
72	...	...	...	0°0791	5°1435	0°162	001 013 6	001 997 4	000 099 9
68	...	...	...	...	...	...	001 040 0	001 993 4	000 100 5
66	...	...	...	0°1249	5°1447	0°152	001 053 3	001 991 3	000 100 8
64	...	...	...	...	...	...	001 066 5	001 989 2	000 101 1
60	8°812	4°108	422	...	...	...	001 092 1	001 984 8	000 101 8
58	...	...	...	0°1858	5°1458	0°138	001 104 8	001 982 6	000 102 1
56	8°803	4°130	423	0°201	5°146	0°13	001 117 6	001 980 3	000 102 4
52	...	...	...	...	...	...	001 143 2	001 975 6	000 103 0
50	...	...	...	0°2468	5°1462	0°124	001 156 0	001 973 2	000 103 4
48	...	...	...	...	...	...	001 168 7	001 970 7	000 103 7
44	...	...	...	...	...	...	001 194 3	001 965 7	000 104 3
42	...	...	...	0°3078	5°1459	0°110	001 207 0	001 963 1	000 104 6
40	8°771	4°209	422	...	...	...	001 219 8	001 960 5	000 104 9
36	...	...	...	0°353	5°145	0°10	001 245 4	001 955 2	000 105 6
32	8°753	4°251	423	0°384	5°144	0°09	001 270 9	001 949 7	000 106 2
32	8°753	4°251	423	0°384	5°144	0°09	001 270 9	001 949 7	000 106 2
30	8°750	4°259	422	0°3980	5°1440	0°089	001 283 7	001 946 9	000 106 5
28	...	...	...	...	...	...	001 296 5	001 944 1	000 106 8
26	...	...	...	...	...	...	001 309 3	001 941 2	000 107 2
24	...	...	...	0°444	5°142	0°08	001 322 1	001 938 3	000 107 5
22	...	...	...	...	...	...	001 334 9	001 935 3	000 107 8
20	...	...	...	0°475	5°141	0°07	001 347 7	001 932 3	000 108 1
18	...	...	...	0°4892	5°1406	0°068	001 360 4	001 929 3	000 108 4
16	...	...	...	...	...	...	001 373 2	001 926 2	000 108 7
14	...	...	...	...	...	...	001 386 0	001 923 1	000 109 1
12	...	...	...	0°536	5°138	0°06	001 398 8	001 919 9	000 109 4
10	— 8°706	— 4°360	+ 422	...	...	...	001 411 6	001 916 7	000 109 7
8	...	...	...	— 0°566	+ 5°136	— 0°05	+ 001 424 4	— 001 913 4	— 000 110 0

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
— 6	...	...	...	— 0°5802	+ 5°1355	— 0°048	+ 0°01 437 2	— 0°01 910 1	— 0°00 110 4
— 4	— 8°70	— 4°39	+ 42	0°596	5°135	0°04	0°01 450 0	0°01 906 8	0°00 110 7
— 2	...	...	...	...	...	...	0°01 462 7	0°01 903 5	0°00 111 0
0	8°69	4°41	42	0°626	5°132	0°04	0°01 475 4	0°01 900 1	0°00 111 4
+ 2	...	...	...	...	...	...	0°01 488 1	0°01 896 7	0°00 111 7
+ 4	8°68	4°43	42	0°656	5°130	0°03	0°01 500 8	0°01 893 3	0°00 112 0
+ 6	...	...	...	0°6710	5°1289	0°026	0°01 513 5	0°01 889 8	0°00 112 3
+ 8	...	...	...	...	...	...	0°01 526 1	0°01 886 3	0°00 112 6
+ 10	8°661	4°462	422	...	...	...	0°01 538 7	0°01 882 7	0°00 112 8
+ 12	8°66	4°47	42	0°717	5°125	0°02	0°01 551 3	0°01 879 1	0°00 113 1
+ 14	...	...	...	...	...	...	0°01 564 0	0°01 875 4	0°00 113 4
+ 16	...	...	...	...	...	...	0°01 576 7	0°01 871 7	0°00 113 6
+ 18	...	...	...	0°7617	5°1206	— 0°006	0°01 589 4	0°01 868 0	0°00 114 0
+ 20	...	...	...	...	...	...	0°01 602 0	0°01 864 3	0°00 114 3
+ 22	...	...	...	...	...	...	0°01 614 6	0°01 860 5	0°00 114 6
+ 24	8°63	4°53	42	0°808	5°116	0°00	0°01 627 2	0°01 856 7	0°00 114 9
+ 26	...	...	...	...	...	...	0°01 639 8	0°01 852 8	0°00 115 2
+ 28	...	...	...	...	...	...	0°01 652 4	0°01 848 8	0°00 115 5
+ 30	8°617	4°558	422	0°8521	5°1107	+ 0°015	0°01 665 0	0°01 844 8	0°00 115 8
+ 32	8°610	4°568	422	0°868	5°109	0°02	0°01 677 7	0°01 840 9	0°00 116 2
32	8°610	4°568	422	0°868	5°109	0°02	0°01 677 7	0°01 840 9	0°00 116 2
34	...	...	...	0°8830	5°1071	0°021	0°01 690 2	0°01 836 8	0°00 116 6
36	8°60	4°59	42	0°898	5°105	0°02	0°01 702 8	0°01 832 7	0°00 116 9
40	...	...	...	...	...	...	0°01 727 9	0°01 824 5	0°00 117 6
42	...	...	...	0°9431	5°0994	0°036	0°01 740 6	0°01 820 2	0°00 117 9
44	8°58	4°63	42	0°958	5°097	0°04	0°01 753 2	0°01 815 9	0°00 118 2
48	...	...	...	...	...	...	0°01 778 3	0°01 807 4	0°00 118 7
50	...	...	...	1°0030	5°0911	0°050	0°01 790 8	0°01 803 0	0°00 119 0
52	...	...	...	...	...	...	0°01 803 2	0°01 798 5	0°00 119 4
56	8°556	4°686	421	...	...	...	0°01 828 3	0°01 789 8	0°00 120 0
58	...	...	...	1°0629	5°0820	0°064	0°00 840 8	0°01 785 3	0°00 120 3
60	8°55	4°71	42	1°078	5°079	0°07	0°01 853 4	0°01 780 8	0°00 120 7
64	...	...	...	...	...	...	0°01 878 4	0°01 771 6	0°00 121 3
66	...	...	...	1°1224	5°0721	0°077	0°01 890 8	0°01 766 8	0°00 121 6
68	...	...	...	...	...	...	0°01 903 1	0°01 762 0	0°00 122 0
72	...	...	...	...	...	...	0°01 928 0	0°01 752 6	0°00 122 6
74	...	...	...	1°1820	5°0616	0°091	0°01 940 6	0°01 747 6	0°00 122 8
76	...	...	...	...	...	...	0°01 953 1	0°01 742 7	0°00 123 1
80	8°498	4°803	421	1°227	5°053	0°10	0°01 978 0	0°01 733 0	0°00 123 7
80	8°498	4°803	421	1°227	5°053	0°10	0°01 978 0	0°01 733 0	0°00 123 7
84	...	...	...	1°2560	5°0476	0°110	0°02 002 8	0°01 722 7	0°00 124 3
88	...	...	...	...	...	...	0°02 027 6	0°01 712 4	0°00 125 0
92	...	...	...	1°3152	5°0355	0°124	0°02 052 4	0°01 702 0	0°00 125 6
96	...	...	...	...	...	...	0°02 077 1	0°01 691 5	0°00 126 3
100	...	...	...	1°3742	5°0228	0°138	0°02 101 6	0°01 680 7	0°00 126 9
104	8°449	4°900	421	...	...	...	0°02 126 1	0°01 669 8	0°00 127 5
108	...	...	...	1°4330	5°0094	0°151	0°02 150 5	0°01 658 7	0°00 128 1
112	...	...	...	...	...	...	0°02 174 9	0°01 647 4	0°00 128 7
116	...	...	...	1°4915	4°9954	0°165	0°02 199 3	0°00 635 9	0°00 129 3
120	8°399	4°997	420	...	...	...	0°02 223 6	0°01 624 2	0°00 129 9
124	...	...	...	1°5498	4°9807	0°178	0°02 247 9	0°01 612 3	0°00 130 5
128	8°36	5°02	42	1°5790	4°9727	0°184	0°02 272 1	0°01 600 2	0°00 131 1
132	...	...	...	1°6080	4°9654	0°192	0°02 296 1	0°01 588 0	0°00 131 7
136	...	...	...	...	...	...	0°02 320 1	0°01 575 7	0°00 132 3
140	— 8°348	— 5°092	+ 420	1°6660	4°9494	0°206	0°02 344 0	0°01 563 1	0°00 132 9
144	...	...	...	...	...	...	0°02 367 9	0°01 550 5	0°00 133 5
+ 148	...	...	...	— 1°7237	+ 4°9325	+ 0°219	+ 0°02 391 6	— 0°01 537 6	— 0°00 134 1

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
+ 152	...	...	...	...	...	...	+ '002 415 2	- '001 524 6	- '000 134 8
156	...	...	...	- 1'7812	+ 4'9149	+ '0232	'002 438 7	'001 511 4	'000 135 4
160	- 8'2940	- 5'1890	+ '4200	1'8099	4'9058	'0239	'002 462 2	'001 498 1	'000 136 0
160	8'2940	5'1890	'4200	1'8099	4'9058	'0239	'002 462 2	'001 498 1	'000 136 0
168	...	...	...	1'8670	4'8876	'0252	'002 508 9	'001 471 0	'000 137 2
176	8'2512	5'2645	'4194	1'9239	4'8685	'0266	'002 555 1	'001 443 6	'000 138 5
184	8'2296	5'3021	'4192	1'9805	4'8490	'0279	'002 600 8	'001 415 3	'000 139 6
192	...	...	...	2'0369	4'8285	'0293	'002 646 0	'001 386 5	'000 140 8
200	8'1859	5'3771	'4186	2'0930	4'8078	'0306	'002 690 9	'001 357 4	'000 141 9
208	8'1638	5'4144	'4183	2'1489	4'7860	'0320	'002 735 4	'001 327 8	'000 143 1
216	8'1415	5'4517	'4180	2'2045	4'7641	'0333	'002 779 7	'001 297 7	'000 144 2
224	...	...	...	2'2597	4'7411	'0346	'002 823 6	'001 267 1	'000 145 3
232	8'0965	5'5258	'4174	2'3161	4'7178	'0360	'002 867 1	'001 236 2	'000 146 4
240	...	...	...	2'3693	4'6936	'0373	'002 910 2	'001 204 9	'000 147 6
248	8'0507	5'5994	'4168	2'42378	4'66912	'03862	'002 953 0	'001 173 0	'000 148 6
256	8'0277	5'6361	'4165	2'4777	4'6437	'0399	'002 995 6	'001 140 7	'000 149 6
264	8'0044	5'6726	'4162	2'53155	4'61801	'04123	'003 038 0	'001 108 2	'000 150 6
272	...	...	...	2'5848	4'5914	'0425	'003 080 2	'001 075 3	'000 151 7
280	7'9575	5'7453	'4155	2'63800	4'56448	'04381	'003 121 9	'001 041 7	'000 152 8
288	...	...	...	2'6906	4'5367	'0451	'003 163 5	'001 007 6	'000 153 9
296	7'9099	5'8176	'4148	2'74307	4'50860	'04639	'003 205 0	'000 973 1	'000 155 0
304	...	...	...	2'7949	4'4797	'0477	'003 246 4	'000 938 0	'000 156 2
312	...	...	...	2'84671	4'45041	'04894	'003 287 7	'000 902 4	'000 157 4
320	7'8373	5'9252	'4136	2'8979	4'4203	'0502	'003 327 9	'000 866 2	'000 158 4
320	7'8373	5'9252	'4136	2'8979	4'4203	'0502	'003 327 9	'000 866 2	'000 158 4
336	...	...	...	2'99947	4'35882	'05273	'003 408	'000 792	'000 160
352	7'7384	6'0673	'4119	3'0992	4'2948	'0552	'003 487 4	'000 715 5	'000 162 4
368	...	...	...	3'19772	4'22893	'05767	'003 565	'000 637	'000 164
384	7'6372	6'2067	'4102	3'2943	4'1606	'0601	'003 640 9	'000 555 5	'000 166 6
400	...	...	...	3'38950	4'09045	'06250	'003 715	'000 472	'000 168
416	7'5331	6'3446	'4083	3'4827	4'0179	'0648	'003 786 2	'000 386 2	'000 170 3
432	...	...	...	3'57443	3'94369	'06721	'003 856	'000 299	'000 172
448	7'4268	6'4805	'4061	3'6640	3'8672	'0694	'003 922 8	'000 209 7	'000 173 9
464	...	...	...	3'75216	3'78896	'07177	'003 988	'000 120	'000 176
480	7'3182	6'6143	'4039	3'8377	3'7090	'0739	'004 051 3	- '000 028 5	'000 177 3
496	...	...	...	3'92237	3'62668	'07619	'004 113	+ '000 066	'000 179
512	7'2073	6'7458	'4017	4'0043	3'5427	'0783	'004 172 2	'000 161 6	'000 180 7
528	...	...	...	4'08480	3'45717	'08046	'004 229	'000 258	'000 182
544	...	...	...	4'1626	3'3700	'0825	'004 283 7	'000 356 9	'000 183 8
560	...	...	...	4'23913	3'28084	'08458	'004 336	'000 457	'000 185
576	6'9787	7'0032	'3968	4'3129	3'1902	'0865	'004 386 3	'000 557 7	'000 186 8
592	...	...	...	4'38513	3'09806	'08852	'004 434	'000 660	'000 188
608	...	...	...	4'4545	3'0044	'0904	'004 479 7	'000 762 5	'000 189 5
624	...	...	...	4'52254	2'90919	'09228	'004 525	'000 865	'000 191
640	6'7413	7'2516	'3913	4'5877	2'8126	'0941	'004 567 1	'000 969 7	'000 192 1
640	6'7413	7'2516	'3913	4'5877	2'8126	'0941	'004 567 1	'000 969 7	'000 192 1
656	...	...	...	4'65114	2'71467	'09589	'004 607	'001 076	'000 193
672	...	...	...	4'71206	2'61542	'09761	'004 644	'001 184	'000 194
688	...	...	...	4'77067	2'51493	'09928	'004 680	'001 293	'000 195
704	6'4955	7'4909	'3853	4'8267	2'4131	'1009	'004 712 6	'001 402 9	'000 196 6
736	...	...	...	4'93273	2'20620	'10400	'004 771	'001 625	'000 198
768	6'2416	7'7210	'3788	5'0286	1'9950	'1069	'004 820 5	'001 851 2	'000 200 0
800	...	...	...	5'11556	1'77995	'10965	'004 860	'002 080	'000 201
832	- 5'9800	- 7'9417	+ '3719	5'1920	1'5616	'1121	'004 889 7	'002 311 5	'000 202 8
+ 864	...	...	...	- 5'25933	+ 1'34018	+ '11443	+ '004 910	+ '002 545	- '000 204

TABLE II.—continued.

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
+ 896	— 5'7114	— 8'1521	+ '3646	— 5'3160	+ 1'1164	+ '1165	+ '004 919 5	+ '002 779 8	— '000 204 6
928	...	...	...	5'36321	0'89023	'11836	'004 919	'003 016	'000 205
960	5'4349	8'3531	'3567	5'3997	0'6627	'1200	'004 908 7	'003 253 4	'000 205 3
992	...	...	...	5'42669	0'43346	'12140	'004 888	'003 491	'000 205
1024	5'1522	8'5436	'3484	5'4436	+ 0'2040	'1226	'004 858 2	'003 728 7	'000 205 1
1056	...	...	...	5'44939	— 0'02643	'12350	'004 817	'003 966	'000 205
1088	4'8632	8'7237	'3397	5'4451	0'2562	'1243	'004 765 8	'004 202 4	'000 203 9
1120	...	...	...	5'43127	0'48622	'12470	'004 705	'004 438	'000 203
1152	4'5681	8'8934	'3307	5'4066	0'7146	'1249	'004 633 5	'004 671 4	'000 201 6
1184	...	...	...	5'37254	0'94244	'12493	'004 553	'004 903	'000 200
1216	...	...	...	5'3285	1'1673	'1247	'004 462 1	'005 131 7	'000 198 3
1248	...	...	...	5'27367	1'39150	'12427	'004 361	'005 358	'000 196
1280	3'9619	9'1999	'3113	5'2092	1'6118	'1236	'004 250 0	'005 580 9	'000 194 2
1280	3'9619	9'1999	'3113	5'2092	1'6118	'1236	'004 250	'005 581	'000 194
1344	3'651	9'337	'301	5'0514	2'0439	'1216	'004 001	'006 016	'000 189
1408	3'3362	9'4621	'2904	4'8562	2'4610	'1186	'003 714	'006 432	'000 183
1472	3'017	9'576	'279	4'6241	2'8594	'1147	'003 392	'006 828	'000 176
1536	2'6945	9'6788	'2680	4'3575	3'2363	'1100	'003 035	'007 199	'000 168
1600	2'368	9'770	'256	4'0577	3'5886	'1044	'002 646	'007 543	'000 159
1664	2'0399	9'8490	'2445	3'7271	3'9136	'0981	'002 227	'007 859	'000 149
1728	1'709	9'917	'232	3'3677	4'2085	'0910	'001 780	'008 142	'000 138
1792	1'3754	9'9722	'2198	2'9823	4'4709	'0832	'001 309	'008 390	'000 127
1856	1'041	10'017	'207	2'5736	4'6082	'0748	'000 815	'008 602	'000 115
1920	0'7043	10'0477	'1940	2'1446	4'8887	'0656	+ '000 300	'008 775	'000 102
1984	0'367	10'067	'181	1'6985	5'0401	'0555	— '000 230	'008 907	'000 088
2048	— 0'0298	10'0750	'1673	1'2388	5'1510	'0448	'000 774	'008 998	'000 074
2112	+ 0'308	10'071	'154	0'7691	5'2198	'0352	'001 327	'009 045	'000 061
2176	0'6447	10'0546	'1397	— 0'2931	5'2458	'0250	'001 885	'009 047	'000 047
2240	0'982	10'026	'126	+ 0'1857	5'2276	'0142	'002 447	'009 003	'000 032
2304	1'3165	9'9860	'1116	0'6629	5'1654	+ '0031	'003 005	'008 914	'000 017
2368	1'644	9'934	'099	1'1342	5'0586	— '0080	'003 555	'008 780	— '000 003
2432	1'9685	9'8697	'0858	1'5954	4'9082	'0190	'004 096	'008 600	+ '000 012
2496	2'297	9'794	'070	2'0430	4'7143	'0304	'004 625	'008 373	'000 024
2560	2'6222	9'7060	'0537	2'4717	4'4785	'0328	'005 137	'008 107	'000 034
2560	2'6222	9'7060	'0537	2'4717	4'4785	'0328	'005 137	'008 107	'000 034
2688	3'273	9'496	+ '024	3'2573	3'8804	'0607	'006 094	'007 444	'000 067
2816	3'908	9'240	— '005	3'9248	3'1518	'0778	'006 913	'006 635	'000 095
2944	4'517	8'940	'035	4'4396	2'2955	'0924	'007 590	'005 696	'000 119
3072	5'103	8'595	'064	4'7878	1'3541	'1036	'008 101	'004 663	'000 138
3200	5'664	8'210	'093	4'9425	— 0'3574	'1106	'008 420	'003 565	'000 154
3328	6'198	7'784	'121	4'9078	+ 0'6526	'1134	'008 549	'002 443	'000 165
3456	6'701	7'320	'149	4'6715	1'6358	'1114	'008 477	'001 336	'000 171
3584	7'170	6'819	'176	4'2554	2'5563	'1052	'008 223	+ '000 278	'000 173
3712	7'604	6'284	'203	3'6661	3'3725	'0948	'007 793	— '000 691	'000 171
3840	7'999	5'718	'228	2'9376	4'0618	'0807	'007 219	'001 548	'000 166
3968	8'353	5'122	'252	2'0936	4'5901	'0635	'006 522	'002 260	'000 157
4096	8'663	4'500	'275	1'1720	4'9513	'0438	'005 737	'002 819	'000 145
4224	8'931	3'855	'296	+ 0'2071	5'1254	'0226	'004 899	'003 197	'000 131
4352	9'154	3'192	'316	— 0'7664	5'1210	— '0005	'004 038	'003 430	'000 116
4480	9'320	2'508	'334	1'7155	4'9377	+ '0216	'003 188	'003 484	'000 101
4608	9'436	1'812	'350	2'6012	4'5826	'0429	'002 376	'003 386	'000 086
4864	9'520	— 0'396	'377	4'0964	3'4418	'0807	'000 977	'002 778	'000 058
5120	9'392	+ 1'028	'396	5'0787	1'8679	'1085	— '000 005	'001 758	'000 038
5376	9'049	2'428	'405	5'4451	+ 0'0663	'1231	+ '000 445	— '000 515	'000 027
+ 5632	+ 8'494	+ 3'771	— '405	— 5'1632	— 1'7435	+ '1230	+ '000 339	+ '000 754	+ '000 028

APPENDIX, GREENWICH OBSERVATIONS, 1908.

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TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	x.	y.	z.	x.	y.	z.	x.	y.	z.
+ 5888	+ 7.736	+ 5.024	— .395	— 4.268	— 3.446	+ .108	— .000 290	+ .001 850	+ .000 040
6144	6.788	6.153	.375	2.858	4.544	.081	.001 353	.002 598	.000 061
6400	5.671	7.128	.346	— 1.096	5.177	+ .043	.002 702	.002 852	.000 089
6656	4.409	7.920	.307	+ 0.808	5.139	.000	.004 140	.002 517	.000 120
6912	3.032	8.511	.263	2.598	4.401	— .044	.005 436	.001 575	.000 149
7168	1.575	8.877	.210	4.014	3.032	.080	.006 348	+ .000 096	.000 170
7424	+ 0.071	9.010	.151	4.827	— 1.201	.105	.006 670	— .001 455	.000 177
7680	— 1.424	8.904	.089	4.886	+ 0.801	.113	.006 273	.003 700	.000 168
7936	2.890	8.564	— .024	4.179	2.684	.104	.005 151	.005 463	.000 141
8192	4.272	7.998	+ .041	2.818	4.150	.078	.003 428	.006 762	.000 098
8448	5.558	7.223	.105	+ 1.030	4.987	— .041	— .001 321	.007 400	+ .000 044
8704	6.698	6.260	.167	— 0.911	5.102	+ .003	+ .000 891	.007 294	— .000 015
8960	7.661	5.145	.224	2.728	4.513	.046	.002 937	.006 472	.000 072
9216	8.439	3.899	.276	4.191	3.332	.083	.004 593	.005 045	.000 122
9472	9.012	2.558	.321	5.129	+ 1.732	.110	.005 694	.003 190	.000 160
9728	9.372	+ 1.157	.359	5.447	— 0.078	.124	.006 144	— .001 115	.000 184
9984	9.514	— 0.270	.387	5.117	1.880	.122	.005 915	+ .000 961	.000 190
10240	9.443	1.689	.408	4.179	3.458	.107	.005 048	.002 824	.000 181
10496	9.163	3.076	.420	2.739	— 4.513	.078	.003 642	.004 183	.000 157
10752	8.683	4.395	.422	— 0.960	5.204	+ .040	+ .001 859	.005 177	.000 121
11008	8.029	5.620	.416	+ 0.942	5.115	— .003	— .000 090	.005 403	.000 078
11264	7.207	6.730	.401	2.712	4.329	.046	.001 961	.004 934	— .000 033
11520	6.239	7.704	.379	4.082	2.916	.082	.003 490	.003 830	+ .000 008
11776	5.148	8.525	.348	4.853	— 1.077	.106	.004 483	.002 280	.000 040
12032	3.957	9.179	.311	4.860	+ 0.934	.113	.004 775	+ .000 520	.000 057
12288	2.691	9.656	.267	4.101	2.799	.103	.004 358	— .001 319	.000 059
12544	1.372	9.948	.219	2.701	4.227	.076	.003 343	.002 450	.000 048
12800	— 0.028	10.050	.166	+ 0.889	5.015	— .038	.001 943	.003 193	+ .000 026
13056	+ 1.316	9.961	.111	— 1.061	5.077	+ .006	— .000 413	.003 294	.000 000
13312	2.636	9.683	+ .053	2.853	4.439	.049	+ .000 976	.002 780	— .000 024
13568	3.906	9.219	— .006	4.282	3.219	.086	.002 031	.001 762	.000 042
13824	5.101	8.577	.065	5.176	+ 1.597	.111	.002 598	— .000 409	.000 050
14080	6.197	7.768	.122	5.445	— 0.220	.124	.002 596	+ .001 085	.000 046
14336	7.170	6.805	.177	5.067	2.011	.122	.002 012	.002 513	— .000 028
14592	8.001	5.706	.229	4.085	3.564	.105	+ .000 895	.003 677	+ .000 002
14848	8.669	4.490	.276	2.615	4.685	.076	— .000 648	.004 399	.000 044
15104	9.156	3.179	.317	— 0.819	5.222	+ .037	.002 449	.004 530	.000 092
15360	9.448	1.801	.352	+ 1.082	5.080	— .007	.004 295	.004 016	.000 144
15616	9.534	— 0.382	.378	2.832	4.243	.049	.005 940	.002 819	.000 192
15872	9.407	+ 1.044	.397	4.172	2.795	.085	.007 134	+ .001 039	.000 231
16128	9.063	2.447	.406	4.880	— 0.926	.107	.007 665	— .001 133	.000 255
16384	8.509	3.792	.405	4.827	+ 1.087	.113	.007 411	.003 422	.000 260
16640	7.750	5.045	.395	4.012	2.928	.101	.006 374	.005 524	.000 246
16896	6.800	6.175	.376	2.571	4.303	.074	.004 688	.007 152	.000 214
17152	5.681	7.150	.346	+ 0.740	5.048	— .035	.002 583	.008 115	.000 168
17408	4.416	7.942	.308	— 1.200	5.054	+ .009	— .000 334	.008 329	.000 115
17664	3.038	8.529	.262	2.975	4.368	.052	+ .001 791	.007 824	.000 062
17920	1.581	8.894	.210	4.371	3.115	.088	.003 569	.006 713	+ .000 012
18176	+ 0.083	9.024	.151	5.220	+ 1.470	.113	.004 839	.005 161	— .000 029
18432	— 1.417	8.917	.089	5.441	— 0.351	.124	.005 508	.003 371	.000 057
18688	2.880	8.575	— .024	5.016	2.132	.121	.005 549	— .001 554	.000 073
18944	4.266	8.010	+ .041	3.996	3.658	.103	.004 998	+ .000 086	.000 074
19200	5.542	7.236	.105	2.492	4.741	.073	.003 954	.001 362	.000 064
19456	6.676	6.279	.166	— 0.679	5.231	+ .034	.002 571	.002 126	.000 044
19712	7.641	5.164	.224	+ 1.222	5.036	— .010	+ .001 056	.002 282	— .000 019
19968	8.420	3.922	.276	2.951	4.147	.052	— .000 352	.001 812	+ .000 006
20224	8.995	2.584	.321	4.250	2.657	.087	.001 409	+ .000 796	.000 026
20480	9.358	+ 1.190	.358	4.903	— 0.766	.108	.001 911	— .000 586	.000 036
20736	9.507	— 0.229	.388	4.788	+ 1.245	.113	.001 745	.002 076	.000 032
20992	9.443	1.649	.408	3.918	3.059	.099	— .000 928	.003 378	+ .000 013
+ 21248	— 9.173	— 3.036	+ .420	+ 2.439	+ 4.399	— .071	+ .000 425	— .004 237	— .000 018

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
+ 21504	− 8.706	− 4.356	+ .423	+ 0.589	+ 5.077	− .031	+ .002 065	− .004 486	− .000 056
21760	8.057	5.584	.417	− 1.346	5.028	+ .013	.003 734	.004 067	.000 097
22016	7.244	6.609	.402	3.101	4.303	.055	.005 182	.003 037	.000 133
22272	6.283	7.679	.379	4.456	3.000	.090	.006 206	− .001 497	.000 160
22528	5.198	8.508	.349	5.260	+ 1.337	.114	.006 668	+ .000 345	.000 175
22784	4.010	9.171	.313	5.431	− 0.490	.125	.006 495	.002 294	.000 175
23040	2.745	9.657	.269	4.958	2.258	.120	.005 685	.004 039	.000 158
23296	1.428	9.957	.221	3.895	3.757	.101	.004 298	.005 666	.000 127
23552	− 0.081	10.067	.168	2.360	4.800	.070	.002 451	.006 707	.000 082
23808	+ 1.266	9.986	.112	− 0.531	5.240	+ .031	+ .000 322	.007 117	− .000 029
24064	2.590	9.715	+ .055	+ 1.367	4.990	− .013	− .001 866	.006 814	+ .000 029
24320	3.863	9.254	− .004	3.072	4.050	.055	.003 857	.005 798	.000 085
24576	5.061	8.615	.063	4.329	2.521	.089	.005 398	.004 167	.000 134
24832	6.161	7.809	.121	4.925	− 0.609	.110	.006 283	+ .002 124	.000 169
25088	7.138	6.848	.176	4.750	+ 1.396	.112	.006 398	− .000 055	.000 187
25088	7.138	6.848	.176	4.750	1.396	.112	.006 398	.000 055	.000 187
25216	...	...	...	4.3758	2.3351	.1073	.006 166	.001 099	.000 190
25344	7.972	5.746	.228	3.828	3.182	.098	.005 759	.002 065	.000 188
25472	...	...	...	3.1305	3.9040	.0847	.005 197	.002 919	.000 182
25600	8.643	4.537	.275	2.312	4.476	.068	.004 507	.003 639	.000 172
25728	8.912	3.893	.295	1.4067	4.8780	.0490	.003 722	.004 204	.000 160
25856	9.134	3.229	.315	+ 0.448	5.100	.028	.002 872	.004 603	.000 145
25984	9.306	2.547	.333	− 0.5261	5.1389	.0063	.001 994	.004 833	.000 129
25984	9.306	2.547	.333	0.5261	5.1389	− .0063	.001 994	.004 833	.000 129
26048	...	...	...	1.0089	5.0897	+ .0048	.001 554	.004 884	.000 121
26112	9.430	1.853	.350	1.4831	4.9967	.0159	.001 118	.004 894	.000 113
26176	...	...	...	1.9436	4.8610	.0268	.000 691	.004 864	.000 104
26240	9.501	1.148	.365	2.3880	4.6843	.0374	− .000 276	.004 796	.000 096
26304	...	...	...	2.8130	4.4679	.0478	+ .000 124	.004 692	.000 088
26368	9.520	− 0.437	.377	3.2151	4.2149	.0578	.000 506	.004 550	.000 080
26432	...	...	...	3.5901	3.9280	.0673	.000 865	.004 378	.000 072
26496	9.4862	+ 0.2771	.3877	3.9364	3.6098	.0763	.001 202	.004 176	.000 065
26560	9.4492	0.6332	.3920	4.2518	3.2620	.0846	.001 512	.003 946	.000 058
26560	9.4492	0.6332	.3920	4.2518	3.2620	.0846	.001 512	.003 946	.000 058
26592	...	...	...	...	...	...	.001 658	.003 821	.000 055
26624	9.3987	0.9878	.3958	4.5339	2.8885	.0923	.001 795	.003 691	.000 052
26656	...	...	...	...	...	...	.001 925	.003 555	.000 049
26688	9.3347	1.3417	.3990	4.7798	2.4936	.0993	.002 047	.003 415	.000 046
26720	...	...	...	...	...	...	.002 162	.003 270	.000 043
26752	9.2573	1.6937	.4017	4.9893	2.0787	.1055	.002 269	.003 120	.000 040
26784	...	...	...	5.0798	1.8649	.1083	.002 368	.002 966	.000 038
26816	9.1666	2.0431	.4038	5.1605	1.6478	.1110	.002 458	.002 809	.000 036
26848	...	...	...	5.2314	1.4272	.1133	.002 539	.002 647	.000 034
26848	...	...	...	5.2314	1.4272	.1133	.002 539	.002 647	.000 034
26864	...	...	...	...	...	...	.002 577	.002 566	.000 033
26880	+ 9.0627	+ 2.3895	− .4053	5.2925	1.2035	.1154	.002 613	.002 484	.000 032
26896	...	...	...	...	...	...	.002 646	.002 401	.000 031
26912	...	...	...	− 5.3432	+ 0.9790	+ .1174	.002 677	.002 319	.000 030
+ 26928	...	...	...	...	...	...	+ .002 706	− .002 235	+ .000 029

TABLE II.—*continued.*

Day.	Heliocentric Co-ordinates of Saturn.			Heliocentric Co-ordinates of Jupiter.			Co-ordinates of Sun from Centre of Gravity.		
	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>x.</i>	<i>y.</i>	<i>z.</i>
+ 26944	+ 8·9454	+ 2·7324	— ·4061	— 5·3840	+ 0·7517	+ ·1192	+ ·002 733	— ·002 151	+ ·000 028
26960	...	...	...	...	...	...	·002 757	·002 067	·000 027
26976	...	...	...	...	...	...	·002 780	·001 982	·000 027
26992	...	...	...	...	...	...	·002 800	·001 896	·000 026
27008	...	...	...	...	...	...	·002 818	·001 811	·000 025
27024	...	...	...	...	...	...	·002 834	·001 726	·000 025
27040	...	...	...	...	...	...	·002 848	·001 639	·000 024
27056	...	...	...	...	...	...	·002 860	·001 555	·000 024
+ 27072	+ 8·6713	+ 3·4057	— ·4061	— 5·4455	— 0·1669	+ ·1238	+ ·002 869	— ·001 467	+ ·000 023

TABLE III.

This Table gives for

- (I.) Mars
(II.) Earth
(III.) Venus

The heliocentric co-ordinates and component attractions upon the comet (multiplied by the square of the interval shown in the last column of the table). For every date for which the attractions have been computed.

The dates are given in days counting from 1835 Nov. 16. Paris mean noon.

The mean ecliptic of 1835 Nov. 16 is taken as the plane of reference for the co-ordinates, x being drawn towards the first point of Aries, y towards longitude 90° in the ecliptic, and z towards the north pole of the ecliptic.

Day.	Heliocentric Co-ordinates of Mars.			Attractions of Mars on Comet.			Interval in Days.
	x .	y .	z .	X .	Y .	Z .	
- 608	+ .585	- 1.280	- .042	0	- 1	0	32
512	1.384	- .122	.036	+ 1	- 2	0	32
448	1.201	+ .801	- .011	+ 1	- 8	+ 1	32
384	+ .547	1.422	+ .018	0	- 7	+ 2	32
320	- .296	1.574	.041	- 3	- 10	+ 3	32
288	.701	1.472	.049	- 1	- 2	+ 1	16
256	1.058	1.268	.053	- 1	- 2	0	16
224	1.342	.979	.054	- 2	- 2	0	16
192	1.539	.625	.051	- 2	- 2	0	16
160	1.638	.233	.044	- 2	- 1	0	16
144	1.645	+ .027	.040	0	0	0	8
128	1.63	- .18	.03	0	0	0	8
112	1.581	.378	.030	0	0	0	8
80	1.403	.759	.017	0	0	0	8
64	1.27	.93	+ .01	0	0	0	4
40	1.036	1.150	.000	0	0	0	4
- 32	.945	1.213	- .003	0	0	0	4
0	.538	1.395	.017	0	0	0	2
+ 12	.370	1.432	.022	0	0	0	2
16	.314	1.441	.023	0	- 1	0	2
24	.199	1.451	.026	0	0	0	2
32	.083	1.453	.029	+ 1	- 2	0	4
36	- .025	1.450	.031	+ 1	- 1	0	4
44	+ .091	1.438	.033	+ 1	- 1	0	4
48	.150	1.429	.034	+ 1	- 1	0	4
60	.322	1.387	.038	0	0	0	4
64	.38	1.37	.04	0	0	0	4
80	.598	1.272	.042	+ 1	0	0	8
128	1.134	.789	.044	0	0	0	8
160	1.340	- .346	.040	+ 2	0	0	16
192	1.39	+ .13	- .03	+ 1	0	0	16
256	1.06	1.01	.00	+ 1	0	0	16
320	+ .330	1.512	+ .025	+ 4	0	+ 1	32
416	- .898	1.375	.051	+ 5	0	+ 2	32
512	1.607	+ .420	.048	+ 4	- 2	+ 2	32
+ 608	- 1.396	- .770	+ .017	+ 2	- 2	+ 1	32

Beyond the dates -608 and +608 the Sun, Venus, Earth, and Mars have been treated as a centrobatic system; and the attractions set down in another table under the heading Sun include these three small planets as well.

The attractions have been multiplied by the square of the interval shown in the last column. They are set down throughout in units of the ninth decimal of the astronomical unit of length. The heliocentric co-ordinates are given in terms of the astronomical unit of length, the decimal point being shown.

The intervals in the final column are those used in the original computation. The intervals in the revised computation were smaller, but the resulting attractions can readily be obtained by dividing the attractions given above by 4 when the new interval is half the old, or by 16 when the new interval is one-fourth of the old.

TABLE III.—continued.

Day.	Heliocentric Co-ordinates of Earth.		Attractions of Earth on Comet.			Interval in Days.	Day.	Heliocentric Co-ordinates of Venus.			Attractions of Venus on Comet.			Interval in Days.
	x.	y.	X.	Y.	Z.			x.	y.	z.	X.	Y.	Z.	
- 608	- '995	+ '044	- 2	- 19	+ 4	32	- 344	+ '29	+ '66	- '01	0	- 11	+ 2	16
560	- '74	- '70	- 1	17		32	320	- '190	+ '693	+ '021	- 9	49		32
512	+ '009	- '016		17	3	32	288	- '662	+ '277	+ '042	4	11	2	16
448	+ '890	- '478	+ 3	24	4	32	256	- '631	- '350	+ '031	3	9	1	16
384	+ '817	+ '564	+ 5	43	8	32	224	- '125	- '716	- '004	2	10	1	16
320	- '161	- '969	- 14	70	14	32	192	+ '474	- '552	- '035	2	15	1	16
288	- '658	- '732	6	16	3	16	160	- '725	+ '018	- '041	2	29	2	16
256	- '995	+ '270	7	14	2	16	144	- '645	- '329	- '032	2	11	1	8
224	- '962	- '275	6	13	1	16	128	- '439	- '573	- '016	6	17	1	8
192	- '687	- '740	5	13	1	16	120	- '299	- '655	- '007	10	19	1	8
160	- '213	- '993	5	16	+ 1	16	112	+ '146	- '705	+ '002	14	19	1	8
144	+ '056	- '015	1	5	0	8	104	- '016	- '719	- '012	17	16	1	8
128	- '321	- '964	1	6	0	8	96	- '176	- '697	- '021	18	13	+ 1	8
112	- '563	- '845	1	8	0	8	88	- '328	- '639	- '028	17	10	0	8
96	- '764	- '664	1	11	0	8	80	- '462	- '548	- '035	16	8	0	8
80	- '910	- '436	- 1	19	0	8	60	- '684	- '214	- '043	3	1	0	4
72	- '959	- '309	0	7	0	4	56	- '706	+ '135	- '042	3	1	0	4
64	- '9899	- '1755	0	11	- 1	4	40	- '695	- '186	- '037	4	1	0	4
60	- '9987	- '1077	0	14	1	4	- 32	- '638	- '338	- '031	4	2	0	4
56	- '003	- '039	+ 1	19	2	4	20	- '493	- '530	- '020	2	1	0	2
52	- '002	+ '029	2	28	5	4	4	- '217	- '693	+ '002	5	2	- 1	2
48	- '996	- '098	5	44	10	4	- 2	- '178	- '703	- '000	6	3	2	2
44	- '986	- '166	14	76	27	4	0	- '1394	- '7133	- '0028	8	5	3	2
40	- '971	- '233	50	142	92	4	+ 2	- '0997	- '7201	- '0052	11	7	5	2
38	- '9620	- '2662	98	174	178	4	4	- '0597	- '7246	- '0075	16	12	10	2
36	- '952	- '299	171	- 138	308	4	6	- '020	- '725	- '010	23	21	20	2
34	- '9402	- '3316	198	+ 18	356	4	8	+ '021	- '726	- '012	- 23	42	45	2
32	- '928	- '364	143	133	254	4	10	+ '060	- '724	- '014	+ 12	58	72	2
30	- '914	- '396	20	34	35	2	12	- '100	- '720	- '017	46	34	50	2
28	- '899	- '427	11	27	19	2	14	- '140	- '713	- '019	38	11	21	2
26	- '883	- '458	7	20	11	2	16	- '1794	- '7053	- '0210	25	3	9	2
24	- '867	- '488	4	15	7	2	18	- '2180	- '6944	- '0230	16	- 1	4	2
22	- '8485	- '5173	3	12	4	2	20	- '2561	- '6813	- '0249	11	0	2	2
20	- '830	- '546	2	9	3	2	22	- '2931	- '6662	- '0268	8	0	1	2
16	- '789	- '602	1	6	- 2	2	24	- '329	- '649	- '029	6	0	- 1	2
8	- '695	- '705	0	3	0	2	28	- '398	- '609	- '032	4	0	0	2
- 4	- '644	- '751	0	2	0	2	32	- '4635	- '5610	- '0350	11	+ 2	0	4
0	- '589	- '794	0	2	0	2	36	- '5224	- '5064	- '0376	8	1	0	4
+ 4	- '531	- '833	0	2	0	2	40	- '5748	- '4455	- '0396	6	1	0	4
12	- '408	- '898	0	1	0	2	44	- '620	- '379	- '041	5	1	0	4
24	- '209	- '962	0	1	0	2	50	- '674	- '271	- '043	4	1	0	4
32	- '070	- '981	2	4	0	4	60	- '7218	- '0765	- '0427	3	1	0	4
36	+ '001	- '983	2	7	0	4	70	- '714	+ '125	- '039	2	1	0	4
44	+ '138	- '973	2	6	0	4	80	- '652	+ '315	- '032	8	3	+ 1	8
56	- '3423	- '922	2	4	0	4	100	+ '384	- '613	- '013	7	3	1	8
60	- '407	- '896	2	4	+ 1	4	120	- '002	- '720	+ '011	7	3	2	8
80	- '694	- '700	14	21	5	8	128	- '162	- '700	- '020	8	3	2	8
96	- '865	- '481	22	22	10	8	140	- '385	- '604	- '031	9	3	3	8
112	- '968	+ '224	30	15	14	8	160	- '650	+ '302	- '042	38	+ 5	14	16
128	- '996	- '051	28	+ 3	13	8	176	- '719	- '012	- '041	35	- 2	13	16
144	- '950	- '321	20	- 3	8	8	192	- '643	- '325	- '032	26	6	10	16
160	- '832	- '567	51	17	20	16	208	- '441	- '573	+ '016	19	6	6	16
176	- '653	- '772	33	14	12	16	224	- '153	- '709	- '002	14	5	4	16
192	- '426	- '920	23	11	8	16	240	+ '165	- '708	- '020	11	4	3	16
200	- '299	- '970	20	9	6	16	256	- '452	- '570	- '035	9	3	2	16
208	- '169	- '007	18	8	5	16	272	- '651	- '321	- '042	8	2	2	16
240	+ '364	- '949	12	5	3	16	288	- '725	- '010	- '042	8	1	2	16
256	- '601	- '818	10	4	3	16	304	- '658	+ '303	- '033	7	1	2	16
280	- '870	- '515	9	2	2	16	320	+ '461	- '557	- '018	31	4	8	32
320	- '990	+ '145	30	6	8	32	352	- '149	- '702	+ '019	34	5	11	32
+ 368	+ '547	+ '821	+ 32	- 4	+ 9	32	+ 384	- '643	+ '316	+ '042	+ 34	- 10	+ 13	32

TABLE III.—*continued*

Day.	Heliocentric Co-ordinates of Earth.		Attractions of Earth on Comet.			Interval in Days.	Day.	Heliocentric Co-ordinates of Venus.			Attractions of Venus on Comet.			Interval in Days.
	<i>x.</i>	<i>y.</i>	<i>X.</i>	<i>Y.</i>	<i>Z.</i>			<i>x.</i>	<i>y.</i>	<i>z.</i>	<i>X.</i>	<i>Y.</i>	<i>Z.</i>	
+ 416	— .255	+ .949	+ 36	— 6	+ 12	32	+ 416	— .649	— .312	+ .032	+ 26	— 12	+ 10	32
464	.888	+ .438	34	12	14	32	+ 448	— .165	— .707	— .001	+ 19	— 10	+ 6	32
512	.934	— .365	24	14	10	32								
560	— .383	— .939	16	10	6	32								
+ 608	+ .407	— .931	+ 13	— 7	+ 4	32								

Beyond the dates —344 and +448, the Sun-Venus system has been treated as centrobaric. The attractions set down in another table under the heading Sun include the attraction of Venus.

The attractions have been multiplied by the square of the interval shown in the last column. They are set down throughout in units of the ninth decimal of the astronomical unit of length. The heliocentric co-ordinates are given in terms of the astronomical unit of length, the decimal point being shown.

The intervals in the final column are those used in the original computation. The intervals in the revised computation were smaller, but the resulting attractions can readily be obtained by dividing the attractions given above by 4 when the new interval is half the old, or by 16 when the new interval is one-fourth of the old.

TABLE IV.

GIVING THE COMPONENT ATTRACTIONS OF THE SUN AND PLANETS, AND THE SUMS OF THE ATTRACTIONS X, Y, Z,
IN THE DIRECTIONS OF THE AXES.

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
- 27776	+ 3 62	+ 49	+ 2	- 2	+ 22 903 23	+ 22 907 36	- 3 16	- 11	0	+ 2
27744	3 34	47	2	2	18 812 82	18 816 63	2 75	10	0	2
27712	3 09	45	2	2	15 808 46	15 812 00	2 39	10	0	2
27680	2 87	43	2	2	13 527 91	13 531 21	2 09	10	0	2
27648	2 66	41	2	2	11 749 81	11 752 89	1 84	9	0	2
27616	2 50	40	2	2	10 332 43	10 335 33	1 65	9	0	2
27584	2 36	38	2	2	9 181 31	9 184 05	1 48	9	0	2
27552	2 23	37	2	2	8 231 55	8 234 15	1 34	9	0	2
27520	2 12	36	2	2	7 437 12	7 439 60	1 23	9	0	2
27488	2 03	35	2	2	6 764 70	6 767 08	1 14	8	0	2
27456	1 95	34	2	2	6 189 56	6 191 85	1 05	8	0	2
27424	1 86	34	2	2	5 693 11	5 695 31		8	0	2
27392	1 80	33	2	2	5 261 02	5 263 15		7	0	2
27360	1 74	32	2	2	4 882 19	4 884 25		6	0	2
27328	6 76	1 26	8	9	18 191 33	18 199 34	3 13	24	0	7
27264	6 41	1 21	7	9	15 943 68	15 951 29	2 76	23	0	8
27200	6 13	1 17	7	9	14 135 14	14 142 42	2 46	22	0	8
27136	5 91	1 14	7	10	12 654 02	12 661 04	2 22	21	0	8
27072	5 75	1 12	7	12	11 422 63	11 429 45	2 02	20	0	8
27008	5 62	1 09	7	11	10 385 54	10 392 21	1 86	19	0	8
26944	5 54	1 07	6	11	9 502 19	9 508 75	1 72	18	0	9
26880	5 49	1 05	6	12	8 742 30	8 748 78	1 61	17	0	9
26816	5 47	1 04	6	13	8 082 86	8 089 30	1 53	16	0	9
26752	21 92	4 08	24	50	30 024 40	30 050 14	5 81	64	- 1	37
26624	22 31	4 00	24	55	26 191 60	26 217 60	5 50	60	1	37
26496	23 03	3 96	24	60	23 147 81	23 174 44	5 53	57	1	37
26368	24 02	3 95	24	65	20 681 64	20 709 20	5 93	55	2	37
26240	25 14	3 96	22	69	18 649 49	18 678 12	6 77	54	2	37
26112	26 18	3 99	21	74	16 950 74	16 980 38	8 13	53	2	35
25984	26 81	4 04	20	78	15 513 00	15 543 27	10 00	54	2	33
25856	26 68	4 12	20	82	14 282 83	14 313 01	12 28	56	2	31
25728	25 47	4 21	21	87	13 220 31	13 249 33	14 61	59	2	28
25600	93 07	17 27	88	3 63	49 179 17	49 286 76	66 10	2 56	6	96
25344	67 94	18 32	88	3 80	43 059 17	43 142 51	70 57	3 19	6	50
25088	45 28	19 48	87	3 87	38 225 38	38 287 14	62 13	4 22	6	8
24832	30 79	20 54	86	3 86	34 325 05	34 373 38	49 55	5 76	6	30
24576	22 70	21 12	86	3 76	31 121 21	31 162 12	38 44	7 84	6	64
24320	18 28	20 79	87	3 46	28 449 24	28 485 72	30 12	10 30	6	96
24064	15 87	19 29	88	3 15	26 191 75	26 224 64	24 16	12 70	6	1 22
23808	14 62	16 72	89	2 87	24 262 85	24 292 21	19 97	14 45	6	1 42
23552	14 12	13 59	90	2 57	22 598 50	22 624 54	17 05	15 14	6	1 57
23296	14 17	10 53	93	2 26	21 150 15	21 173 52	15 07	14 77	7	1 70
23040	14 71	7 97	96	1 99	19 880 39	19 902 04	13 85	13 64	7	1 62
22884	15 70	6 03	98	1 73	18 760 05	18 781 03	13 29	12 17	7	1 61
22528	17 13	4 65	1 01	1 50	17 766 02	17 787 31	13 39	10 66	8	1 59
22272	18 86	3 69	1 06	1 32	16 879 79	16 902 08	14 23	9 26	9	1 52
22016	20 56	3 03	1 10	1 15	16 086 20	16 109 74	15 88	8 04	10	1 46
21760	21 60	2 59	1 14	1 00	15 372 75	15 397 08	18 25	7 02	11	1 39
21504	21 23	2 28	1 19	86	14 728 91	14 752 74	20 76	6 15	12	1 32
21248	19 21	2 06	1 25	78	14 145 84	14 167 58	22 44	5 44	14	1 26
20992	16 15	1 91	1 30	67	13 616 01	13 634 70	22 53	4 86	17	1 18
20736	13 11	1 80	1 36	59	13 133 00	13 148 68	21 13	4 37	20	1 12
20480	10 72	1 73	1 42	52	12 691 36	12 704 72	18 93	3 96	24	1 06
20224	9 12	1 68	1 49	46	12 286 38	12 298 21	16 60	3 63	29	97
19968	8 15	1 65	1 56	41	11 914 09	11 925 04	14 52	3 34	35	91
19712	7 65	1 63	1 63	36	11 571 03	11 581 58	12 81	3 10	42	87
19456	7 49	1 63	1 70	33	11 254 26	11 264 75	11 50	2 90	50	86
19200	7 60	1 64	1 74	26	10 961 27	10 971 99	10 55	2 73	61	82
- 18944	+ 7 95	+ 1 66	+ 1 78	- 22	+ 10 689 92	+ 10 701 09	- 9 94	- 2 60	- 73	- 77

TABLE IV.

GIVING THE COMPONENT ATTRACTIONS OF THE SUN AND PLANETS, AND THE SUMS OF THE ATTRACTIONS X, Y, Z,
IN THE DIRECTIONS OF THE AXES.

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
- 3 609 68	- 3 612 94	+ 58	+ 2	0	0	+ 6 616 90	+ 6 617 51	- 27776
3 822 37	3 825 20	56	2	0	0	5 591 87	5 592 45	27744
3 827 98	3 830 45	52	3	0	0	4 811 46	4 812 01	27712
3 735 60	3 737 77	49	3	0	0	4 201 39	4 201 91	27680
3 598 46	3 600 38	47	3	0	0	3 713 82	3 714 32	27648
3 443 54	3 445 26	45	3	0	0	3 316 83	3 317 31	27616
3 284 72	3 286 27	43	3	0	0	2 988 37	2 988 83	27584
3 129 18	3 130 59	41	3	0	0	2 712 89	2 713 33	27552
2 980 44	2 981 74	39	3	0	0	2 479 05	2 479 48	27520
2 840 11	2 841 31	39	3	0	0	2 278 49	2 278 91	27488
2 708 69	2 709 80	36	4	0	0	2 104 87	2 105 27	27456
2 586 14	2 587 16	35	4	0	0	1 953 32	1 953 71	27424
2 472 09	2 473 03	35	4	0	0	1 820 08	1 820 46	27392
2 366 03	2 366 91	34	4	0	0	1 702 14	1 702 52	27360
9 069 64	9 072 94	1 32	15	0	+	6 388 55	6 390 04	27328
8 360 64	8 363 56	1 28	15	0	2	5 674 24	5 675 69	27264
7 744 08	7 746 68	1 25	16	0	2	5 091 06	5 092 49	27200
7 205 02	7 207 37	1 24	16	+	2	4 607 20	4 608 62	27136
6 730 96	6 733 10	1 23	16	1	2	4 200 22	4 201 64	27072
6 311 67	6 313 63	1 24	16	1	2	3 853 77	3 855 20	27008
5 938 75	5 940 56	1 25	16	1	3	3 555 80	3 557 25	26944
5 605 34	5 607 04	1 28	17	1	3	3 297 16	3 298 64	26880
5 305 79	5 307 39	1 32	17	1	3	3 070 85	3 072 38	26816
20 141 65	20 147 74	5 50	69	3	12	11 485 52	11 491 86	26752
18 269 28	18 275 02	6 04	73	3	13	10 146 19	10 153 12	26624
16 707 76	16 713 50	6 78	76	3	16	9 068 98	9 076 71	26496
15 388 12	15 394 24	7 74	81	3	19	8 186 29	8 195 05	26368
14 259 97	14 266 93	8 91	86	3	22	7 451 57	7 461 59	26240
13 285 77	13 294 10	10 25	91	3	25	6 831 75	6 843 19	26112
12 437 04	12 447 27	11 62	98	3	28	6 302 81	6 315 72	25984
11 691 70	11 704 25	12 80	1 06	3	30	5 846 80	5 860 99	25856
11 032 64	11 047 58	13 46	1 15	3	32	5 450 20	5 465 16	25728
41 784 62	41 852 39	53 83	4 99	14	1 39	20 410 07	20 470 42	25600
37 796 67	37 869 99	45 38	5 97	15	1 58	18 091 50	18 144 58	25344
34 540 78	34 607 11	32 60	7 20	16	1 71	16 241 41	16 283 08	25088
31 838 29	31 893 96	22 06	8 63	16	1 80	14 735 25	14 767 90	24832
29 563 64	29 610 62	15 07	10 12	17	1 84	13 488 34	13 515 55	24576
27 625 92	27 667 36	10 78	11 38	18	1 78	12 441 13	12 465 25	24320
25 958 08	25 996 22	8 18	12 04	20	1 68	11 550 77	11 572 87	24064
24 509 34	24 545 24	6 61	11 85	21	1 59	10 785 60	10 805 86	23808
23 240 79	23 274 61	5 70	10 85	22	1 50	10 121 82	10 140 08	23552
22 122 08	22 153 59	5 25	9 34	24	1 35	9 541 24	9 557 42	23296
21 129 35	21 158 53	5 19	7 71	25	1 23	9 029 80	9 044 18	23040
20 243 67	20 270 81	5 47	6 21	26	1 11	8 576 51	8 589 56	22784
19 449 87	19 475 58	6 11	4 96	28	1 00	8 172 66	8 185 02	22528
18 735 73	18 760 83	7 14	3 97	31	94	7 811 32	7 823 68	22272
18 091 33	18 116 81	8 52	3 20	34	86	7 486 81	7 499 73	22016
17 508 42	17 535 19	10 02	2 61	37	77	7 194 47	7 208 24	21760
16 980 00	17 008 36	11 13	2 17	41	65	6 930 33	6 944 69	21504
16 500 16	16 529 44	11 32	1 82	45	58	6 691 03	6 705 20	21248
16 063 74	16 092 48	10 45	1 56	50	52	6 473 67	6 486 70	20992
15 666 25	15 693 07	8 94	1 35	55	48	6 275 73	6 287 05	20736
15 303 73	15 327 93	7 34	1 19	60	44	6 095 05	6 104 62	20480
14 972 78	14 994 27	5 97	1 06	66	42	5 929 73	5 937 84	20224
14 670 33	14 689 45	4 92	96	73	38	5 778 15	5 785 14	19968
14 393 73	14 410 93	4 17	88	82	34	5 638 89	5 645 10	19712
14 140 59	14 156 35	3 68	81	91	31	5 510 68	5 516 39	19456
13 908 86	13 923 57	3 40	76	1 02	29	5 392 47	5 397 94	19200
- 13 696 72	- 13 710 76	+ 3 31	+ 72	+ 1 12	+ 28	+ 5 283 33	+ 5 288 76	- 18944

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
- 18944	+ 7 95	+ 1 66	+ 1 78	- 22	+ 10 689 92	+ 10 701 09	- 9 94	- 2 60	- 73	- 77
18688	8 53	1 69	1 83	22	10 438 42	10 450 25	9 67	2 48	85	74
18432	9 33	1 72	1 86	22	10 205 28	10 217 98	9 74	2 38	98	71
18176	10 32	1 77	1 84	20	9 989 22	10 002 95	10 19	2 30	1 17	68
17920	11 40	1 83	1 78	18	9 789 10	9 803 93	11 07	2 24	1 32	66
17664	12 34	1 90	1 72	17	9 603 92	9 619 71	12 38	2 20	1 46	63
17408	12 82	1 99	1 60	15	9 432 70	9 448 96	13 98	2 18	1 58	60
17152	12 47	2 09	1 44	14	9 274 49	9 290 35	15 44	2 16	1 70	58
16896	11 36	2 20	1 27	12	9 128 41	9 143 12	16 35	2 17	1 78	56
16640	9 78	2 33	1 11	11	8 993 60	9 006 71	16 33	2 20	1 84	54
16384	8 24	2 48	95	10	8 869 28	8 880 86	15 51	2 25	1 86	52
16128	7 03	2 66	78	9	8 754 74	8 765 12	14 25	2 33	1 83	50
15872	6 23	2 85	64	8	8 649 32	8 658 96	12 88	2 43	1 79	49
15616	5 79	3 07	51	8	8 552 47	8 561 76	11 64	2 57	1 74	47
15360	5 61	3 30	39	7	8 463 67	8 472 91	10 68	2 75	1 68	45
15104	5 69	3 55	31	6	8 382 52	8 392 01	9 83	2 99	1 58	44
14848	5 95	3 81	23	6	8 308 69	8 318 62	9 30	3 28	1 48	43
14592	6 39	4 04	17	5	8 241 92	8 252 47	9 02	3 63	1 40	42
14336	7 01	4 24	11	4	8 182 08	8 193 40	9 02	4 04	1 32	41
14080	7 81	4 36	9	4	8 129 09	8 141 31	9 33	4 50	1 23	40
13824	8 77	4 38	5	3	8 082 94	8 096 11	10 00	4 99	1 15	39
13568	9 77	4 25	3	2	8 043 64	8 057 67	11 07	5 45	1 08	38
13312	10 60	3 99	1	2	8 011 20	8 025 78	12 51	5 84	1 01	37
13056	10 94	3 61	+ 1	2	7 985 56	8 000 10	14 17	6 10	96	36
12800	10 55	3 16	0	1	7 966 65	7 980 35	15 62	6 21	89	36
12544	9 48	2 70	- 1	1	7 954 37	7 966 53	16 42	6 16	84	35
12288	8 10	2 27	1	1	7 948 59	7 958 92	16 34	5 98	79	34
12032	6 83	1 90	1	1	7 949 22	7 957 93	15 55	5 71	77	33
11776	5 90	1 60	1	-	7 956 18	7 963 66	14 40	5 40	71	33
11520	5 36	1 37	1	0	7 969 42	7 976 14	13 22	5 06	68	33
11264	5 11	1 21	- 1	0	7 988 91	7 995 22	12 09	4 73	64	32
11008	5 13	1 10	0	0	8 014 70	8 020 93	11 23	4 42	62	32
10752	5 36	1 02	+ 1	+ 1	8 046 89	8 053 29	10 61	4 15	59	32
10496	5 80	98	1	0	8 085 68	8 092 47	10 26	3 90	58	31
10240	6 43	97	1	+ 1	8 131 32	8 138 73	10 21	3 69	54	31
9984	7 28	97	2	1	8 184 22	8 192 49	10 48	3 50	53	31
9728	8 36	99	2	1	8 244 85	8 254 23	11 14	3 35	52	30
9472	9 63	1 02	2	2	8 313 78	8 324 47	12 30	3 22	50	30
9216	10 97	1 06	2	2	8 391 63	8 403 71	14 04	3 11	48	30
8960	12 05	1 12	3	2	8 479 03	8 492 25	16 34	3 03	47	30
8704	12 41	1 18	3	3	8 576 60	8 590 25	18 92	2 97	45	30
8448	11 70	1 26	4	3	8 684 97	8 698 00	21 14	2 92	45	30
8192	10 10	1 35	4	3	8 804 79	8 816 31	22 27	2 90	44	30
7936	8 22	1 45	4	4	8 936 75	8 946 50	22 07	2 90	42	30
7680	6 66	1 57	5	4	9 081 63	9 089 95	20 89	2 92	42	30
7424	5 68	1 71	6	4	9 240 33	9 247 82	19 31	2 95	42	30
7168	5 25	1 88	6	4	9 413 88	9 421 11	17 76	3 02	41	30
6912	5 24	2 07	6	5	9 603 51	9 610 93	16 48	3 10	42	30
6656	5 58	2 30	7	5	9 810 67	9 818 67	15 57	3 23	41	30
6400	6 21	2 57	8	5	10 037 10	10 046 01	15 06	3 38	41	31
6144	7 16	2 90	8	5	10 284 90	10 295 09	15 00	3 59	41	31
5888	8 49	3 29	9	6	10 556 62	10 568 55	15 51	3 85	42	31
5632	10 23	3 78	10	6	10 855 35	10 869 52	16 58	4 19	42	32
5376	12 58	4 38	11	6	11 184 81	11 201 94	18 59	4 62	42	32
5120	15 55	5 13	12	7	11 549 43	11 570 30	21 89	5 20	43	32
4864	18 94	6 09	12	8	11 954 39	11 979 62	27 02	5 98	42	33
4608	21 86	7 29	13	8	12 405 74	12 435 10	34 35	7 03	44	33
4480	5 650	2 005	34	21	3 162 75	3 170 46	9 679	1 929	110	85
4352	5 632	2 210	35	22	3 227 64	3 235 54	10 817	2 129	112	86
4224	5 359	2 439	37	22	3 296 40	3 304 26	11 889	2 371	114	87
4096	4 837	2 697	39	23	3 369 31	3 376 91	12 786	2 662	115	88
3968	4 118	2 983	41	24	3 446 70	3 453 87	13 390	3 014	116	89
- 3840	+ 3 311	+ 3 296	+ 42	+ 24	+ 3 528 94	+ 3 535 61	- 13 661	- 3 443	- 117	- 90

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
- 13 696 72	- 13 710 76	+ 3 31	+ 72	+ 1 12	+ 28	+ 5 283 33	+ 5 288 76	- 18944
13 502 64	13 516 38	3 39	69	1 22	26	5 182 52	5 188 08	18688
13 325 35	13 339 16	3 66	67	1 31	23	5 089 42	5 095 29	18432
13 163 81	13 178 15	4 13	66	1 41	22	5 003 52	5 009 94	18176
13 017 22	13 032 51	4 81	66	1 49	20	4 924 42	4 931 58	17920
12 884 96	12 901 63	5 65	67	1 53	19	4 851 81	4 859 85	17664
12 766 46	12 784 80	6 50	68	1 56	18	4 785 36	4 794 28	17408
12 661 26	12 681 14	7 07	70	1 55	17	4 724 78	4 734 27	17152
12 568 88	12 589 74	7 17	73	1 51	16	4 669 78	4 679 35	16896
12 488 85	12 509 76	6 73	77	1 47	15	4 620 07	4 629 19	16640
12 420 73	12 440 87	5 95	83	1 40	14	4 575 34	4 583 66	16384
12 364 11	12 383 02	5 09	90	1 30	13	4 535 33	4 542 75	16128
12 318 57	12 336 16	4 32	99	1 20	12	4 499 78	4 506 41	15872
12 283 73	12 300 15	3 72	1 10	1 08	12	4 468 44	4 474 46	15616
12 259 24	12 274 80	3 30	1 24	99	11	4 441 09	4 446 73	15360
12 244 81	12 259 65	2 99	1 40	89	11	4 417 54	4 422 93	15104
12 240 17	12 254 66	2 85	1 59	80	10	4 397 63	4 402 97	14848
12 245 16	12 259 63	2 84	1 81	71	10	4 381 23	4 386 69	14592
12 259 68	12 274 47	2 98	2 06	63	10	4 368 27	4 374 03	14336
12 283 75	12 299 21	3 28	2 31	56	9	4 358 74	4 364 98	14080
12 317 55	12 334 08	3 76	2 54	50	9	4 352 68	4 359 57	13824
12 361 33	12 379 31	4 43	2 73	45	8	4 350 18	4 357 87	13568
12 415 50	12 435 24	5 23	2 85	40	8	4 351 34	4 359 90	13312
12 480 42	12 502 01	6 02	2 87	37	8	4 356 26	4 365 60	13056
12 556 57	12 579 65	6 55	2 80	32	8	4 365 05	4 374 80	12800
12 644 35	12 668 12	6 61	2 65	30	7	4 377 78	4 387 41	12544
12 744 18	12 767 64	6 20	2 45	26	7	4 394 49	4 403 48	12288
12 856 51	12 878 87	5 53	2 22	24	7	4 415 26	4 423 32	12032
12 981 79	13 002 63	4 78	1 99	23	6	4 440 14	4 447 20	11776
13 120 47	13 139 76	4 14	1 77	21	6	4 469 17	4 475 35	11520
13 273 09	13 290 88	3 61	1 58	18	6	4 502 44	4 507 87	11264
13 440 24	13 456 83	3 24	1 40	18	6	4 540 02	4 544 90	11008
13 622 55	13 638 22	3 02	1 26	16	6	4 582 03	4 586 53	10752
13 820 80	13 835 85	2 94	1 14	14	6	4 628 62	4 632 90	10496
14 035 88	14 050 63	3 00	1 03	14	6	4 679 99	4 684 22	10240
14 268 89	14 283 71	3 23	95	13	6	4 736 42	4 740 79	9984
14 521 16	14 536 47	3 66	88	12	6	4 798 25	4 802 97	9728
14 794 28	14 810 60	4 33	82	12	5	4 865 94	4 871 26	9472
15 090 17	15 108 10	5 27	78	11	5	4 940 04	4 946 24	9216
15 411 00	15 431 14	6 41	74	11	5	5 021 14	5 028 45	8960
15 759 24	15 781 88	7 55	72	10	5	5 109 91	5 118 33	8704
16 137 64	16 162 45	8 31	70	9	5	5 207 06	5 216 21	8448
16 549 20	16 575 11	8 38	69	9	5	5 313 34	5 322 55	8192
16 997 29	17 022 98	7 79	69	8	5	5 429 58	5 438 19	7936
17 485 69	17 510 22	6 86	69	8	5	5 556 66	5 564 34	7680
18 018 68	18 041 66	5 89	71	8	5	5 695 62	5 702 35	7424
18 601 18	18 622 67	5 07	73	8	5	5 847 60	5 853 53	7168
19 238 86	19 259 16	4 45	77	7	5	6 013 94	6 019 28	6912
19 938 32	19 957 83	4 05	82	7	5	6 196 17	6 201 16	6656
20 707 34	20 726 50	3 85	89	6	5	6 396 12	6 400 97	6400
21 555 08	21 574 39	3 85	98	8	4	6 615 92	6 620 87	6144
22 492 64	22 512 73	4 10	1 10	7	4	6 858 21	6 863 52	5888
23 533 43	23 554 92	4 62	1 26	7	4	7 126 18	7 132 17	5632
24 693 89	24 717 84	5 58	1 47	7	4	7 423 74	7 430 90	5376
25 994 29	26 022 13	7 15	1 76	7	4	7 755 74	7 764 76	5120
27 459 89	27 493 64	9 56	2 16	7	4	8 128 16	8 139 99	4864
29 122 17	29 164 32	12 90	2 73	7	4	8 548 43	8 564 17	4608
7 509 77	7 521 57	3 697	774	16	11	2 194 82	2 199 32	4480
7 755 21	7 768 35	4 159	886	16	11	2 256 42	2 261 49	4352
8 018 52	8 032 98	4 548	1 023	16	11	2 322 30	2 327 90	4224
8 301 59	8 317 24	4 814	1 190	16	11	2 392 88	2 398 91	4096
8 606 59	8 623 20	4 911	1 394	17	11	2 468 63	2 474 96	3968
- 8 935 98	- 8 953 29	+ 4 837	+ 1 644	+ 17	+ 11	+ 2 550 11	+ 2 556 62	- 3840

TABLE IV.—continued.

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
- 3840	+ 3 311	+ 3 296	+ 42	+ 24	+ 3 528 94	+ 3 535 61	- 13 661	- 3 443	- 117	- 90
3712	2 534	3 631	43	25	3 616 42	3 622 65	13 611	3 968	119	91
3584	1 861	3 974	45	25	3 709 57	3 715 48	13 314	4 608	120	92
3456	1 336	4 307	48	26	3 808 88	3 814 60	12 841	5 387	123	94
3328	966	4 595	51	27	3 914 91	3 920 55	12 306	6 278	126	95
3200	744	4 784	54	28	4 028 24	4 033 85	11 761	7 438	128	97
3072	642	4 796	56	30	4 149 53	4 155 05	11 259	8 712	131	98
2944	639	4 546	59	31	4 279 54	4 284 82	10 825	10 116	134	100
2816	715	3 956	62	32	4 419 06	4 423 82	10 478	11 563	136	102
2688	878	2 974	64	33	4 569 03	4 572 98	10 219	12 897	139	103
2560	1 059	1 632	67	34	4 730 41	4 733 20	10 075	13 971	142	105
2496	289 7	213 5	17 4	8 7	1 203 929	1 204 458	2 512 2	3 591 7	35 9	26 5
2432	330 0	10 5	17 9	8 9	1 226 072	1 226 439	2 508 5	3 657 5	36 4	26 8
2368	368 3	198 0	18 4	9 1	1 249 065	1 249 263	2 513 8	3 692 5	36 9	27 1
2304	410 8	404 0	19 0	9 2	1 272 948	1 272 983	2 526 8	3 697 0	37 4	27 4
2240	457 6	603 1	19 6	9 4	1 297 751	1 297 634	2 547 5	3 674 0	38 0	27 7
2176	509 8	789 2	20 1	9 6	1 323 515	1 323 265	2 577 0	3 621 0	38 5	28 0
2112	567 4	959 2	20 6	9 8	1 350 275	1 349 914	2 615 5	3 545 9	39 0	28 2
2048	631 2	1 109 8	21 2	10 0	1 378 058	1 377 611	2 664 0	3 449 2	39 6	28 5
1984	702 8	1 240 5	22 0	10 2	1 406 897	1 406 392	2 723 3	3 339 2	40 3	28 9
1920	783 0	1 351 0	22 9	10 5	1 436 808	1 436 273	2 795 0	3 220 5	41 0	29 3
1856	873 1	1 441 3	23 8	10 8	1 467 802	1 467 268	2 880 1	3 094 3	41 7	29 7
1792	975 0	1 514 5	24 6	11 0	1 499 875	1 499 371	2 980 5	2 966 5	42 4	30 0
1728	1 091 1	1 570 7	25 4	11 3	1 533 007	1 532 565	3 098 4	2 838 0	43 2	30 4
1664	1 224 2	1 612 2	26 3	11 6	1 567 142	1 566 792	3 236 8	2 711 0	44 0	30 8
1600	1 377 5	1 642 6	27 2	11 8	1 602 198	1 601 972	3 399 1	2 589 4	44 8	31 2
1536	1 555 8	1 662 8	28 0	12 1	1 638 028	1 637 961	3 589 0	2 473 0	45 6	31 8
1472	1 764 4	1 675 8	29 2	12 4	1 674 420	1 674 550	3 812 2	2 363 3	46 6	32 4
1408	2 011 2	1 681 2	30 4	12 8	1 711 055	1 711 428	4 076 0	2 259 5	47 6	32 9
1344	2 305 7	1 682 3	31 6	13 2	1 747 476	1 748 144	4 388 8	2 163 0	48 6	33 4
1280	2 661 2	1 680 5	32 8	13 5	1 783 015	1 784 042	4 762 8	2 074 2	49 5	34 0
1248	716 8	419 6	8 4	3 4	450 044	450 353	1 244 2	508 2	12 6	8 6
1216	773 8	419 2	8 6	3 5	454 185	454 552	1 303 2	498 2	12 7	8 7
1184	837 3	418 6	8 8	3 6	458 126	458 557	1 368 2	488 4	12 8	8 8
1152	908 5	418 0	9 0	3 6	461 818	462 321	1 440 2	479 0	13 0	8 9
1120	987 5	417 5	9 2	3 7	465 192	465 775	1 519 8	470 4	13 2	8 9
1088	1 077 0	417 0	9 4	3 7	468 168	468 841	1 608 5	461 8	13 3	9 0
1056	1 178 2	416 1	9 6	3 7	470 653	471 428	1 707 5	453 3	13 4	9 1
1024	1 293 0	415 5	9 8	3 8	472 530	473 421	1 818 2	445 5	13 6	9 2
992	1 424 6	415 1	10 1	3 9	473 658	474 682	1 943 2	438 2	13 8	9 3
960	1 575 8	414 8	10 4	4 0	473 868	475 043	2 084 5	431 2	14 0	9 4
928	1 750 3	414 6	10 7	4 0	472 949	474 299	2 244 6	424 5	14 2	9 5
896	1 954 0	414 5	11 0	4 1	470 645	472 200	2 427 8	418 2	14 4	9 6
864	2 192 9	414 7	11 3	4 2	466 645	468 439	2 638 0	412 1	14 6	9 7
832	2 476 0	415 0	11 7	4 3	460 552	462 629	2 881 2	406 2	14 8	9 8
800	2 814 1	415 4	12 0	4 4	451 883	454 299	3 163 9	400 4	15 0	10 0
768	3 223 0	416 2	12 3	4 5	440 022	442 846	3 495 8	395 2	15 2	10 1
736	3 722 2	417 3	12 6	4 6	424 199	427 521	3 887 3	390 4	15 4	10 2
704	4 340 8	418 8	12 9	4 6	403 428	407 368	4 354 0	385 8	15 6	10 3
672	5 118 8	420 6	13 2	4 7	376 439	381 155	4 915 3	381 4	15 8	10 4
640	6 114 5	422 8	13 5	4 8	341 598	347 308	5 596 2	377 2	16 0	10 5
624	1 679 9	106 0	3 4	1 2	80 146	81 724	1 498 0	93 8	4 0	2 6
608	1 853 7	106 2	3 5	1 2	74 187	75 939	1 607 8	93 2	4 0	2 6
592	2 054 4	106 6	3 6	1 2	67 429	69 382	1 729 7	92 8	4 1	2 7
576	2 288 0	107 0	3 6	1 3	59 760	61 946	1 865 4	92 5	4 1	2 7
560	2 561 4	107 4	3 6	1 3	51 054	53 513	2 016 7	92 0	4 1	2 7
544	2 884 0	107 8	3 7	1 3	41 160	43 941	2 185 3	91 5	4 2	2 8
528	3 267 8	108 3	3 8	1 3	29 904	33 069	2 373 1	91 2	4 2	2 8
512	3 728 2	108 8	3 8	1 3	17 080	20 705	2 581 3	90 8	4 2	2 8
496	4 285 4	109 3	3 9	1 3	2 445	6 626	2 810 8	90 4	4 2	2 8
480	4 966 6	109 8	4 0	1 3	14 289	9 427	3 060 3	90 0	4 3	2 9
464	5 807 4	110 4	4 0	1 3	33 468	27 766	3 325 3	89 6	4 3	2 9
- 448	+ 6 855 8	111 0	+ 4 1	+ 1 4	- 55 507	- 48 757	- 3 594 9	- 89 2	- 4 3	- 2 9

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
- 8 935 98	- 8 953 29	+4 837	+1 644	+17	+11.	+ 2 550 11	+ 2 556 62	- 3840
9 292 63	9 310 42	4 620	1 953	17	11	2 637 95	2 644 55	3712
9 679 79	9 697 92	4 308	2 330	17	11	2 732 86	2 739 53	3584
10 101 30	10 119 74	3 947	2 790	17	11	2 835 67	2 842 44	3456
10 561 64	10 580 44	3 582	3 343	17	11	2 947 34	2 954 29	3328
11 066 07	11 085 49	3 240	3 991	17	11	3 069 00	3 076 26	3200
11 620 79	11 640 99	2 937	4 722	18	11	3 201 95	3 209 64	3072
12 233 22	12 254 40	2 677	5 509	18	11	3 347 74	3 355 96	2944
12 912 27	12 934 55	2 463	6 290	18	11	3 508 22	3 516 99	2816
13 668 75	13 692 11	2 290	6 970	18	11	3 685 60	3 694 89	2688
14 515 80	14 540 09	2 261	7 451	18	11	3 882 53	3 892 27	2560
3 744 561	3 750 727	528 0	1 898 7	4 4	2 7	997 331	999 765	2496
3 867 430	3 873 659	517 2	1 912 8	4 4	2 7	1 025 570	1 028 007	2432
3 998 217	4 004 487	509 0	1 909 1	4 4	2 7	1 055 480	1 057 905	2368
4 137 682	4 143 971	503 2	1 885 5	4 4	2 7	1 087 210	1 089 606	2304
4 286 656	4 292 943	499 8	1 846 2	4 4	2 7	1 120 918	1 123 271	2260
4 446 102	4 452 366	498 8	1 790 2	4 5	2 7	1 156 792	1 159 088	2176
4 617 096	4 623 325	500 2	1 722 4	4 5	2 7	1 195 037	1 197 267	2112
4 800 865	4 807 046	504 2	1 644 2	4 5	2 7	1 235 885	1 238 041	2048
4 998 828	5 004 960	511 0	1 559 7	4 5	2 7	1 279 602	1 281 680	1984
5 212 590	5 218 676	521 0	1 472 0	4 5	2 7	1 326 488	1 328 488	1920
5 444 016	5 450 062	534 4	1 382 3	4 6	2 7	1 376 882	1 378 806	1856
5 695 265	5 701 284	551 5	1 293 5	4 6	2 7	1 431 180	1 433 032	1792
5 968 855	5 974 865	573 0	1 206 2	4 6	2 6	1 489 836	1 491 622	1728
6 267 728	6 273 751	599 8	1 122 5	4 7	2 6	1 553 375	1 555 105	1664
6 595 349	6 601 414	632 6	1 042 2	4 7	2 6	1 622 401	1 624 083	1600
6 955 838	6 961 977	672 5	967 5	4 7	2 6	1 697 635	1 699 282	1536
7 354 117	7 360 371	721 4	897 2	4 7	2 6	1 779 913	1 781 539	1472
7 796 075	7 802 491	781 2	831 5	4 7	2 6	1 870 232	1 871 852	1408
8 288 910	8 295 544	854 1	770 7	4 6	2 5	1 969 785	1 971 417	1344
8 841 362	8 848 282	945 8	714 2	4 6	2 5	2 079 992	2 081 659	1280
2 285 814	2 287 588	249 8	171 9	1 2	6	534 906	535 330	1248
2 366 075	2 367 898	264 8	165 5	1 2	6	550 650	551 082	1216
2 451 573	2 453 451	281 7	159 7	1 2	6	567 296	567 739	1184
2 542 810	2 544 751	301 0	153 8	1 2	6	584 925	585 382	1152
2 640 346	2 642 358	322 3	148 3	1 1	6	603 622	604 094	1120
2 744 822	2 746 915	347 0	142 8	1 1	6	623 482	623 974	1088
2 856 962	2 859 145	374 9	137 5	1 1	6	644 612	645 126	1056
2 977 590	2 979 876	407 0	132 2	1 1	6	667 132	667 673	1024
3 107 651	3 110 056	444 2	127 5	1 1	6	691 181	691 754	992
3 248 228	3 250 767	487 2	122 8	1 1	6	716 908	717 520	960
3 400 577	3 403 270	537 8	118 4	1 1	6	744 491	745 149	928
3 566 140	3 569 010	597 2	114 0	1 1	6	774 125	774 838	896
3 746 618	3 749 692	667 8	109 9	1 1	6	806 036	806 815	864
3 943 985	3 947 297	752 5	105 8	1 1	6	840 488	841 348	832
4 160 579	4 164 168	855 0	102 0	1 0	5	877 772	878 730	800
4 399 175	4 403 091	980 5	98 2	1 0	5	918 242	919 322	768
4 663 073	4 667 376	1 136 5	94 1	1 0	5	962 296	963 528	736
4 956 262	4 961 028	1 332 8	91 0	1 0	5	1 010 405	1 011 830	704
5 283 568	5 288 891	1 584 1	87 6	1 0	5	1 063 121	1 064 794	672
5 650 900	5 656 900	1 912 2	84 2	1 0	5	1 121 090	1 123 088	640
1 462 949	1 464 547	528 7	20 6	2	1	288 071	288 621	624
1 516 391	1 518 099	587 6	20 2	2	1	296 272	296 880	608
1 573 351	1 575 180	656 4	19 8	2	1	304 907	305 584	592
1 634 166	1 636 131	737 5	19 5	2	1	314 008	314 765	576
1 699 216	1 701 332	833 8	19 0	2	1	323 612	324 465	560
1 768 930	1 771 214	949 1	18 5	2	1	333 756	334 724	544
1 843 794	1 846 265	1 088 4	18 2	2	1	344 486	345 593	528
1 924 361	1 927 040	1 258 4	17 8	2	1	355 846	357 122	512
2 011 268	2 014 176	1 467 8	17 4	2	1	367 892	369 378	496
2 105 236	2 108 394	1 728 9	17 0	2	1	380 677	382 423	480
2 207 109	2 210 531	2 058 6	16 6	2	1	394 269	396 344	464
- 2 317 857	- 2 321 548	+2 479 5	+ 16 3	+ 2	+ 1	+ 408 733	+ 411 229	- 448

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
— 448	+ 6 855 8	— 111 0	+ 4 1	+ 1. 4	— 55 507	— 48 757	— 3 594 9	— 89 2	— 4 3	— 2 9
432	8 175 2	111 5	4 2	1 4	80 901	72 832	3 845 5	88 7	4 4	3 0
416	9 848 3	112 1	4 3	1 4	110 259	100 517	4 031 0	88 2	4 4	3 0
400	11 980 0	113 0	4 4	1 4	144 325	132 452	4 066 8	88 0	4 4	3 0
392	3 313 3	28 3	1 1	4	40 849 6	37 563 1	995 7	22 0	1 1	8
384	3 670 8	28 5	1 1	4	46 001 6	42 357 8	948 5	21 9	1 1	8
376	4 070 5	28 6	1 1	4	51 574 8	47 531 4	865 9	21 9	1 1	8
368	4 513 4	28 7	1 1	4	57 610 5	53 124 3	735 3	21 9	1 1	8
360	4 997 5	28 8	1 1	4	64 155 0	59 184 8	541 5	21 8	1 1	8
352	5 517 2	28 9	1 2	4	71 261 1	65 771 2	— 266 6	21 8	1 1	8
344	6 058 4	29 1	1 2	4	78 989 2	72 958 3	+ 109 4	21 7	1 1	8
336	6 599 3	29 2	1 2	4	87 404 7	80 833 0	602 0	21 7	1 1	8
328	7 102 4	29 3	1 2	4	96 583 0	89 508 7	1 240 3	21 6	1 2	8
320	7 522 8	29 5	1 2	4	106 609 4	99 114 5	2 015 9	21 6	1 2	8
312	7 803 8	29 6	1 2	4	117 582 0	109 806 2	2 919 1	21 6	1 2	8
304	7 888 2	29 8	1 2	4	129 612 3	121 752 3	3 910 6	21 5	1 2	8
296	7 730 6	29 9	1 2	4	142 827 2	135 124 9	4 922 5	21 5	1 2	8
288	7 316 5	30 1	1 2	4	157 373 0	150 085 0	5 868 2	21 4	1 2	8
280	6 666 1	30 2	1 3	4	173 418 6	166 781 0	6 656 0	21 4	1 2	8
272	5 838 8	30 4	1 3	4	191 158 8	185 348 7	7 214 4	21 4	1 2	8
264	4 916 4	30 6	1 3	4	210 820 9	205 933 4	7 508 6	21 3	1 2	8
256	3 981 7	30 8	1 3	4	232 669 2	228 716 6	7 544 7	21 3	1 2	8
248	3 104 1	31 0	1 3	4	257 013 5	253 938 7	7 361 2	21 3	1 2	8
— 240	+ 2 327 6	— 31 2	+ 1 3	+ 4	— 284 219 3	— 281 921 2	+ 7 014 5	— 21 2	— 1 2	— 8

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
-2 317 857	-2 321 548	+2 479 5	+ 16 3	+ 2	+ 1	+ 408 733	+ 411 229	- 448
2 438 603	2 442 544	3 023 4	15 9	2	1	424 147	427 187	432
2 570 671	2 574 798	3 734 4	15 5	2	1	440 592	444 342	416
2 715 616	2 719 778	4 672 4	15 1	+ 2	+ 1	458 158	462 846	400
698 369 7	699 389 3	1 312 4	3 7	0	0	116 847 9	118 164 0	392
718 818 2	719 790 5	1 478 1	3 7	0	0	119 235 6	120 717 4	384
740 321 6	741 211 3	1 668 0	3 6	0	0	121 706 1	123 377 7	376
762 957 7	763 716 8	1 884 6	3 6	0	0	124 262 4	126 150 6	368
786 812 5	787 377 7	2 129 5	3 5	0	0	126 908 2	129 041 2	360
811 978 8	812 269 1	2 402 0	3 5	0	0	129 646 5	132 052 0	352
838 559 0	838 473 2	2 699 9	3 4	0	0	132 480 2	135 183 5	344
866 668 0	866 089 6	3 016 3	3 4	0	0	135 413 3	138 433 0	336
896 433 1	895 216 4	3 336 7	3 3	0	0	138 449 1	141 789 1	328
927 991 6	925 999 3	3 641 7	3 3	0	0	141 590 3	145 235 3	320
961 497 2	958 601 7	3 903 7	3 2	0	0	144 439 2	148 346 1	312
997 128 5	993 241 4	4 091 3	3 2	0	0	148 199 0	152 293 5	304
I 035 070 5	I 030 171 5	4 173 6	3 2	0	0	151 670 3	155 847 1	296
I 075 539 8	I 069 695 0	4 130 8	3 1	0	0	155 253 9	159 387 8	288
I 118 777 8	I 112 145 2	3 958 1	3 0	0	0	158 949 7	162 910 8	280
I 165 054 9	I 157 863 9	3 670 9	3 0	0	0	162 755 8	166 429 7	272
I 214 677 4	I 207 192 1	3 300 7	2 9	0	0	166 668 4	169 972 0	264
I 267 990 6	I 260 469 2	2 886 0	2 9	0	0	170 681 3	173 570 2	256
I 325 387 1	I 318 049 2	2 463 4	2 8	0	0	174 784 7	177 250 9	248
-I 387 315 8	-I 380 324 5	+2 061 3	+ 2 8	0	0	+ 178 964 8	+ 181 028 9	- 240

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Earth.	Venus.
— 240	+ 2 327 6	— 31 2	— 1 6	— 7	— 284 215 3	— 281 921 2	+ 7 014 5	— 21 2	— 3 3	— 2 5
232	1 672 6	31 4	1 6	6	314 715 0	313 076 0	6 562 7	21 2	3 2	2 5
224	1 140 1	31 6	1 5	6	349 022 6	347 916 2	6 057 0	21 2	3 2	2 6
216	717 8	31 8	1 5	5	387 753 5	387 069 5	5 516 4	21 1	3 2	2 8
208	395 9	32 0	1 4	5	431 648 6	431 286 6	5 026 4	21 1	3 2	3 0
200	+ 154 2	32 3	1 4	4	481 603 7	481 483 8	4 545 1	21 0	3 3	3 3
192	— 24 7	32 5	1 4	4	538 715 5	538 774 5	4 100 5	21 0	3 3	3 7
184	154 0	32 8	1 3	4	604 324 3	604 512 8	3 696 0	21 0	3 4	4 3
176	244 9	33 1	1 3	5	680 099 3	680 379 1	3 331 8	20 9	3 5	5 1
168	306 6	33 4	1 3	5	768 110 2	768 452 0	3 006 4	20 9	3 7	6 1
160	346 3	33 7	1 3	5	870 983 4	871 365 2	2 716 2	20 8	4 0	7 2
156	89 98	8 46	31	21	232 249 5	232 348 5	645 83	5 21	1 25	2 04
152	92 38	8 50	31	28	248 011 4	248 112 9	614 58	5 20	1 44	2 26
148	94 10	8 54	31	35	265 172 9	265 276 2	585 11	5 20	1 58	2 51
144	95 16	8 58	31	42	283 895 8	284 000 3	557 48	5 20	1 67	2 82
140	95 61	8 63	31	66	304 365 2	304 470 4	531 15	5 20	1 58	3 13
136	95 65	8 68	31	90	326 793 1	326 898 6	506 45	5 19	1 50	3 50
132	95 26	8 73	31	1 10	351 423 9	351 529 3	483 14	5 18	1 48	3 87
128	94 52	8 78	31	1 50	378 540 1	378 645 2	461 15	5 18	1 45	4 27
124	93 50	8 83	31	2 00	408 468 1	408 572 7	440 50	5 17	1 53	4 56
120	92 22	8 88	31	2 48	441 589 4	441 693 3	420 85	5 16	1 60	4 74
116	90 76	8 93	31	3 02	478 348 7	478 451 7	402 40	5 16	1 76	4 77
112	89 08	8 98	31	3 50	519 267 4	519 369 3	384 89	5 15	1 93	4 68
108	87 30	9 04	31	3 90	564 961 4	565 061 9	368 37	5 14	2 10	4 38
104	85 35	9 10	30	4 19	616 156 6	616 255 5	352 70	5 14	2 30	4 06
100	83 33	9 16	30	4 34	673 719 4	673 816 5	337 85	5 13	2 55	3 66
96	81 22	9 22	30	4 39	738 681 6	738 776 7	323 80	5 12	2 84	3 24
92	79 05	9 29	30	4 34	812 282 4	812 375 4	310 47	5 12	3 14	2 83
88	76 82	9 35	29	4 19	896 017 4	896 108 0	297 85	5 12	3 42	2 48
84	74 37	9 43	29	4 06	991 696 2	991 784 4	285 85	5 11	3 70	2 19
80	72 32	9 51	28	3 88	1 101 526 4	1 101 612 4	274 38	5 11	4 00	1 95
78	17 78	2 39	6	95	290 642 2	290 663 4	67 23	1 28	1 19	47
76	17 49	2 40	6	93	307 051 9	307 072 8	65 90	1 28	1 38	45
74	17 19	2 41	5	92	324 719 1	324 739 7	64 60	1 28	1 57	44
72	16 89	2 42	4	90	343 764 7	343 785 0	63 34	1 28	1 75	42
70	16 60	2 43	2	88	364 323 3	364 343 2	62 10	1 27	1 94	40
68	16 30	2 45	—	87	386 544 4	386 564 0	60 88	1 27	2 14	38
66	16 00	2 46	+	86	410 594 3	410 613 6	59 69	1 27	2 39	36
64	15 70	2 47	3	86	436 658 4	436 677 4	58 54	1 27	2 69	35
62	15 40	2 48	6	85	464 943 2	464 961 9	57 41	1 27	3 06	34
60	15 11	2 49	10	84	495 679 1	495 697 4	56 31	1 27	3 53	34
58	14 81	2 50	16	84	529 121 6	529 139 6	55 24	1 27	4 10	34
56	14 51	2 52	24	84	565 554 9	565 572 5	54 19	1 27	4 82	35
54	14 21	2 54	37	85	605 294 2	605 311 4	53 17	1 27	5 80	35
52	13 91	2 55	56	85	648 687 4	648 704 2	52 18	1 27	7 00	35
50	13 61	2 56	84	85	696 119 7	696 135 9	51 21	1 28	8 67	36
48	13 00	2 58	1 32	86	748 009 7	748 024 8	50 25	1 28	10 98	36
46	13 00	2 60	2 14	87	804 814 2	804 828 5	49 33	1 28	14 27	36
44	12 70	2 61	3 64	89	867 021 7	867 034 3	48 41	1 28	19 03	37
42	12 39	2 62	7 05	90	935 151 4	935 160 3	47 54	1 28	28 02	37
40	12 08	2 64	12 49	91	1 009 734 9	1 009 738 0	46 67	1 28	35 34	37
39	2 98	66	4 38	23	262 403 8	262 403 3	11 57	32	10 05	9
38	2 95	66	6 11	24	272 826 9	272 824 6	11 46	32	10 88	9
37	2 91	67	8 29	24	283 718 4	283 713 9	11 35	32	10 67	10
36	2 87	67	10 60	25	295 092 7	295 085 9	11 25	32	8 60	10
35	2 83	67	12 22	25	306 962 8	306 954 3	11 15	32	— 4 31	10
34	2 79	67	12 38	26	319 339 7	319 331 0	11 05	32	+ 1 11	11
33	2 76	68	11 02	26	332 231 1	332 223 8	10 96	32	5 70	11
32	2 72	68	8 90	27	345 641 5	345 636 3	10 87	32	8 26	11
31	2 68	68	6 77	27	359 572 2	359 569 1	10 77	32	8 96	12
30	2 64	68	5 04	28	374 018 0	374 016 6	10 68	32	8 57	12
29	2 60	68	3 73	28	388 967 1	388 966 9	10 59	32	7 69	12
— 28	— 2 56	— 69	+ 2 79	— 29	— 404 400 9	— 404 401 7	+ 10 50	— 32	+ 6 74	— 12

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
-1 387 312 1	-1 380 324 6	+2 061 3	+ 2 8	+ 4	+ 3	+ 178 964 1	+ 181 028 9	- 240
1 454 284 7	1 447 748 9	1 698 2	2 7	4	3	183 200 6	184 902 2	232
1 526 887 6	1 520 857 6	1 381 7	2 6	4	3	187 465 9	188 850 9	224
1 605 798 7	1 600 309 4	1 109 5	2 6	3	3	191 722 3	192 835 0	216
1 691 800 2	1 686 801 1	1 888 2	2 6	3	3	195 918 9	196 810 4	208
1 785 797 5	1 781 280 0	709 0	2 5	3	3	199 982 8	200 694 9	200
1 888 851 9	1 884 779 4	560 7	2 4	3	3	203 823 6	204 387 3	192
2 002 201 5	1 998 534 2	441 3	2 4	3	4	207 313 6	207 758 0	184
2 127 301 4	2 123 999 1	345 3	2 3	3	4	210 281 1	210 629 4	176
2 265 874 7	2 262 899 0	268 3	2 3	3	4	212 496 8	212 768 1	168
2 419 960 6	2 417 276 4	206 7	2 2	2	5	213 644 0	213 853 6	160
625 889 9	625 252 6	45 14	54	6	15	53 421 9	53 467 8	156
647 995 8	647 390 1	39 35	54	6	16	53 322 8	53 362 9	152
671 401 5	670 825 7	34 09	53	6	18	53 093 5	53 128 4	148
696 210 8	695 663 0	29 46	52	6	20	52 710 8	52 741 0	144
722 537 3	722 016 1	25 23	51	6	23	52 146 4	52 172 4	140
750 504 4	750 008 1	21 52	50	6	26	51 367 2	51 389 5	136
780 247 4	779 774 8	18 16	49	6	28	50 334 3	50 353 2	132
811 915 8	811 465 5	15 20	48	6	31	49 000 2	49 016 2	128
845 670 6	845 241 4	12 50	47	6	33	47 308 7	47 322 1	124
881 689 6	881 280 2	10 12	46	5	34	45 192 2	45 203 2	120
920 164 2	919 773 5	7 97	46	5	33	42 568 9	42 577 7	116
961 303 4	960 930 3	6 08	45	5	32	39 339 5	39 346 4	112
1 005 331 7	1 004 975 0	4 35	44	5	29	35 384 0	35 389 1	108
1 052 486 4	1 052 145 2	2 85	44	4	26	30 554 5	30 558 1	104
1 103 022 2	1 102 695 7	1 50	43	3	21	24 670 1	24 672 3	100
1 157 197 4	1 156 884 8	31	42	3	17	17 507 0	17 507 9	96
1 215 273 4	1 214 974 0	75	41	3	11	8 787 0	8 786 8	92
1 277 500 1	1 277 213 3	1 70	40	2	8	1 836 8	1 838 0	88
1 344 093 5	1 343 818 6	2 50	39	1	5	14 800 8	14 802 8	84
1 415 208 4	1 414 945 1	3 20	38	0	2	30 656 5	30 659 3	80
1 463 120 2	1 463 055 9	89	9	2	0	9 970 2	9 971 0	78
1 527 721 7	1 527 658 9	96	9	4	0	12 526 5	12 527 4	76
1 582 600 5	1 582 539 2	1 03	9	5	0	15 362 4	15 363 4	74
1 647 745 4	1 647 685 5	1 09	9	6	1	18 511 8	18 512 9	72
1 713 140 3	1 713 081 8	1 16	8	7	1	22 013 3	22 014 5	70
1 779 760 7	1 779 703 6	1 22	8	9	1	25 910 5	25 911 7	68
1 845 573 3	1 845 517 6	1 27	8	13	1	30 252 7	30 254 0	66
1 911 533 2	1 911 479 0	1 31	8	18	2	35 097 5	35 098 9	64
1 977 580 6	1 977 527 9	1 35	8	24	2	40 509 7	40 511 2	62
2 043 639 0	2 043 587 8	1 39	8	32	2	46 564 0	46 565 6	60
2 109 607 5	2 109 558 0	1 43	8	43	2	53 345 9	53 347 7	58
2 175 358 2	2 175 310 4	1 46	8	58	3	60 953 5	60 955 5	56
2 241 728 2	2 241 682 4	1 48	8	83	3	69 499 6	69 501 9	54
2 307 510 0	2 307 466 4	1 51	8	1 16	4	79 113 5	79 116 1	52
2 373 443 2	2 373 402 3	1 53	8	1 69	4	89 943 6	89 946 8	50
2 439 199 4	2 439 161 8	1 55	7	2 56	5	102 160 5	102 164 6	48
2 505 368 6	2 505 335 2	1 56	7	4 07	5	115 959 0	115 964 6	46
2 571 435 2	2 571 407 5	1 58	7	6 79	5	131 562 0	131 570 4	44
2 637 759 2	2 637 741 3	1 59	7	13 03	6	149 222 1	149 236 7	42
2 703 543 7	2 703 534 0	1 60	7	22 91	6	169 225 5	169 250 0	40
2 769 130 6	2 769 701 5	40	2	8 00	2	45 051 1	45 059 5	39
2 835 701 0	2 835 700 8	40	2	11 12	2	47 973 2	47 984 7	38
2 901 342 0	2 901 341 7	40	2	15 06	2	51 083 7	51 099 2	37
2 967 126 5	2 967 579 3	40	2	19 17	2	54 394 4	54 414 0	36
3 033 370 8	3 033 364 4	40	2	22 04	3	57 917 9	57 940 4	35
3 099 656 2	3 099 644 5	40	2	22 22	3	61 666 4	61 689 0	34
3 165 378 9	3 165 362 7	39	2	19 70	3	65 653 3	65 673 4	33
3 231 474 0	3 231 455 3	39	2	15 81	3	69 891 1	69 907 3	32
3 297 871 1	3 297 851 8	39	2	11 94	3	74 393 4	74 405 7	31
3 363 493 2	3 363 474 4	39	2	8 82	3	79 172 5	79 181 7	30
3 429 98 9	3 429 239 1	39	2	6 47	3	84 241 0	84 247 9	29
3 495 91 3	3 495 055 5	39	2	-4 81	3	89 610 3	89 615 5	28

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Earth.	Venus.
- 28	- 2 56	- 69	+ 2 79	- 29	- 404 400 9	- 404 401 6	+ 10 50	- 32	+ 6 74	- 12
27	2 52	69	2 13	30	420 290 7	420 292 1	10 41	32	5 81	13
26	2 48	70	1 65	31	436 597 2	436 599 0	10 32	32	5 01	13
25	2 44	70	1 30	32	453 267 6	453 269 8	10 23	32	4 33	14
24	2 40	71	1 04	33	470 234 5	470 236 9	10 15	32	3 76	14
23	2 36	71	85	35	487 413 1	487 415 7	10 07	32	3 28	15
22	2 32	71	71	36	504 699 3	504 702 0	9 99	32	2 88	16
21	2 28	72	59	37	521 966 6	521 969 4	9 91	32	2 54	16
20	2 24	72	51	39	539 065 1	539 067 9	9 83	32	2 26	17
19	2 20	72	44	41	555 818 3	555 821 2	9 75	33	2 02	18
18	2 16	73	38	44	572 022 4	572 025 4	9 67	33	1 82	19
17	2 12	73	34	46	587 444 8	587 447 8	9 60	33	1 64	20
16	2 08	73	30	48	601 824 4	601 827 4	9 53	33	1 49	22
15	2 04	74	27	50	614 872 7	614 875 7	9 46	33	1 36	23
14	2 00	74	24	53	626 276 3	626 279 3	9 39	33	1 24	24
13	1 96	74	22	56	635 701 7	635 704 7	9 32	33	1 14	25
12	1 92	75	20	61	642 802 0	642 805 1	9 25	33	1 06	27
11	1 88	75	19	66	647 225 2	647 228 3	9 19	33	98	30
10	1 84	75	18	72	648 626 2	648 629 3	9 13	33	91	34
9	1 80	76	17	79	646 679 6	646 682 8	9 07	33	85	37
8	1 76	76	16	86	641 095 0	641 098 2	9 01	33	79	40
7	1 72	77	15	93	631 633 2	631 636 5	8 95	34	74	44
6	1 68	77	15	1 01	618 121 9	618 125 2	8 90	34	71	48
5	1 64	78	14	1 11	600 471 5	600 474 9	8 85	34	68	52
4	1 60	78	14	1 22	578 686 6	578 690 1	8 81	34	66	60
3	1 56	79	13	1 39	552 875 8	552 879 4	8 76	35	63	69
2	1 52	79	12	1 59	523 254 2	523 258 0	8 72	35	60	80
1	1 48	80	12	1 81	490 142 2	490 146 2	8 67	35	57	94
0	1 44	80	12	2 08	453 956 5	453 960 7	8 63	35	54	1 13
+ 1	1 40	81	12	2 44	415 196 1	415 200 6	8 59	36	51	1 39
2	1 37	81	11	2 86	374 423 7	374 428 6	8 56	36	48	1 73
3	1 33	82	10	3 40	332 242 2	332 247 7	8 53	36	46	2 21
4	1 29	82	10	4 06	289 270 8	289 276 9	8 50	36	44	2 90
5	1 26	83	10	4 83	246 120 9	246 127 7	8 47	37	42	3 90
6	1 22	83	10	5 62	203 373 4	203 381 0	8 44	37	41	5 38
7	1 19	84	10	6 13	161 559 9	161 568 0	8 42	37	39	7 52
8	1 15	84	10	5 54	121 147 9	121 155 3	8 40	37	38	10 36
9	1 12	85	10	2 75	82 531 5	82 536 1	8 38	38	37	13 24
10	1 08	85	10	+ 2 88	46 025 8	46 024 8	8 36	38	36	14 39
11	1 04	85	10	8 77	- 11 867 2	- 11 860 2	8 34	38	35	12 38
12	1 01	86	10	11 61	+ 19 784 0	+ 19 793 8	8 33	39	34	8 55
13	98	86	9	11 30	48 837 1	48 846 6	8 32	39	33	5 11
14	95	87	9	9 62	75 263 1	75 271 2	8 31	39	32	2 85
15	92	87	9	7 80	99 085 6	99 091 7	8 30	40	32	1 55
16	88	88	9	6 24	120 371 2	120 375 8	8 29	40	31	82
17	85	88	9	5 03	139 220 1	139 223 4	8 28	41	31	41
18	82	89	9	4 09	155 757 6	155 760 1	8 28	41	31	18
19	79	89	9	3 38	170 126 3	170 128 1	8 28	41	30	5
20	77	90	9	2 82	182 479 5	182 480 7	8 28	42	30	+ 3
21	74	90	9	2 39	192 975 7	192 976 5	8 27	42	30	7
22	71	90	9	2 05	201 773 7	201 774 2	8 28	42	29	10
23	69	91	9	1 78	209 029 7	209 030 0	8 28	43	29	11
24	66	91	9	1 56	214 894 1	214 894 2	8 28	43	28	12
25	64	92	9	1 37	219 510 3	219 510 2	8 28	43	28	12
26	61	92	9	1 22	223 012 4	223 012 2	8 28	44	28	12
27	58	93	9	1 09	225 525 6	225 525 3	8 29	44	27	12
28	55	93	9	98	227 165 3	227 164 9	8 29	45	27	12
29	53	94	9	89	228 037 1	228 036 6	8 30	45	27	11
30	50	94	9	82	228 237 1	228 236 6	8 30	45	27	11
31	47	95	9	75	227 852 4	227 851 8	8 30	46	26	10
32	1 81	3 80	38	2 74	907 846 2	907 843 7	33 26	1 82	1 04	39
34	1 63	3 83	39	2 36	895 736 9	895 734 2	33 24	1 85	1 04	36
+ 36	- 1 45	- 3 85	+ 40	+ 2 04	+ 878 523 4	+ 878 520 5	+ 33 42	- 1 88	+ 1 05	+ 34

TABLE IV.—*continued.*

191160	Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
-	91 072 3 82 843 0 73 466 4 62 834 1 50 833 3 37 347 4 22 258 2 5 448 1 13 196 7 33 782 6 56 403 7 81 136 8 108 034 6 137 118 8 168 372 3 201 731 9 237 080 0 274 237 6 312 959 2 352 928 9 393 759 7 434 997 7 476 128 4 516 589 1 555 786 0 593 112 9 627 975 5 659 815 1 688 132 3 712 508 1 732 621 8 748 261 7 759 331 3 765 847 6 767 933 9 765 808 2 759 766 4 750 164 8 737 400 8 721 895 6 704 076 6 684 364 1 663 159 6 640 837 3 617 738 6 594 168 0 570 392 5 546 641 6 523 108 7 499 953 5 477 305 2 455 265 2 433 910 7 413 298 1 393 465 8 374 437 0 356 222 4 338 822 4 322 229 4 306 428 3 1 165 602 5 1 054 274 7 + 954 075 4	- 91 055 5 82 827 2 73 451 5 62 820 0 50 819 8 37 334 5 22 245 8 5 436 1 13 208 3 33 793 9 56 414 7 81 147 5 108 045 1 137 129 1 168 382 4 201 741 8 237 089 7 274 247 1 312 968 6 352 938 1 393 768 8 435 006 6 476 137 2 516 597 8 555 794 5 593 121 2 627 983 7 659 823 0 688 140 0 712 515 4 732 628 8 748 268 1 759 337 0 765 852 2 767 937 0 765 809 1 759 764 4 750 159 9 737 394 8 721 891 5 704 076 3 684 367 3 663 165 0 640 844 0 617 746 0 594 175 8 570 400 5 546 649 7 523 116 9 499 961 7 477 313 4 455 273 4 433 919 0 413 306 4 393 474 0 374 445 2 356 230 6 338 830 6 322 237 6 306 436 5 1 165 635 3 1 054 307 5 + 954 108 3	- 39 38 38 38 38 38 37 37 37 36 36 36 35 35 35 34 34 33 32 32 31 31 30 29 28 28 27 27 26 25 24 24 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0						

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Earth.	Venus.	
+ 36	- 1 45	- 3 85	+ 40	+ 2 04	+ 878 523 4	+ 878 520 5	+ 33 42	- 1 88	+ 1 05	+ 34	
38	1 27	3 88	40	1 79	857 705 7	857 702 7	33 50	1 92	1 05	32	
40	1 09	3 90	40	1 59	834 453 4	834 450 4	33 59	1 95	1 05	30	
42	92	3 93	40	1 44	809 666 6	809 663 6	33 69	1 98	1 06	29	
44	75	3 95	41	1 32	784 032 8	784 029 8	33 79	2 02	1 06	28	
46	59	3 97	42	1 21	758 071 2	758 068 3	33 90	2 05	1 06	26	
48	43	4 00	44	1 10	732 168 1	732 165 2	34 01	2 08	1 07	25	
50	27	4 02	46	1 00	706 606 3	706 603 5	34 13	2 11	1 07	24	
52	11	4 04	48	91	681 589 8	681 587 0	34 25	2 14	1 07	23	
54	+	4 06	50	84	657 260 9	657 258 2	34 37	2 18	1 08	22	
56	19	4 08	51	78	633 715 8	633 713 2	34 50	2 21	1 08	22	
58	34	4 10	53	74	611 013 5	611 011 0	34 63	2 24	1 08	21	
60	49	4 12	55	72	589 187 8	589 185 4	34 76	2 28	1 09	21	
62	63	4 13	58	69	568 250 9	568 248 7	34 90	2 31	1 11	21	
64	78	4 14	61	67	548 201 4	548 199 3	35 04	2 34	1 14	21	
66	92	4 16	64	64	529 025 3	529 023 3	35 19	2 37	1 17	20	
68	1 06	4 17	67	61	510 703 2	510 701 4	35 34	2 40	1 20	20	
70	1 20	4 18	70	58	493 207 6	493 205 9	35 49	2 44	1 22	20	
72	1 34	4 19	73	56	476 509 4	476 507 8	35 64	2 47	1 25	20	
74	1 48	4 20	77	55	460 576 7	460 575 3	35 79	2 50	1 27	19	
76	1 62	4 21	81	53	445 376 2	445 375 0	35 94	2 54	1 28	19	
78	1 76	4 22	85	52	430 874 5	430 873 4	36 10	2 57	1 30	19	
80	7 56	16 93	3 57	1 98	1 668 152 8	1 668 149 0	145 06	10 42	5 24	75	
84	8 63	16 98	4 11	1 93	1 564 924 6	1 564 922 3	146 38	10 67	5 48	75	
88	9 70	17 02	4 64	1 88	1 470 818 3	1 470 817 5	147 72	10 93	5 59	76	
92	10 76	17 06	5 12	1 83	1 384 906 9	1 384 907 6	149 08	11 18	5 58	76	
96	11 82	17 09	5 59	1 78	1 306 347 0	1 306 349 1	150 48	11 44	5 46	76	
100	12 87	17 11	6 16	1 73	1 234 381 5	1 234 385 2	151 91	11 69	5 22	77	
104	13 93	17 12	6 70	1 75	1 168 332 6	1 168 337 9	153 37	11 92	4 86	80	
108	14 98	17 11	7 14	1 76	1 107 597 5	1 107 604 3	154 86	12 16	4 39	82	
112	16 04	17 09	7 55	1 78	1 051 640 2	1 051 648 5	156 37	12 40	3 80	83	
116	17 10	17 06	7 60	1 79	999 987 5	999 996 9	157 90	12 64	3 19	83	
120	18 17	17 02	7 60	1 81	952 217 2	952 227 8	159 47	12 87	2 49	83	
124	19 24	16 98	7 39	1 87	907 956 3	907 967 8	161 07	13 08	1 69	83	
128	20 32	16 93	7 14	1 94	866 872 2	866 884 7	162 70	13 30	81	83	
132	21 40	16 87	6 64	2 01	828 670 7	828 683 9	164 35	13 52	+	83	
136	22 50	16 80	6 11	2 08	793 088 7	793 102 6	166 03	13 74	+	82	
140	23 61	16 73	5 56	2 14	759 891 9	759 906 5	167 73	13 96	-	77	
144	24 73	16 65	4 98	2 19	728 871 6	728 886 9	169 47	14 16	81	69	
148	25 86	16 56	4 56	2 25	699 840 3	699 856 4	171 24	14 35	94	61	
152	27 01	16 46	4 12	2 30	672 629 8	672 646 8	173 04	14 55	1 06	52	
156	28 17	16 36	3 66	2 35	647 090 2	647 108 0	174 88	14 74	1 06	43	
160	117 36	64 99	12 70	9 59	2 492 339 7	2 492 414 4	707 04	59 74	4 22	1 34	
168	126 97	64 02	10 30	9 10	2 316 806 3	2 316 888 7	722 04	61 16	3 95	+	24
176	136 88	63 00	8 35	8 64	2 160 544 9	2 160 635 8	737 65	62 47	3 53	-	62
184	147 14	61 90	6 85	7 62	2 020 788 5	2 020 888 2	753 74	63 67	3 07	1 23	
192	157 77	60 70	5 75	6 53	1 895 244 2	1 895 353 6	770 30	64 79	2 67	1 60	
200	168 80	59 45	5 05	5 55	1 782 006 8	1 782 126 8	787 35	65 84	2 32	1 60	
208	180 24	58 15	4 45	4 66	1 679 482 8	1 679 614 0	804 94	66 78	2 02	1 60	
216	192 15	56 79	3 95	4 00	1 586 327 5	1 586 470 8	822 98	67 63	1 74	1 44	
224	204 55	55 39	3 55	3 44	1 501 403 1	1 501 559 3	841 67	68 39	1 50	1 28	
232	217 43	53 96	3 20	3 02	1 423 741 3	1 423 911 0	860 76	69 07	1 31	1 11	
+ 240	+ 231 20	- 52 50	+ 2 90	+ 2 70	+ 1 352 513 5	+ 1 352 697 8	+ 880 17	- 69 64	- 1 15	- 95	

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Earth.	Venus.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
+954 075 4	+954 108 3	+ 26	+ 23	+ 2	+ 1	+ 56 394 8	+ 56 395 3	+ 36
864 069 2	864 102 2	33	24	3	2	67 382 7	67 383 3	38
783 307 1	783 340 1	41	25	4	3	76 040 0	76 040 7	40
710 870 2	710 903 2	49	26	5	3	82 772 4	82 773 2	42
645 893 2	645 926 3	57	26	6	2	87 918 0	87 918 9	44
587 578 8	587 612 0	64	27	7	2	91 759 1	91 760 1	46
535 202 0	535 235 3	72	28	8	1	94 529 8	94 530 9	48
488 109 1	488 142 4	80	29	9	1	96 424 1	96 425 3	50
445 715 8	445 749 2	88	30	10	2	97 602 2	97 603 5	52
407 501 9	407 535 4	96	31	11	3	98 196 8	98 198 2	54
373 006 6	373 040 2	1 05	32	12	4	98 317 2	98 318 7	56
341 821 5	341 855 2	1 13	33	14	5	98 054 3	98 056 0	58
313 586 3	313 620 1	1 21	34	16	6	97 482 0	97 483 8	60
287 981 9	288 015 8	1 30	35	18	6	96 662 2	96 664 1	62
264 728 1	264 762 2	1 38	36	20	6	95 645 8	95 647 8	64
243 575 9	243 610 1	1 46	37	21	6	94 474 7	94 476 8	66
224 306 7	224 341 0	1 56	38	22	6	93 183 8	93 186 0	68
206 725 2	206 759 7	1 63	39	24	6	91 801 1	91 803 4	70
190 660 7	190 695 3	1 72	40	26	6	90 350 8	90 353 2	72
175 961 1	175 995 9	1 80	41	28	6	88 851 9	88 854 4	74
162 491 1	162 525 9	1 89	42	29	6	87 320 8	87 323 5	76
150 131 0	150 166 0	1 97	43	31	6	85 770 1	85 772 9	78
555 096 5	555 237 1	8 24	1 76	1 33	25	336 844 0	336 855 6	80
474 799 1	474 941 0	8 98	1 84	1 62	26	324 401 3	324 414 0	84
406 494 0	406 637 1	9 71	1 92	1 90	27	312 162 5	312 176 3	88
348 116 7	348 260 9	10 45	1 99	2 16	28	300 261 9	300 276 8	92
298 004 3	298 149 6	11 21	2 07	2 42	30	288 781 8	288 797 8	96
254 809 6	254 955 8	11 98	2 15	2 75	31	277 769 5	277 786 7	100
217 434 3	217 581 4	12 77	2 23	3 08	33	267 248 0	267 266 4	104
184 978 7	185 126 6	13 57	2 30	3 26	36	257 223 1	257 242 6	108
156 701 1	156 849 7	14 40	2 38	3 43	39	247 689 5	247 710 1	112
131 987 2	132 136 5	15 25	2 45	3 46	42	238 635 9	238 657 5	116
110 325 8	110 475 0	16 11	2 52	3 48	45	230 044 0	230 066 6	120
91 289 5	91 440 7	16 99	2 59	3 39	49	221 894 4	221 917 9	124
74 518 6	74 669 6	17 89	2 66	3 20	53	214 165 2	214 189 5	128
59 710 3	59 862 4	18 81	2 73	2 92	58	206 834 6	206 859 6	132
46 607 4	46 760 5	19 76	2 80	2 63	63	199 880 5	199 906 3	136
34 991 2	35 145 3	20 74	2 87	2 36	68	193 281 4	193 308 0	140
24 675 4	24 830 6	21 73	2 94	2 10	72	187 016 2	187 043 7	144
15 499 4	15 656 0	22 75	3 00	1 87	77	181 065 7	181 094 1	148
7 326 4	7 484 2	23 80	3 06	1 64	81	175 410 0	175 439 3	152
+ 36 7	+ 196 2	24 88	3 13	1 44	85	170 031 7	170 062 0	156
- 25 886 1	- 25 241 7	104 00	12 75	4 92	3 58	659 655 3	659 780 6	160
69 963 7	69 306 5	113 11	13 22	3 80	3 53	621 589 8	621 723 5	168
105 267 3	104 596 3	122 76	13 66	2 96	3 32	586 983 9	587 126 6	176
133 590 4	132 904 6	133 04	14 07	2 32	2 94	555 438 5	555 590 9	184
156 319 7	155 618 5	143 88	14 46	1 89	2 41	526 604 9	526 767 5	192
174 538 6	173 821 0	155 34	14 81	1 57	1 95	500 180 6	500 354 3	200
189 098 4	188 363 9	167 50	15 15	1 32	1 57	475 902 1	476 087 6	208
200 675 7	199 923 5	180 28	15 46	1 13	1 26	453 540 1	453 738 2	216
209 810 2	209 039 7	194 00	15 74	98	1 04	432 894 3	433 106 1	224
216 936 7	216 147 4	208 41	16 00	86	87	413 789 9	414 016 0	232
-222 406 4	-221 598 0	+223 80	+16 23	+ 77	+ 74	+396 072 9	+396 314 4	+240

TABLE IV.—continued.

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
+ 240	+ 231 20	- 52 50	+ 1 42	+ 57	+1 352 516 9	+1 352 697 6	+ 880 17	- 69 64	- 68	- 72
248	245 54	51 00	1 41	56	1 287 009 2	1 287 205 7	899 97	70 15	67	71
256	260 60	49 50	1 39	56	1 226 606 2	1 226 819 2	920 41	70 56	66	71
264	276 17	47 99	1 38	56	1 170 774 0	1 171 004 1	941 22	70 90	65	70
272	292 62	46 47	1 36	56	1 119 048 5	1 119 296 6	962 47	71 17	64	70
280	309 95	44 95	1 35	56	1 071 022 9	1 071 289 8	984 08	71 34	63	69
288	328 13	43 44	1 34	56	1 026 339 8	1 026 626 4	1 006 00	71 45	63	68
296	347 26	41 93	1 32	55	984 686 0	984 993 2	1 028 25	71 49	62	68
304	367 40	40 45	1 31	55	945 783 6	946 112 4	1 050 70	71 46	61	67
312	388 54	38 96	1 29	55	909 386 4	909 737 8	1 073 29	71 37	60	67
320	1 642 8	149 9	5 1	2 2	3 501 104	3 502 604	4 384 0	285 0	2 4	2 6
336	1 835 4	138 3	5 1	2 2	3 252 630	3 254 334	4 564 2	283 0	2 4	2 6
352	2 048 0	127 2	5 0	2 2	3 032 405	3 034 333	4 740 2	280 5	2 3	2 6
368	2 281 4	116 8	5 0	2 1	2 836 156	2 838 328	4 906 2	277 3	2 3	2 5
384	2 538 0	106 8	4 9	2 1	2 660 390	2 662 828	5 056 0	273 5	2 2	2 5
400	2 816 2	97 1	4 9	2 1	2 502 254	2 504 980	5 181 4	269 3	2 2	2 5
416	3 117 5	88 0	4 8	2 1	2 359 372	2 362 408	5 272 8	264 5	2 2	2 5
432	3 436 9	79 3	4 8	2 1	2 229 764	2 233 128	5 318 1	259 6	2 1	2 4
448	3 773 5	71 2	4 7	2 1	2 111 772	2 115 481	5 306 0	254 2	2 1	2 4
464	4 117 7	63 8	4 7	2 1	2 003 995	2 008 056	5 223 3	248 9	2 0	2 4
480	4 463 2	56 8	4 6	2 0	1 905 231	1 909 644	5 057 0	243 5	2 0	2 4
496	4 797 5	50 3	4 6	2 0	1 814 467	1 819 221	4 800 7	237 9	2 0	2 3
512	5 108 2	44 2	4 5	2 0	1 730 823	1 735 894	4 444 8	232 2	2 0	2 3
528	5 378 8	38 7	4 5	2 0	1 653 539	1 658 886	3 993 0	226 5	2 0	2 3
544	5 596 0	33 5	4 4	2 0	1 581 903	1 587 532	3 450 2	220 9	2 0	2 3
560	5 747 4	28 6	4 4	2 0	1 515 520	1 521 245	2 833 7	215 3	1 9	2 3
576	5 823 0	24 0	4 3	2 0	1 453 707	1 459 512	2 164 2	209 8	1 9	2 2
592	5 818 0	19 8	4 3	2 0	1 396 087	1 401 892	1 470 7	204 4	1 9	2 2
608	5 734 2	16 1	4 3	2 0	1 342 270	1 347 994	781 1	199 0	1 9	2 2
624	5 577 7	12 5	4 2	2 0	1 291 915	1 297 486	+ 123 1	193 7	1 9	2 2
640	5 359 4	9 2	4 2	1 9	1 244 716	1 250 072	- 479 5	188 5	1 9	2 2
656	5 092 6	6 2	4 1	1 9	1 200 403	1 205 495	1 010 1	183 7	1 8	2 1
672	4 792 3	3 4	4 1	1 9	1 158 734	1 163 529	1 458 8	178 9	1 8	2 1
688	4 472 3	- 1 0	4 0	1 9	1 119 494	1 123 971	1 822 7	174 2	1 8	2 1
704	16 579 5	+ 5 2	16 1	7 5	4 329 950	4 346 558	8 417 0	678 0	7 1	8 5
736	14 028 7	21 0	15 9	7 4	4 057 979	4 072 052	9 800 9	642 2	7 0	8 4
768	11 726 0	35 5	15 7	7 4	3 814 211	3 825 996	10 274 2	608 8	6 9	8 3
800	9 757 1	47 9	15 5	7 4	3 594 701	3 604 528	10 150 0	577 7	6 8	8 1
832	8 128 0	56 8	15 3	7 3	3 396 186	3 404 393	9 670 2	549 0	6 7	8 0
864	6 800 7	65 0	15 0	7 2	3 215 941	3 222 829	9 013 8	522 4	6 6	7 9
896	5 730 8	71 8	14 8	7 2	3 051 688	3 057 513	8 288 5	497 2	6 4	7 8
928	4 868 0	77 2	14 6	7 2	2 901 496	2 906 463	7 563 4	473 3	6 3	7 7
960	4 172 5	81 8	14 4	7 1	2 763 728	2 768 004	6 872 0	450 8	6 2	7 5
992	3 607 6	85 5	14 2	7 0	2 636 981	2 640 695	6 233 3	430 0	6 1	7 4
1024	3 147 2	88 8	14 0	7 0	2 520 051	2 523 308	5 653 5	410 5	6 0	7 3
1056	2 769 0	91 0	13 9	6 9	2 411 901	2 414 782	5 130 6	392 4	5 9	7 2
1088	2 456 5	93 0	13 7	6 9	2 311 627	2 314 197	4 663 8	375 5	5 8	7 1
1120	2 195 0	94 5	13 6	6 8	2 218 445	2 220 755	4 247 9	359 2	5 8	7 0
1152	1 976 2	95 8	13 4	6 8	2 131 604	2 133 756	3 877 8	344 2	5 7	7 0
1184	1 790 4	96 3	13 3	6 7	2 050 682	2 052 589	3 548 4	330 0	5 6	6 9
1216	1 632 5	96 8	13 2	6 6	1 974 966	1 976 715	3 255 5	316 7	5 6	6 8
1248	1 496 9	97 2	13 0	6 6	1 904 045	1 905 659	2 993 5	304 3	5 5	6 7
1280	5 521 0	390 2	51 4	26 1	7 350 008	7 355 997	11 039 2	1 171 4	21 6	26 3
1344	4 760 6	389 4	50 4	25 8	6 864 379	6 869 606	9 450 6	1 086 0	21 1	25 8
1408	4 174 3	386 8	49 5	25 4	6 432 862	6 437 498	8 164 9	1 009 8	20 6	25 2
1472	3 714 5	383 1	48 7	25 0	6 047 315	6 051 486	7 115 1	942 0	20 1	24 6
1536	3 347 0	378 0	47 9	24 7	5 701 088	5 704 886	6 249 8	880 8	19 6	24 1
1600	3 049 3	372 7	47 2	24 4	5 388 743	5 392 237	5 530 3	825 8	19 2	23 7
1664	2 805 0	366 8	46 5	24 2	5 105 765	5 109 008	4 927 2	776 2	18 8	23 3
1728	2 602 3	360 9	45 9	23 9	4 848 392	4 851 425	4 417 7	731 5	18 4	22 9
1792	2 432 2	354 8	45 3	23 6	4 613 458	4 616 314	3 983 8	690 5	18 1	22 5
1856	2 288 9	348 8	44 7	23 4	4 398 288	4 400 994	3 612 3	653 3	17 7	22 1
+ 1920	+ 2 167 1	+ 342 8	+ 44 1	+ 23 1	+ 4 200 602	+ 4 203 179	- 3 292 2	- 619 2	- 17 4	- 21 7

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
— 222 407 1	— 221 598 0	+ 223 80	+ 16 23	+ 4	+ 2	+ 396 074 4	+ 396 314 5	+ 240
226 504 6	225 676 2	239 94	16 44	4	3	379 609 7	379 866 2	248
229 465 1	228 616 6	257 34	16 62	4	3	364 279 1	364 553 1	256
231 480 2	230 611 2	275 55	16 78	4	3	349 975 5	350 267 9	264
232 708 7	231 818 7	295 04	16 91	4	3	336 607 6	336 919 6	272
233 281 4	232 370 0	315 73	17 03	5	3	324 092 1	324 424 9	280
233 307 8	232 374 6	337 80	17 12	5	4	312 354 8	312 709 8	288
232 879 3	231 923 8	361 09	17 19	5	4	301 330 5	301 708 9	296
232 071 9	231 093 9	386 00	17 24	6	4	290 959 8	291 363 1	304
230 949 5	229 948 8	412 29	17 27	6	4	281 190 1	281 619 8	312
918 265	914 171	1 761 0	69 2	2	1	1 087 893	1 089 724	320
904 770	900 494	2 006 1	69 1	2	1	1 020 130	1 022 206	336
888 942	884 487	2 281 2	68 8	2	1	959 361	961 711	352
871 611	866 987	2 589 1	68 3	2	1	904 619	907 277	368
853 366	848 588	2 932 0	67 5	2	1	855 092	858 092	384
834 637	829 730	3 310 2	66 7	2	1	810 108	813 485	400
815 739	810 735	3 724 5	65 8	3	2	769 101	772 891	416
796 892	791 838	4 172 2	64 7	3	2	731 592	735 829	432
778 261	773 215	4 648 8	63 5	3	2	697 172	701 885	448
759 958	754 988	5 146 3	62 3	3	2	665 498	670 707	464
742 062	737 253	5 650 5	61 0	3	2	636 267	641 979	480
724 628	720 070	6 152 6	59 6	3	2	609 220	615 433	496
707 688	703 480	6 626 2	58 2	3	2	584 135	590 820	512
691 261	687 499	7 053 8	56 8	3	2	560 815	567 926	528
675 357	672 132	7 409 2	55 5	3	2	539 090	546 555	544
659 976	657 362	7 679 6	54 2	3	2	518 809	526 543	560
645 116	643 166	7 841 5	52 8	3	2	499 840	507 735	576
630 765	629 503	7 891 7	51 4	3	2	482 064	490 008	592
616 914	616 336	7 823 9	50 0	3	2	465 380	473 254	608
603 545	603 620	7 651 8	48 7	3	2	449 695	457 396	624
590 648	591 320	7 382 4	47 4	3	2	434 924	442 354	640
578 201	579 399	7 039 6	46 2	3	2	420 994	428 080	656
566 191	567 833	6 640 4	45 0	3	2	407 839	414 525	672
554 601	556 602	6 206 1	43 8	3	2	395 400	401 650	688
2 173 659	2 182 770	23 017 0	170 8	1 3	8	1 534 486	1 557 676	704
2 088 743	2 099 202	19 450 1	161 6	1 3	8	1 447 430	1 467 044	736
2 009 514	2 020 412	16 175 2	153 0	1 3	8	1 368 832	1 385 162	768
1 935 502	1 946 245	13 351 8	145 1	1 3	8	1 297 570	1 311 069	800
1 866 273	1 876 507	10 995 0	137 8	1 3	8	1 232 706	1 243 841	832
1 801 428	1 810 979	9 071 9	131 2	1 3	8	1 173 451	1 182 656	864
1 740 605	1 749 405	7 515 2	124 8	1 4	8	1 119 141	1 126 783	896
1 683 474	1 671 525	6 262 2	118 7	1 4	8	1 069 207	1 075 590	928
1 629 736	1 637 072	5 252 0	112 8	1 4	8	1 023 162	1 028 529	960
1 579 120	1 585 797	4 435 6	107 5	1 4	8	980 588	985 134	992
1 531 380	1 537 457	3 773 2	102 5	1 4	8	941 124	945 002	1024
1 486 295	1 491 831	3 230 8	97 9	1 4	8	904 456	907 787	1056
1 443 662	1 448 714	2 785 8	93 5	1 4	8	870 309	873 190	1088
1 403 299	1 407 919	2 417 1	89 5	1 4	8	838 442	840 951	1120
1 365 038	1 369 273	2 110 5	85 8	1 4	8	808 645	810 844	1152
1 328 729	1 332 620	1 853 4	82 3	1 5	8	780 730	782 668	1184
1 294 233	1 297 818	1 637 2	79 0	1 5	8	754 531	756 250	1216
1 261 426	1 264 736	1 453 1	75 8	1 5	8	729 902	731 433	1248
4 920 760	4 933 019	5 186 5	291 0	5 8	3 2	2 826 851	2 832 338	1280
4 688 096	4 698 680	4 185 9	269 5	5 8	3 2	2 656 767	2 661 231	1344
4 475 978	4 485 198	3 435 4	250 5	5 9	3 2	2 504 670	2 508 365	1408
4 281 909	4 290 011	2 862 4	233 7	6 0	3 2	2 367 954	2 371 059	1472
4 103 755	4 110 929	2 417 8	218 5	6 0	3 2	2 244 485	2 247 130	1536
3 939 715	3 946 115	2 067 9	204 9	6 0	3 2	2 132 504	2 134 786	1600
3 788 225	3 793 970	1 789 0	192 8	6 0	3 2	2 030 530	2 032 521	1664
3 647 955	3 653 146	1 564 0	181 7	6 0	3 2	1 937 338	1 939 093	1728
3 517 735	3 522 450	1 380 5	171 8	6 0	3 2	1 851 875	1 853 436	1792
3 396 566	3 400 871	1 229 7	162 8	6 0	3 1	1 773 260	1 774 662	1856
— 3 283 560	— 3 287 510	+ 1 104 8	+ 154 8	+ 6 0	+ 3 1	+ 1 700 728	+ 1 701 997	+ 1920

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, X.	Jupiter.	Saturn.	Uranus.	Neptune.
+ 1920	+ 2 167 1	+ 342 8	+ 44 1	+ 23 1	+ 4 200 602	+ 4 203 179	- 3 292 2	- 619 2	- 17 4	- 21 7
1984	2 063 1	337 0	43 6	22 9	4 018 453	4 020 920	3 014 9	588 2	17 0	21 3
2048	1 974 2	331 2	43 1	22 6	3 850 162	3 852 533	2 773 4	560 8	16 7	20 9
2112	1 897 8	326 1	42 6	22 4	3 694 282	3 696 571	2 562 0	533 5	16 4	20 6
2176	1 832 2	320 5	42 2	22 2	3 549 550	3 551 767	2 376 4	509 2	16 2	20 3
2240	1 776 2	315 8	41 8	22 0	3 414 867	3 417 023	2 212 6	486 9	16 0	20 0
2304	1 728 2	311 2	41 4	21 8	3 289 270	3 291 372	2 067 7	466 2	15 8	19 6
2368	1 688 0	306 5	41 0	21 5	3 171 915	3 173 972	1 939 4	447 2	15 6	19 3
2432	1 654 1	302 2	40 7	21 3	3 062 052	3 064 070	1 825 4	429 8	15 3	19 0
2496	1 626 3	298 2	40 4	21 1	2 959 023	2 961 009	1 723 8	413 2	15 0	18 7
2560	6 414	1 177	160	84	11 448 96	11 456 80	6 532	1 591	59	74
2688	6 300	1 150	158	83	10 741 41	10 749 10	5 924	1 479	58	72
2816	6 250	1 125	156	82	10 111 39	10 119 00	5 439	1 381	56	71
2944	6 271	1 103	154	81	9 547 36	9 554 97	5 062	1 296	55	69
3072	6 352	1 085	153	80	9 039 94	9 047 61	4 773	1 220	54	68
3200	6 497	1 069	151	79	8 581 45	8 589 25	4 568	1 154	52	66
3328	6 608	1 057	150	78	8 165 46	8 173 44	4 438	1 094	51	64
3456	6 957	1 046	149	77	7 786 65	7 794 88	4 389	1 041	50	63
3584	7 265	1 038	148	76	7 440 51	7 449 04	4 416	995	48	61
3712	7 615	1 033	147	75	7 123 22	7 132 09	4 534	953	48	60
3840	7 986	1 030	147	74	6 831 52	6 840 76	4 743	916	47	59
3968	8 350	1 029	146	74	6 562 63	6 572 23	5 055	882	46	58
4096	8 669	1 030	146	73	6 314 11	6 324 03	5 467	853	46	56
4224	8 886	1 034	146	72	6 083 88	6 094 02	5 970	827	45	55
4352	8 952	1 036	146	72	5 870 11	5 880 32	6 532	800	44	54
4480	8 817	1 048	146	71	5 671 19	5 681 27	7 099	784	44	53
4608	33 82	4 23	59	28	21 942 91	21 981 83	30 37	3 07	17	21
4864	28 78	4 34	59	28	20 601 30	20 635 29	32 44	2 96	17	21
5120	22 66	4 49	59	28	19 422 30	19 450 32	31 32	2 90	16	20
5376	17 48	4 68	61	27	18 379 49	18 402 53	27 98	2 88	16	19
5632	13 89	4 91	61	27	17 451 75	17 471 43	23 97	2 90	16	19
5888	11 56	5 19	62	27	16 621 97	16 639 61	20 19	2 98	16	17
6144	10 38	5 51	63	27	15 876 26	15 893 05	17 26	3 11	16	18
6400	9 73	5 89	65	27	15 203 20	15 219 74	14 94	3 31	16	17
6656	9 53	6 23	67	27	14 593 32	14 610 02	13 22	3 61	16	17
6912	9 68	6 61	68	27	14 038 84	14 056 08	12 01	4 00	16	17
7168	10 16	6 91	71	27	13 533 26	13 551 31	11 30	4 45	16	17
7424	10 88	7 13	74	27	13 071 49	13 090 51	10 94	5 07	17	16
7680	11 91	7 21	76	27	12 648 14	12 668 30	11 06	5 75	17	16
7936	13 17	7 04	80	27	12 260 22	12 281 50	11 68	6 42	18	16
8192	14 47	6 62	83	28	11 904 15	11 926 35	12 85	7 00	19	16
8448	15 48	5 98	86	28	11 576 98	11 599 58	14 54	7 40	21	15
8704	15 70	5 21	90	28	11 276 06	11 298 15	16 47	7 56	22	15
8960	14 82	4 40	94	28	10 998 98	11 019 42	18 05	7 46	23	15
9216	13 02	3 66	1 00	28	10 743 58	10 761 54	18 68	7 16	24	15
9472	10 92	3 03	1 04	29	10 507 91	10 523 19	18 15	6 72	28	14
9728	9 09	2 52	1 10	29	10 290 21	10 303 21	16 80	6 22	31	14
9984	7 76	2 14	1 16	29	10 088 93	10 100 28	15 13	5 71	35	14
10240	6 93	1 85	1 22	30	9 902 67	9 912 97	13 50	5 22	39	14
10496	6 56	1 64	1 29	30	9 730 16	9 739 95	12 18	4 76	45	14
10752	6 36	1 49	1 36	30	9 570 57	9 580 08	10 97	4 36	50	14
11008	6 46	1 39	1 44	31	9 422 73	9 432 33	10 14	4 02	58	14
11264	6 77	1 32	1 50	32	9 286 03	9 295 94	9 59	3 70	66	14
11520	7 29	1 28	1 55	32	9 159 83	9 170 27	9 35	3 43	77	13
11776	8 01	1 25	1 58	33	9 043 68	9 054 85	9 40	3 21	87	13
12032	8 92	1 24	1 59	34	8 937 18	8 949 27	9 80	3 01	99	13
12288	9 96	1 25	1 59	34	8 839 98	8 853 12	10 59	2 85	1 11	13
12544	10 98	1 26	1 56	35	8 752 10	8 766 25	11 82	2 70	1 25	13
12800	11 69	1 29	1 52	36	8 672 98	8 687 84	13 39	2 59	1 40	13
13056	11 75	1 32	1 42	37	8 602 42	8 617 28	15 05	2 49	1 57	13
13312	10 99	1 37	1 32	38	8 540 10	8 554 16	16 30	2 41	1 71	13
13568	9 64	1 42	1 20	39	8 485 70	8 498 35	16 72	2 35	1 82	13
+ 13824	+ 8 15	+ 1 48	+ 1 08	+ 40	+ 8 438 91	+ 8 450 02	- 16 27	- 2 30	- 1 90	- 13

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
— 3 283 560	— 3 287 510	+ 1 104 8	+ 154 8	+ 6 0	+ 3 1	+ 1 700 728	+ 1 701 997	+ 1920
3 177 945	3 181 586	1 000 4	147 3	6 0	3 1	1 633 625	1 634 782	1984
3 079 042	3 082 414	912 8	140 8	6 0	3 1	1 571 388	1 572 451	2048
2 986 254	2 989 386	839 1	134 3	6 0	3 1	1 513 524	1 514 506	2112
2 899 045	2 901 967	776 8	128 5	6 0	3 1	1 459 608	1 460 522	2176
2 816 940	2 819 676	723 8	123 4	6 1	3 1	1 409 260	1 410 116	2240
2 739 520	2 742 089	678 7	118 8	6 1	3 1	1 362 152	1 362 959	2304
2 666 402	2 668 824	640 6	114 4	6 1	3 1	1 317 993	1 318 757	2368
2 597 252	2 599 542	608 3	110 5	6 2	3 1	1 276 525	1 277 253	2432
2 531 769	2 533 940	581 0	106 7	6 2	3 1	1 237 518	1 238 215	2496
9 878 69	9 886 95	2 236	413	25	12	4 803 07	4 805 76	2560
9 418 65	9 426 18	2 099	389	25	12	4 533 29	4 535 82	2688
9 002 05	9 009 00	2 015	368	25	12	4 291 76	4 294 18	2816
8 623 18	8 629 67	1 978	350	25	12	4 074 43	4 076 80	2944
8 277 30	8 283 42	1 982	335	26	12	3 877 96	3 880 32	3072
7 960 43	7 966 27	2 028	322	26	12	3 699 62	3 702 01	3200
7 669 19	7 674 84	2 113	312	26	12	3 537 12	3 539 58	3328
7 400 71	7 406 25	2 243	303	26	12	3 388 52	3 391 09	3456
7 152 56	7 158 08	2 416	296	26	12	3 252 22	3 254 97	3584
6 922 63	6 928 22	2 638	290	26	12	3 126 83	3 129 80	3712
6 709 08	6 714 84	2 906	286	27	12	3 011 16	3 014 39	3840
6 510 35	6 516 39	3 216	282	27	12	2 904 19	2 907 73	3968
6 325 04	6 331 46	3 555	281	28	12	2 805 04	2 808 92	4096
6 151 93	6 158 83	3 898	280	28	12	2 712 93	2 717 15	4224
5 989 94	5 997 37	4 212	280	29	12	2 627 20	2 631 73	4352
5 838 14	5 846 12	4 454	282	30	12	2 547 25	2 552 03	4480
22 782 61	22 816 43	18 31	1 14	12	5	9 890 18	9 909 80	4608
21 742 80	21 778 58	17 62	1 18	13	5	9 348 35	9 367 33	4864
20 819 59	20 854 17	15 12	1 24	13	5	8 870 74	8 887 28	5120
19 996 09	20 027 30	12 05	1 33	13	5	8 447 27	8 460 83	5376
19 258 45	19 285 66	9 34	1 44	14	5	8 069 79	8 080 75	5632
18 595 21	18 618 71	7 22	1 59	14	5	7 731 65	7 740 65	5888
17 996 80	18 017 51	5 86	1 77	15	5	7 427 40	7 435 23	6144
17 455 18	17 473 76	4 91	2 01	16	5	7 152 51	7 159 64	6400
16 963 57	16 980 72	4 32	2 28	17	5	6 903 21	6 910 02	6656
16 516 23	16 532 57	4 00	2 61	18	5	6 676 37	6 683 21	6912
16 108 31	16 124 39	3 95	2 95	19	5	6 469 38	6 476 52	7168
15 735 87	15 752 21	4 09	3 39	21	5	6 280 21	6 287 95	7424
15 395 12	15 412 27	4 49	3 74	22	5	6 106 69	6 115 19	7680
15 083 66	15 102 10	5 16	4 03	24	5	5 947 74	5 957 22	7936
14 799 06	14 819 26	6 08	4 20	26	5	5 802 01	5 812 60	8192
14 539 35	14 561 65	7 15	4 20	29	5	5 668 42	5 680 11	8448
14 302 83	14 327 22	8 12	4 04	31	5	5 546 02	5 558 53	8704
14 087 94	14 113 83	8 59	3 74	34	5	5 433 94	5 446 66	8960
13 893 27	13 919 50	8 36	3 36	37	5	5 331 34	5 343 48	9216
13 717 52	13 742 81	7 53	2 96	41	5	5 237 49	5 248 44	9472
13 559 47	13 582 95	6 45	2 57	45	5	5 151 68	5 161 20	9728
13 418 01	13 439 34	5 40	2 22	50	5	5 073 29	5 081 46	9984
13 292 11	13 311 36	4 53	1 92	55	5	5 001 73	5 008 78	10240
13 180 78	13 198 31	3 92	1 66	61	6	4 936 44	4 942 69	10496
13 083 30	13 099 27	3 43	1 45	68	6	4 877 06	4 882 67	10752
12 998 77	13 013 65	3 15	1 28	77	6	4 823 06	4 828 32	11008
12 926 58	12 940 67	3 03	1 13	86	6	4 774 14	4 779 22	11264
12 866 18	12 879 86	3 08	1 02	93	6	4 730 01	4 735 10	11520
12 817 17	12 830 78	3 27	92	1 02	6	4 690 47	4 695 75	11776
12 779 26	12 793 19	3 66	85	1 10	6	4 655 36	4 661 03	12032
12 752 30	12 766 98	4 24	78	1 19	6	4 624 57	4 630 84	12288
12 736 49	12 752 39	5 01	73	1 26	7	4 598 23	4 605 30	12544
12 731 75	12 749 26	5 86	69	1 35	7	4 576 18	4 584 15	12800
12 738 24	12 757 48	6 60	66	1 42	7	4 558 42	4 567 17	13056
12 756 13	12 776 68	6 95	64	1 45	8	4 544 99	4 554 11	13312
12 785 52	12 806 54	6 77	63	1 46	8	4 535 78	4 544 72	13568
— 12 826 53	— 12 847 12	+ 6 16	+ 62	+ 1 47	+ 8	+ 4 530 76	+ 4 539 09	+ 13824

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions. X.	Jupiter.	Saturn.	Uranus.	Neptune.
+ 13824	+ 8 15	+ 1 48	+ 1 08	+ 40	+ 8 438 91	+ 8 450 01	- 16 27	- 2 30	- 1 90	- 13
14080	6 90	1 55	94	41	8 399 42	8 409 22	15 20	2 27	1 94	13
14336	6 04	1 64	78	43	8 366 98	8 375 87	13 91	2 25	1 96	13
14592	5 56	1 73	63	44	8 341 39	8 349 75	12 66	2 25	1 94	13
14848	5 19	1 84	46	46	8 322 46	8 330 40	11 96	2 27	1 90	13
15104	5 44	1 97	33	48	8 310 09	8 318 31	10 76	2 30	1 84	13
15360	5 71	2 12	23	50	8 304 27	8 312 83	10 20	2 35	1 77	12
15616	6 18	2 30	13	52	8 305 02	8 314 15	9 90	2 43	1 69	12
15872	6 84	2 49	7	53	8 312 48	8 322 42	9 90	2 53	1 59	12
16128	7 72	2 72	+ 3	55	8 326 91	8 337 93	10 23	2 67	1 50	12
16384	8 81	2 98	- 2	58	8 348 60	8 360 95	10 96	2 85	1 42	11
16640	10 04	3 28	6	60	8 377 92	8 391 78	12 17	3 08	1 34	11
16896	11 21	3 61	8	63	8 415 28	8 430 65	13 90	3 37	1 24	11
17152	11 97	3 97	9	67	8 461 01	8 477 53	16 07	3 74	1 17	10
17408	11 92	4 36	10	69	8 515 46	8 532 33	18 25	4 20	1 10	11
17664	10 90	4 73	10	73	8 578 93	8 595 19	19 82	4 78	1 04	10
17920	9 26	5 06	11	78	8 651 74	8 666 73	20 29	5 47	98	9
18176	7 61	5 28	11	82	8 734 23	8 747 83	19 66	6 27	93	8
18432	6 35	5 34	10	86	8 826 78	8 839 23	18 36	7 14	88	8
18688	5 60	5 16	10	92	8 929 85	8 941 43	16 87	7 99	85	5
18944	5 30	4 74	10	98	9 043 98	9 054 91	15 50	8 73	80	4
19200	5 35	4 11	10	1 06	9 169 83	9 180 25	14 40	9 24	78	- 2
19456	5 69	3 37	9	1 12	9 308 19	9 318 28	13 64	9 46	74	0
19712	6 28	2 63	9	1 21	9 460 02	9 470 05	13 23	9 40	72	+ 3
19968	7 15	1 97	8	1 29	9 626 53	9 636 86	13 22	9 11	69	6
20224	8 33	1 44	7	1 39	9 809 17	9 820 26	13 66	8 68	67	11
20480	9 90	1 05	6	1 50	10 009 70	10 022 09	14 67	8 18	65	16
20736	11 90	79	6	1 61	10 230 20	10 244 44	16 45	7 67	64	23
20992	14 25	63	5	1 74	10 473 10	10 489 67	19 28	7 19	62	31
21248	16 59	54	4	1 89	10 741 10	10 760 08	23 39	6 77	61	41
21504	18 07	52	4	2 04	11 037 25	11 057 84	28 71	6 40	61	54
21760	17 57	54	3	2 19	11 364 94	11 385 21	34 24	6 10	60	70
22016	14 76	58	3	2 36	11 728 06	11 745 74	38 13	5 86	59	88
22272	10 81	66	2	2 52	12 131 17	12 145 14	38 93	5 68	59	1 12
22528	7 46	76	1	2 67	12 579 52	12 590 40	37 18	5 56	58	1 41
22784	5 49	88	- 1	2 77	13 079 47	13 088 60	34 27	5 48	59	1 74
23040	4 80	1 03	0	2 87	13 638 51	13 647 21	31 43	5 47	59	2 14
23296	5 03	1 20	+ 1	2 87	14 266 40	14 275 51	29 25	5 50	60	2 56
23552	5 95	1 41	2	2 78	14 974 11	14 984 27	27 94	5 60	61	3 01
23808	7 48	1 66	2	2 57	15 775 88	15 787 61	27 60	5 76	62	3 44
24064	9 72	1 97	3	2 26	16 689 28	16 703 26	28 35	6 00	63	3 80
24320	13 01	2 35	4	1 84	17 736 26	17 753 50	30 51	6 33	65	4 06
24576	17 95	2 84	5	1 36	18 944 04	18 966 24	34 71	6 76	67	4 16
24832	25 75	3 48	6	87	20 345 86	20 376 02	42 30	7 35	70	4 09
25088	38 76	4 33	7	43	21 979 49	22 023 08	56 37	8 12	73	3 89
25216	12 12	1 23	2	5	5 723 71	5 737 13	16 98	2 17	19	96
25344	15 36	1 38	2	+ 2	5 970 09	5 986 87	21 16	2 29	19	90
25472	19 62	1 58	2	- 2	6 234 01	6 255 21	27 45	2 46	19	84
25600	25 04	1 82	3	5	6 514 01	6 540 85	37 19	2 64	20	80
25728	31 14	2 12	2	6	6 805 72	6 838 94	52 66	2 86	20	73
25856	35 45	2 50	2	9	7 099 29	7 137 17	77 06	3 13	21	69
25984	30 78	2 98	3	11	7 373 95	7 407 63	112 26	3 44	22	64
26048	5 30	82	1	3	1 873 05	1 879 15	33 06	90	6	16
26112	+ 1 28	90	1	3	1 896 74	1 898 90	37 66	95	6	15
26176	- 4 24	1 00	1	3	1 911 36	1 908 10	40 97	1 01	6	14
26240	10 57	1 12	1	3	1 912 23	1 902 76	42 19	1 06	7	14
26304	16 61	1 26	1	3	1 892 37	1 877 00	41 04	1 12	7	14
26368	21 40	1 42	1	3	1 841 18	1 821 18	37 97	1 18	7	13
26432	24 51	1 61	1	3	1 742 19	1 719 27	33 79	1 24	7	12
26496	26 06	1 84	1	3	1 569 26	1 545 02	29 34	1 30	7	11
26560	26 44	2 11	+ 1	2	1 279 21	1 254 87	25 14	1 36	7	10
26592	6 57	57	0	1	267 25	261 24	5 80	35	2	2
+ 26624	- 6 52	+ 61	0	- 1	+ 199 56	+ 193 64	- 5 37	- 35	- 2	+ 3

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
-12 826 53	-12 847 12	+6 16	+ 62	+1 47	+ 8	+4. 530 76	+4 539 09	+ 13824
12 879 28	12 898 82	5 37	62	1 43	8	4 529 86	4 537 36	14080
12 943 89	12 962 14	4 60	62	1 38	8	4 533 02	4 539 70	14336
13 020 51	13 037 49	3 96	64	1 28	9	4 540 20	4 546 17	14592
13 109 32	13 125 58	3 59	66	1 18	9	4 551 34	4 556 86	14848
13 210 54	13 225 57	3 15	69	1 08	10	4 566 43	4 571 45	15104
13 324 47	13 338 91	2 97	73	98	11	4 585 50	4 590 29	15360
13 451 46	13 465 60	2 93	79	89	11	4 608 55	4 613 27	15616
13 592 00	13 606 14	3 04	86	80	11	4 635 71	4 640 52	15872
13 746 74	13 761 26	3 32	95	72	12	4 667 12	4 672 23	16128
13 916 49	13 931 83	3 81	1 07	64	12	4 703 01	4 708 65	16384
14 102 31	14 119 01	4 53	1 21	57	13	4 743 71	4 750 15	16640
14 305 44	14 324 07	5 46	1 39	51	14	4 789 55	4 797 06	16896
14 527 26	14 548 34	6 52	1 62	46	15	4 840 95	4 849 70	17152
14 769 32	14 792 98	7 42	1 89	41	17	4 898 31	4 908 20	17408
15 033 28	15 059 02	7 83	2 22	38	17	4 962 04	4 972 64	17664
15 320 94	15 347 78	7 60	2 61	34	18	5 032 60	5 043 32	17920
15 634 23	15 661 17	6 88	3 02	31	19	5 110 41	5 120 81	18176
15 975 29	16 001 75	5 98	3 44	28	20	5 195 99	5 205 89	18432
16 346 51	16 372 27	5 13	3 80	25	22	5 289 85	5 299 25	18688
16 750 57	16 775 65	4 44	4 04	23	24	5 392 62	5 401 58	18944
17 190 46	17 214 90	3 94	4 13	22	27	5 504 97	5 513 53	19200
17 669 68	17 693 52	3 63	4 05	20	29	5 627 70	5 635 87	19456
18 192 20	18 215 52	3 50	3 83	18	32	5 761 72	5 769 55	19712
18 762 67	18 785 63	3 56	3 51	17	35	5 908 14	5 915 73	19968
19 386 63	19 409 53	3 82	3 15	16	39	6 068 26	6 075 78	20224
20 070 61	20 093 95	4 37	2 80	15	43	6 243 69	6 251 43	20480
20 822 52	20 847 05	5 28	2 47	14	47	6 436 39	6 444 75	20736
21 651 90	21 678 68	6 69	2 18	13	53	6 648 71	6 658 24	20992
22 570 14	22 600 50	8 66	1 94	12	59	6 883 46	6 894 77	21248
23 591 02	23 626 20	11 05	1 73	12	66	7 143 99	7 157 55	21504
24 731 03	24 771 27	13 20	1 57	11	73	7 434 23	7 449 84	21760
26 010 11	26 053 81	14 18	1 43	11	82	7 758 85	7 775 38	22016
27 452 72	27 496 80	13 52	1 32	10	91	8 123 51	8 139 36	22272
29 088 93	29 130 84	11 84	1 23	10	1 01	8 535 06	8 549 24	22528
30 956 45	30 995 05	9 94	1 17	9	1 11	9 001 95	9 014 26	22784
33 102 96	33 138 32	8 32	1 12	9	1 21	9 534 73	9 545 47	23040
35 590 84	35 623 63	7 14	1 09	8	1 30	10 147 22	10 156 83	23296
38 500 35	38 531 49	6 38	1 07	9	1 36	10 856 60	10 865 50	23552
41 939 72	41 970 26	6 03	1 07	9	1 37	11 685 96	11 694 52	23808
46 056 46	46 087 63	6 08	1 08	8	1 35	12 666 26	12 674 85	24064
51 056 98	51 090 41	6 60	1 11	9	1 27	13 840 04	13 849 11	24320
57 238 67	57 276 65	7 85	1 16	8	1 15	15 267 48	15 277 72	24576
65 045 12	65 091 38	10 37	1 24	8	98	17 036 42	17 049 09	24832
75 165 03	75 226 36	15 52	1 35	8	80	19 279 64	19 297 39	25088
20 354 55	20 372 93	5 01	35	2	18	5 160 07	5 165 63	25216
22 180 59	22 203 35	6 74	37	2	15	5 551 78	5 559 06	25344
24 337 36	24 366 62	9 45	40	2	14	6 007 16	6 017 17	25472
26 917 60	26 956 85	13 86	43	1	12	6 542 39	6 556 81	25600
30 050 83	30 105 82	21 12	46	1	11	7 179 45	7 201 15	25728
33 923 05	34 002 76	32 94	50	1	9	7 948 91	7 982 45	25856
38 810 21	38 925 49	50 32	55	+	7	8 894 52	8 945 47	25984
10 439 77	10 473 63	15 04	16	0	1	2 363 11	2 378 32	26048
11 284 56	11 323 08	17 30	15	0	1	2 520 23	2 537 69	26112
12 260 69	12 302 59	18 85	16	0	1	2 698 37	2 717 39	26176
13 399 21	13 442 39	19 28	17	0	1	2 901 83	2 921 29	26240
14 741 37	14 783 46	18 48	18	0	1	3 136 11	3 154 78	26304
16 343 03	16 382 11	16 69	18	0	1	3 408 34	3 425 23	26368
18 281 56	18 316 54	14 38	19	0	1	3 727 94	3 742 52	26432
20 666 99	20 697 59	11 96	20	0	1	4 107 57	4 119 74	26496
23 660 66	23 687 13	9 72	20	0	+	4 564 52	4 574 45	26560
6 364 38	6 370 53	2 18	5	0	0	1 207 29	1 209 52	26592
- 6 876 91	- 6 882 62	+1 95	+ 5	0	0	+1 280 71	+1 282 71	+ 26624

TABLE IV.—*continued.*

Day.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions. X.	Jupiter.	Saturn.	Uranus.	Neptune.
+ 26624	- 6 52	+ 61	o	- 1	+ 199 56	+ 193 64	- 5 37	- 35	- 2	+ 3
26656	6 44	66	o	1	+ 112 06	+ 106 27	4 97	34	2	2
26688	6 35	71	o	1	- 1 64	- 7 28	4 60	35	2	2
26720	6 25	77	o	1	150 49	155 98	4 28	34	2	2
26752	6 16	83	o	1	347 32	352 65	3 96	34	2	2
26784	6 06	90	o	1	610 88	616 05	3 69	32	2	2
26816	5 98	97	o	1	969 34	974 36	3 44	31	- 1	2
26848	5 91	I 05	o	- 1	I 466 35	I 471 22	3 21	29	o	+ 2
26864	I 47	27	o	o	446 81	448 01	77	7	o	o
26880	I 46	28	o	o	543 93	544 21	75	6	o	o
26896	I 46	29	o	o	659 34	660 51	73	5	o	o
26912	I 46	30	o	o	801 15	802 31	70	4	o	o
26928	I 45	31	o	o	975 78	976 92	67	4	o	o
26944	I 45	32	o	o	I 193 23	I 194 36	65	3	o	o
26960	I 45	32	o	o	I 467 46	I 468 59	62	3	o	o
26976	I 45	32	o	o	I 818 36	I 819 49	60	2	o	o
26992	I 47	33	o	o	2 274 99	2 276 13	59	0	o	o
27008	I 47	33	o	o	2 880 97	2 882 11	57	+ 2	o	o
27024	I 48	33	o	o	3 703 94	3 705 09	54	3	o	o
27040	I 50	34	o	o	4 852 73	4 853 89	52	5	o	o
27056	I 51	34	o	o	6 510 28	6 511 45	49	6	o	o
+ 27072	- I 53	+ 34	o	o	- 9 000 57	- 9 001 76	- 46	+ 7	o	o

TABLE IV.—*continued.*

Sun and other Three Planets.	Sum of Attractions, Y.	Jupiter.	Saturn.	Uranus.	Neptune.	Sun and other Three Planets.	Sum of Attractions, Z.	Day.
— 6 876 91	— 6 882 62	+ 1 95	+ 5	0	0	+ 1 280 71	+ 1 282 71	+ 26624
7 466 14	7 471 45	1 74	5	0	0	1 362 53	1 364 32	26656
8 149 35	8 154 30	1 54	5	0	0	1 454 15	1 455 74	26688
8 949 12	8 953 74	1 37	5	0	0	1 557 18	1 558 60	26720
9 895 62	9 899 92	1 21	5	0	0	1 673 61	1 674 87	26752
11 029 77	11 033 78	1 07	5	0	0	1 805 73	1 806 85	26784
12 408 45	12 412 19	94	4	0	0	1 956 18	1 957 16	26816
14 112 74	14 116 22	82	4	0	0	2 127 80	2 128 66	26848
3 780 53	3 781 37	19	1	0	0	555 59	555 79	26864
4 065 41	4 066 22	18	1	0	0	580 77	580 96	26880
4 388 97	4 389 75	16	1	0	0	607 50	607 67	26896
4 758 98	4 759 72	15	+ 1	0	0	635 71	635 87	26912
5 185 27	5 185 98	14	0	0	0	665 22	665 36	26928
5 680 49	5 681 17	13	0	0	0	695 61	695 74	26944
6 261 11	6 261 76	12	0	0	0	726 10	726 22	26960
6 948 92	6 949 54	10	0	0	0	755 27	755 37	26976
7 773 15	7 773 74	9	0	0	0	780 59	780 68	26992
8 773 76	8 774 31	8	0	0	0	797 56	797 64	27008
10 006 18	10 006 69	6	0	0	0	798 03	798 09	27024
11 548 77	11 549 24	5	0	0	0	766 96	767 01	27040
13 513 38	13 513 81	4	0	0	0	675 54	675 58	27056
— 16 059 74	— 16 060 13	+ 4	— 1	0	0	+ 465 86	+ 465 89	+ 27072

GIVING THE DEVELOPED CO-ORDINATES x, y, z , OF THE COMET REFERRED TO THE CENTRE OF GRAVITY OF THE SOLAR SYSTEM.
ALSO THE SUCCESSIVE DIFFERENCES OF x, y, z , AND A COMPARISON BETWEEN THE OLD AND NEW COMPUTATIONS
BETWEEN THE LIMITING DAYS $-4608, +4608$.

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	γ .	First Difference.
-27776	- 3'372 053 09	-295 559 64				+0'534 673 59	
27760							+213 299 24
27744	3'667 612 73		+18 906 14			0'747 972 83	
27728		276 653 50		-3 034 39		0'957 463 67	209 490 84
27712	3'944 266 23		15 871 75	2 298 99	+ 735 40	1'163 132 01	205 668 34
27696		260 781 75		1 790 00		1'365 066 21	201 934 20
27680	4'205 047 98		13 572 76	1 425 36	508 99	1'563 401 46	198 335 25
27664		247 208 99		1 156 65	364 64	1'758 291 74	194 890 28
27648	4'452 256 97		11 782 76	953 70	202 95	1'949 895 45	191 603 71
27632		235 426 23		797 32	156 38	2'138 367 99	188 472 54
27616	4'687 683 20		10 357 40	674 57	122 75	2'323 858 09	185 490 10
27600		225 068 83		576 77	97 80	2'506 506 14	182 648 05
27584	4'912 752 03		9 200 75	497 73	79 04	2'686 443 65	179 937 51
27568		215 868 08		433 08	64 65	2'863 793 29	177 349 64
27552	5'128 620 11		8 247 05	379 63	53 45	3'038 669 23	174 875 94
27536		207 621 03		2 874 35		3'211 177 63	172 508 40
27520	5'336 241 14		7 449 73		612 60	3'499 479 88	338 302 25
27504		200 171 30			443 65	3'799 410 87	329 930 99
27488	5'536 412 44		6 775 16		330 30	4'099 588 71	322 177 84
27472		193 396 14			251 62	4'409 553 81	314 965 10
27456	5'729 808 58		6 198 39		195 58	4'729 781 23	308 227 42
27440		187 197 75			154 62	5'049 691 16	301 909 93
27424	5'917 006 33		5 700 66		124 10	5'369 657 23	295 966 07
27408		181 497 09			100 93	5'689 013 44	290 356 21
27392	6'098 503 42		5 267 58			5'998 059 84	285 046 40
27376		176 229 51				6'318 280 91	555 221 07
27360	6'274 732 93		4 887 95			6'638 201 14	536 920 23
27344		171 341 56				6'958 387 76	520 186 62
27328	6'446 074 49		18 249 42			7'278 164 19	504 776 43
27296		329 321 65				7'598 164 19	490 496 67
27264	6'775 396 14		15 987 67			7'918 262 19	477 192 10
27232		313 333 98					
27200	7'088 730 12		14 169 57				
27168		299 164 41					
27136	7'387 894 53		12 681 77				
27104		286 482 64					
27072	7'674 377 17		11 445 59				
27040		275 037 05					
27008	7'949 414 22		10 404 99				
26976		264 632 06					
26944	8'214 046 28		9 519 01				
26912		255 113 05					
26880	8'469 159 33		8 757 13				
26848		246 355 92					
26816	8'715 515 25		8 096 18				
26784		238 259 74					
26752	8'953 774 99		30 142 07				
26688		454 473 59					
26624	9'408 248 58		26 282 94				
26560		428 190 65					
26496	9'836 439 23		23 222 33				
26432		404 968 32					
26368	10'241 407 55		20 745 21				
26304		384 223 11					
26240	10'625 630 66		18 705 78				
26176		365 517 33					
26112	-10'991 147 99		+17 002 02				
-26048		-348 515 31					

TABLE V.

GIVING THE DEVELOPED CO-ORDINATES x, y, z , OF THE COMET REFERRED TO THE CENTRE OF GRAVITY OF THE SOLAR SYSTEM.
ALSO THE SUCCESSIVE DIFFERENCES OF x, y, z , AND A COMPARISON BETWEEN THE OLD AND NEW COMPUTATIONS
BETWEEN THE LIMITING DAYS $-4608, +4608$.

Second Difference.	Third Difference.	Fourth Difference.	z .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
- 3 808 40	- 14 10		- 0'972 715 66	-115 836 35	+ 5 612 65	- 786 55		-27776
3 822 50	+ 88 36	+102 46	1'088 552 01	110 223 70	4 826 10	614 05	+172 50	27760
3 734 14	135 19	46 83	1'198 775 71	105 397 60	4 212 05	490 22	123 83	27744
3 598 95	153 98	18 79	1'304 173 31	101 185 55	3 721 83	398 84	91 38	27728
3 444 97	158 40	+ 4 42	1'405 358 86	97 463 72	3 322 99	329 76	69 08	27712
3 286 57	155 40	- 3 00	1'502 822 58	94 140 73	2 993 23	276 44	53 32	27696
3 131 17	148 73	6 67	1'596 963 31	91 147 50	2 716 79	234 55	41 89	27680
2 982 44	140 39	8 34	1'688 110 81	88 430 71	2 482 24	201 10	33 45	27664
2 842 05	131 51	8 88	1'776 541 52	85 948 47	2 281 14	174 03	27 07	27648
2 710 54	122 67	8 84	1'862 489 99	83 667 33	2 107 11	151 87	22 16	27632
2 587 87	114 17	8 50	1'946 157 32	81 560 22	1 955 24	133 50	18 37	27616
2 473 70	106 16	8 01	2'027 717 54	79 604 98	1 821 74	118 15	15 35	27600
2 367 54	820 72		2'107 322 52	77 783 24	1 703 59	897 60		27584
9 082 09	710 83	109 89	2'185 105 76	76 079 65	6 404 71	718 15	179 45	27568
8 371 26	618 11	92 72	2'261 185 41	147 458 18	5 686 56	585 83	132 32	27552
7 753 15	540 41	77 70	2'408 643 59	141 771 62	5 100 73	485 73	100 10	27536
7 212 74	475 06	65 35	2'550 415 21	136 670 89	4 615 00	408 34	77 39	27520
6 737 68	420 19	54 87	2'687 086 10	132 055 89	4 206 66	347 43	60 91	27504
6 317 49	373 63	46 56	2'819 141 99	127 849 23	3 859 23	298 71	48 72	27488
5 943 86	334 00	39 63	2'946 991 22	123 990 00	3 560 52	259 19	39 52	27472
5 609 86	300 05	33 95	3'070 981 22	120 429 48	3 301 33	226 71	32 48	27456
5 309 81	2 291 85		3'191 410 70	117 128 15	3 074 62	1 715 82		27440
20 181 54	1 880 70	411 15	3'308 538 85	114 053 53	11 521 98	1 347 14	368 68	27424
18 300 84	1 567 23	313 47	3'422 592 38	219 659 70	10 174 84	1 081 99	265 15	27408
16 733 61	1 323 42	243 81	3'642 252 08	209 484 86	9 092 85	885 50	196 49	27392
15 410 19	1 130 43	192 99	3'851 736 94	200 392 01	8 207 35	736 20	149 30	27376
14 279 76	975 19	155 24	4'052 128 95	192 184 66	7 471 15	620 40	115 80	27360
-13 304 57	+ 848 67	-126 52	4'244 313 61	184 713 51	+ 6 850 75	- 528 99	+ 91 41	27344
			- 4'429 027 12	-177 862 76				27328
								27312
								27296
								27280
								27264
								27248
								27232
								27216
								27200
								27184
								27168
								27152
								27136
								27120
								27104
								27088
								27072
								27056
								27040
								27024
								27008
								26992
								26976
								26960
								26944
								26928
								26912
								26896
								26880
								26864
								26848
								26832
								26816
								26800
								26784
								26768
								26752
								26736
								26720
								26704
								26688
								26672
								26656
								26640
								26624
								26608
								26592
								26576
								26560
								26544
								26528
								26512
								26496
								26480
								26464
								26448
								26432
								26416
								26400
								26384
								26368
								26352
								26336
								26320
								26304
								26288
								26272
								26256
								26240
								26224
								26208
								26192
								26176
								26160
								26144
								26128
								26112
								26096
								26080
								26064
								26048

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	δ .	First Difference.
-26048		-348 515 31		-1 441 57			+477 192 10
25984	-11°339 663 30	332 954 86	+15 560 45	1 233 60	+ 207 97	+ 9°082 852 96	464 736 20
25920							
25856	11°672 618 16	318 628 01	14 326 85	1 066 22	167 38	9°547 589 16	453 024 76
25792							
25728	11°991 246 17	305 367 38	13 260 63	8 037 66		10°000 613 92	441 971 16
25664							
25600	12°296 613 55		49 437 12		1 849 74	10°442 585 08	
25472		574 558 27		6 187 92			853 062 28
25344	12°871 171 82	531 309 07	43 249 20		1 303 90	11°295 647 36	
25216				4 884 02			815 132 71
25088	13°402 480 89	492 943 89	38 365 18		950 46	12°110 780 07	
24960				3 933 56			780 480 00
24832	13°895 424 78	458 512 27	34 431 62		708 43	12°891 260 07	
24704				3 225 13			748 550 35
24576	14°353 937 05	427 305 78	31 206 49		538 83	13°639 810 42	
24448				2 686 30			718 911 48
24320	14°781 242 83	398 785 59	28 520 19		418 05	14°358 721 90	
24192				2 268 25			691 221 51
24064	15°180 028 42	372 533 65	26 251 94		330 51	15°049 943 41	
23936				1 937 74			665 206 99
23808	15°552 562 07	348 219 45	24 314 20		266 08	15°715 150 40	
23680				1 671 66			640 646 76
23552	15°900 781 52	325 576 91	22 642 54		217 57	16°355 797 16	
23424				1 454 09			617 359 71
23296	16°226 358 43	304 388 46	21 188 45		180 20	16°973 156 87	
23168				1 273 89			595 195 64
23040	16°530 746 89	284 473 90	19 914 56		150 95	17°568 352 51	
22912				1 122 94			574 028 19
22784	16°815 220 79	265 682 28	18 791 62		127 65	18°142 380 70	
22656				995 29			553 749 68
22528	17°080 903 07	247 885 95	17 796 33		108 77	18°696 130 38	
22400				886 52			534 267 40
22272	17°328 789 02	230 976 14	16 909 81		93 08	19°230 397 78	
22144				793 44			515 500 69
22016	17°559 765 16	214 859 77	16 116 37		79 83	19°745 898 47	
21888				713 61			497 378 69
21760	17°774 624 93	199 457 01	15 402 76		68 51	20°243 277 16	
21632				645 10			479 838 94
21504	17°974 081 94	184 699 35	14 757 66		59 38	20°723 116 10	
21376				585 72			462 826 60
21248	18°158 781 29	170 527 41	14 171 94		52 38	21°185 942 70	
21120				533 34			446 293 66
20992	18°329 308 70	156 888 81	13 638 60		46 92	21°632 236 36	
20864				486 42			430 198 05
20736	18°486 197 51	143 736 63	13 152 18		42 08	22°062 434 41	
20608				444 34			414 502 12
20480	18°629 934 14	131 028 79	12 707 84		37 49	22°476 936 53	
20352				406 85			399 171 57
20224	18°760 962 93	118 727 80	12 300 99		33 38	22°876 108 10	
20096				373 47			384 174 90
19968	18°879 690 73	106 800 28	11 927 52		29 75	23°260 283 00	
19840				343 72			369 483 26
19712	18°986 491 01	95 216 48	11 583 80		26 68	23°629 766 26	
19584				317 04			355 070 33
19456	19°081 707 49	83 949 72	11 266 76		24 09	23°984 836 59	
19328				292 95			340 912 16
19200	-19°165 657 21		+10 973 81		+ 21 90	+24°325 748 75	
-19072		- 72 975 91		- 271 05			+326 986 93

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	z.	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
-12 455 90	+ 848 67	-104 21	- 4'606 889 88	-177 862 76	+ 6 321 76	- 528 99	+ 73 12	-26048
11 711 44	744 46	86 62	4'778 430 88	171 541 00	5 865 89	455 87	59 14	25984
11 053 60	657 84		4'944 105 99	165 675 11	5 469 16	396 73		25920
41 933 64	4 998 74		5'104 311 94	160 205 95	20 523 89	2 998 81		25856
37 929 57	4 004 07	994 67	5'409 669 11	305 357 17	18 183 02	2 340 87	657 94	25792
34 652 71	3 276 86	727 21	5'696 843 26	287 174 15	16 311 80	1 871 22	469 65	25728
31 929 65	2 723 06	553 80	5'967 705 61	270 862 35	14 789 71	1 522 09	349 13	25664
29 638 87	2 290 78	432 28	6'223 778 25	256 072 64	13 532 32	1 257 39	264 70	25600
27 689 97	1 948 90	341 88	6'466 318 57	242 540 32	12 478 36	1 053 96	203 43	25472
26 014 52	1 675 45	273 45	6'696 380 53	230 061 96	11 583 28	895 08	158 88	25344
24 560 23	1 454 29	221 16	6'914 859 21	218 478 68	10 814 27	769 01	101 73	25216
23 287 05	1 273 18	181 11	7'122 523 62	207 664 41	10 146 99	667 28	83 48	25088
22 164 07	1 122 98	150 20	7'320 041 04	197 517 42	9 563 19	583 80	69 67	24960
21 167 45	996 62	126 36	7'507 995 27	187 954 23	9 049 06	514 13	58 79	24832
20 278 51	888 94	107 68	7'686 900 44	178 905 17	8 593 72	455 34	50 24	24704
19 482 28	796 23	92 71	7'857 211 89	170 311 45	8 188 62	405 10	43 27	24576
18 766 71	715 57	80 66	8'019 334 72	162 122 83	7 826 79	361 83	37 47	24448
18 122 00	644 71	70 86	8'173 630 76	154 296 04	7 502 43	324 36	32 50	24320
17 539 75	582 25	62 46	8'320 424 37	146 793 61	7 210 57	291 86	27 99	24192
17 012 34	527 41	54 84	8'460 007 41	139 583 04	6 946 70	263 87	24 12	24064
16 532 94	479 40	48 01	8'592 643 75	132 636 34	6 706 95	239 75	21 07	23936
16 095 61	437 33	42 07	8'718 573 14	125 929 39	6 488 27	218 68	18 90	23808
15 695 93	399 68	37 65	8'838 014 26	119 441 12	6 288 49	199 78	17 21	23680
15 330 55	365 38	34 30	8'951 166 89	113 152 63	6 105 92	182 57	15 66	23552
14 996 67	333 88	31 50	9'058 213 60	107 046 71	5 939 01	166 91	14 10	23424
14 691 64	305 03	28 85	9'159 321 30	101 107 70	5 786 20	152 81	12 65	23296
14 412 93	278 71	26 32	9'254 642 80	95 321 50	5 646 04	140 16	11 37	23168
14 158 17	254 76	23 95	9'344 318 26	89 675 46	5 517 25	128 79	10 25	23040
-13 925 23	232 94	21 82	9'428 476 47	84 158 21	+ 5 398 71	118 54	+ 9 30	22912
	+ 212 93	- 20 01		- 78 759 50		- 109 24		22784
								22656
								22528
								22400
								22272
								22144
								22016
								21888
								21760
								21632
								21504
								21376
								21248
								21120
								20992
								20864
								20736
								20608
								20480
								20352
								20224
								20096
								19968
								19840
								19712
								19584
								19456
								19328
								19200
								-19072

TABLE V.—*continued.*

Day.	x .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	y .	First Difference.
-19072		- 72 975 91		- 271 05		+24'652 735 68	+326 986 93
18944	-19'238 633 12	62 273 15	+10 702 76	250 96	+ 20 09		
18816					18 58	24'966 010 31	313 274 63
18688	19'300 906 27	51 821 35	10 451 80	232 38			299 756 82
18560					17 24	25'265 767 13	
18432	19'352 727 62	41 601 93	10 219 42	215 14			286 416 31
18304					16 03	25'552 183 44	
18176	19'394 329 55	31 597 65	10 004 28	199 11			273 236 88
18048					14 76	25'825 420 32	
17920	19'425 927 20	21 792 48	9 805 17	184 35			260 203 14
17792					13 50	26'085 623 46	
17664	19'447 719 68	12 171 66	9 620 82	170 85			247 300 34
17536					12 18	26'332 923 80	
17408	19'459 891 34	- 2 721 69	9 449 97	158 67			234 514 44
17280					11 39	26'567 438 24	
17152	19'462 613 03	+ 6 569 61	9 291 30	147 28			221 832 28
17024					10 85	26'789 270 52	
16896	19'456 043 42	15 713 63	9 144 02	136 43			209 241 59
16768					10 54	26'998 512 11	
16640	19'440 329 79	24 721 22	9 007 59	125 89			196 730 91
16512					10 11	27'195 243 02	
16384	19'415 608 57	33 602 92	8 881 70	115 78			184 289 12
16256					9 57	27'379 532 14	
16128	19'382 005 65	42 368 84	8 765 92	106 21			171 905 18
16000					8 96	27'551 437 32	
15872	19'339 636 81	51 028 55	8 659 71	97 25			159 568 14
15744					8 36	27'711 005 46	
15616	19'288 608 26	59 591 01	8 562 46	88 89			147 267 08
15488					7 96	27'858 272 54	
15360	19'229 017 25	68 064 58	8 473 57	80 93			134 991 43
15232					7 51	27'993 263 97	
15104	19'160 952 67	76 457 22	8 392 64	73 42			122 730 93
14976					7 26	28'115 994 90	
14848	19'084 495 45	84 776 44	8 319 22	66 16			110 475 44
14720					7 08	28'226 470 34	
14592	18'999 719 01	93 029 50	8 253 06	59 08			98 214 99
14464					6 98	28'324 685 33	
14336	18'906 689 51	101 223 48	8 193 98	52 10			85 939 70
14208					6 89	28'410 625 03	
14080	18'805 466 03	109 365 36	8 141 88	45 21			73 639 65
13952					6 76	28'484 264 68	
13824	18'696 100 67	117 462 03	8 096 67	38 45			61 304 71
13696					6 53	28'545 569 39	
13568	18'578 638 64	125 520 25	8 058 22	31 92			48 924 51
13440					6 21	28'594 493 90	
13312	18'453 118 39	133 546 55	8 026 30	25 71			36 488 37
13184					5 96	28'630 982 27	
13056	18'319 571 84	141 547 14	8 000 59	19 75			23 985 45
12928					5 96	28'654 967 72	
12800	18'178 024 70	149 527 98	7 980 84	13 79			+ 11 404 90
12672					6 21	28'666 372 62	
12544	18'028 496 72	157 495 03	7 967 05	7 58			- 1 264 14
12416					6 60	28'665 108 48	
12288	17'871 001 69	165 454 50	7 959 47	- 98			14 032 76
12160					+ 6 71	+28'651 075 72	
12032	-17'705 547 19	+173 412 99	+ 7 958 49	+ 5 73			- 26 912 67
-11904							

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	z .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
— 13 712 30	+ 212 93	— 18 44	— 9°507 235 97	— 78 759 50	+ 5 289 47	— 109 24	+ 8 51	— 19072
13 517 81	194 49	17 19	9°580 706 00	73 470 03	5 188 74	100 73	7 90	18944
13 340 51	177 30	16 22	9°648 987 29	68 281 29	5 095 91	92 83	7 44	18816
13 179 43	161 08	15 39	9°712 172 67	63 185 38	5 010 52	85 39	7 00	18688
13 033 74	145 69	14 75	9°770 347 53	58 174 86	4 932 13	78 39	6 62	18560
12 902 80	130 94	14 04	9°823 590 26	53 242 73	4 860 36	71 77	6 13	18432
12 785 90	116 90	13 16	9°871 972 63	48 382 37	4 794 72	65 64	5 63	18304
12 682 16	103 74	12 27	9°915 560 28	43 587 65	4 734 71	60 01	5 05	18176
12 590 69	91 47	11 46	9°954 413 22	38 852 94	4 679 75	54 96	4 79	18048
12 510 68	80 01	11 12	9°988 586 41	34 173 19	4 629 58	50 17	4 63	17920
12 441 79	68 89	11 04	10°018 130 02	29 543 61	4 584 04	45 54	4 63	17792
12 383 94	57 85	10 95	10°043 089 59	24 959 57	4 543 13	40 91	4 56	17664
12 337 04	46 90	10 92	10°063 506 03	20 416 44	4 506 78	36 35	4 38	17536
12 301 06	35 98	10 57	10°079 415 69	15 909 66	4 474 81	31 97	4 22	17408
12 275 65	25 41	10 26	10°090 850 54	11 434 85	4 447 06	27 75	3 94	17280
12 260 50	15 15	10 14	10°097 838 33	6 987 79	4 423 25	23 81	3 84	17152
12 255 49	+ 5 01	9 97	10°100 402 87	— 2 564 54	4 403 28	19 97	3 68	17024
12 260 45	— 4 96	9 88	10°098 564 13	+ 1 838 74	4 386 99	16 29	3 63	16896
12 275 29	14 84	9 92	10°092 338 40	6 225 73	4 374 33	12 66	3 61	16768
12 300 05	24 76	10 13	10°081 738 34	10 600 06	4 365 28	9 05	3 65	16640
12 334 94	34 89	10 37	10°066 773 00	14 965 34	4 359 88	5 40	3 70	16512
12 380 20	45 26	10 68	10°047 447 78	19 325 22	4 358 18	— 1 70	3 73	16384
12 436 14	55 94	10 84	10°023 764 38	23 683 40	4 360 21	+ 2 03	3 65	16256
12 502 92	66 78	10 85	9°995 720 77	28 043 61	4 365 89	3 68	3 51	16128
12 580 55	77 63	10 86	9°963 311 27	32 409 50	4 375 08	9 19	3 43	16000
12 669 04	88 49	11 09	9°926 526 69	36 784 58	4 387 70	12 62	3 47	15872
12 768 62	99 58	11 71	9°885 354 41	41 172 28	4 403 79	16 09	3 78	15744
— 12 879 91	111 29	— 12 54	— 9°839 778 34	45 576 07	+ 4 423 66	19 87	+ 4 03	15616
	— 123 83			+ 49 999 73		+ 23 90		15488
								15360
								15232
								15104
								14976
								14848
								14720
								14592
								14464
								14336
								14208
								14080
								13952
								13824
								13696
								13568
								13440
								13312
								13184
								13056
								12928
								12800
								12672
								12544
								12416
								12288
								12160
								12032
								— 11904

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	β .	First Difference.
-11904		+173 412 99		+ 5 73			- 26 912 67
11776	-17°53' 134 20		+ 7 964 22		+ 6 74	+28°624 163 05	
11648		181 377 21		12 47			39 916 41
11520	17°35' 756 99		7 976 69		6 61	28°584 246 64	
11392		189 353 90		19 08			53 057 34
11264	17°16' 403 09		7 995 77		6 63	28°531 189 30	
11136		197 349 67		25 71			66 349 46
11008	16°964 053 42		8 021 48		6 67	28°464 839 84	
10880		205 371 15		32 38			79 807 58
10752	16°758 682 27		8 053 86		6 82	28°385 032 26	
10624		213 425 01		39 20			93 447 15
10496	16°545 257 26		8 093 06		7 09	28°291 585 11	
10368		221 518 07		46 29			107 284 43
10240	16°323 739 19		8 139 35		7 51	28°184 300 68	
10112		229 657 42		53 80			121 336 58
9984	16°094 081 77		8 193 15		7 99	28°062 964 10	
9856		237 850 57		61 79			135 621 93
9728	15°856 231 20		8 254 94		8 49	27°927 342 17	
9600		246 105 51		70 28			150 160 18
9472	15°610 125 69		8 325 22		8 99	27°777 181 99	
9344		254 430 73		79 27			164 972 73
9216	15°355 694 96		8 404 49		9 28	27°612 209 26	
9088		262 835 22		88 55			180 082 96
8960	15°092 859 74		8 493 04		9 47	27°432 126 30	
8832		271 328 26		98 02			195 516 41
8704	14°821 531 48		8 591 06		9 80	27°236 609 89	
8576		279 919 32		107 82			211 300 78
8448	14°541 612 16		8 698 88		10 59	27°025 309 11	
8320		288 618 20		118 41			227 465 90
8192	14°252 993 96		8 817 29		11 90	26°797 843 21	
8064		297 435 49		130 31			244 043 94
7936	13°955 558 47		8 947 60		13 24	26°553 799 27	
7808		306 383 09		143 55			261 070 20
7680	13°649 175 38		9 091 15		14 40	26°292 729 07	
7552		315 474 24		157 95			278 584 10
7424	13°333 701 14		9 249 10		15 44	26°014 144 97	
7296		324 723 34		173 39			296 629 89
7168	13°008 977 80		9 422 49		16 54	25°717 515 08	
7040		334 145 83		189 93			315 257 18
6912	12°674 831 97		9 612 42		17 95	25°402 257 90	
6784		343 758 25		207 88			334 521 52
6656	12°331 073 72		9 820 30		19 64	25°067 736 38	
6528		353 578 55		227 52			354 485 17
6400	11°977 495 17		10 047 82		21 78	24°713 251 21	
6272		363 626 37		249 30			375 218 26
6144	11°613 868 80		10 297 12		24 42	24°338 032 95	
6016		373 923 49		273 72			396 800 18
5888	11°239 945 31		10 570 84		27 58	23°941 232 77	
5760		384 494 33		301 30			419 321 55
5632	10°855 450 98		10 872 14		31 50	23°521 911 22	
5504		395 366 47		332 80			442 886 51
5376	10°460 084 51		11 204 94		35 97	23°079 024 71	
5248		406 571 41		368 77			467 616 11
5120	10°053 513 10		11 573 71		40 99	22°611 408 60	
4992		418 145 12		409 76			493 652 15
4864	9°635 367 98		11 983 47		+ 46 16	22°117 756 45	
4736		+430 128 59		+ 455 92			-521 162 36
- 4608	- 9°205 239 39		+12 439 39			+21°596 594 09	

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	z .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
-13 003 74	- 123 83	- 13 36	- 9'789 778 61	+ 49 999 73	+ 4 447 56	+ 23 90	+ 4 25	-11904
13 140 93	137 19	14 00	9'735 331 32	54 447 29	4 475 71	28 15	4 39	11776
13 292 12	151 19	14 81	9'676 408 32	58 923 00	4 508 25	32 54	4 49	11648
13 458 12	166 00	15 45	9'612 977 07	63 431 25	4 545 28	37 03	4 62	11520
13 639 57	181 45	16 26	9'545 000 54	67 976 53	4 586 93	41 65	4 73	11392
13 837 28	197 71	17 16	9'472 437 08	72 563 46	4 633 31	46 38	4 97	11264
14 052 15	214 87	18 33	9'395 240 31	77 196 77	4 684 66	51 35	5 25	11136
14 285 35	233 20	19 70	9'313 358 88	81 881 43	4 741 26	56 60	5 62	11008
14 538 25	252 90	21 40	9'226 736 19	86 622 69	4 803 48	62 22	6 12	10880
14 812 55	274 30	23 38	9'135 310 02	91 426 17	4 871 82	68 34	6 68	10752
15 110 23	297 68	25 54	9'039 012 03	96 297 99	4 946 84	75 02	7 23	10624
15 433 45	323 22	27 70	8'937 767 20	101 244 83	5 029 09	82 25	7 66	10496
15 784 37	350 92	29 83	8'831 493 28	106 273 92	5 119 00	89 91	8 00	10368
16 165 12	380 75	32 17	8'720 100 36	111 392 92	5 216 91	97 91	8 51	10240
16 578 04	412 92	35 30	8'603 490 53	116 609 83	5 323 33	106 42	9 32	10112
17 026 26	448 22	39 42	8'481 557 37	121 933 16	5 439 07	115 74	10 52	9984
17 513 90	487 64	44 25	8'354 185 14	127 372 23	5 565 33	126 26	11 86	9856
18 045 79	531 89	49 61	8'221 247 58	132 937 56	5 703 45	138 12	13 17	9728
18 627 29	581 50	55 55	8'082 606 57	138 641 01	5 854 74	151 29	14 59	9600
19 264 34	637 05	62 26	7'938 110 82	144 495 75	6 020 62	165 88	16 15	9472
19 963 65	699 31	70 13	7'787 594 45	150 516 37	6 202 65	182 03	17 96	9344
20 733 09	769 44	79 39	7'630 875 43	156 719 02	6 402 64	199 99	20 14	9216
21 581 92	848 83	90 62	7'467 753 77	163 121 66	6 622 77	220 13	22 79	9088
22 521 37	939 45	104 14	7'298 009 34	169 744 43	6 865 69	242 92	26 07	8960
23 564 96	I 043 59	121 05	7'121 399 22	176 610 12	7 134 68	268 99	30 16	8832
24 729 60	I 164 64	141 80	6'937 654 42	183 744 80	7 433 83	299 15	35 23	8704
26 036 04	I 306 44	167 73	6'746 475 79	191 178 63	7 768 21	334 38	41 47	8576
27 510 21	I 474 17	-199 77	6'547 528 95	198 946 84	8 144 06	375 85	+ 49 05	8448
-29 184 15	-I 673 94		- 6'340 438 05	+207 090 90	+ 8 568 96	+ 424 90		4992
								4864
								4736
								- 4608

TABLE V.—*continued.*

Day.	x .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	y .	First Difference.
— 4480		+442 567 98		+3 170 74			—550 346 51
4352	— 8°762 671 41		+ 12 947 01	3 235 84	00	+21°046 247 58	
4224		455 514 99		3 304 59			581 443 73
4096	8°307 156 42		13 513 38	3 377 27	+ 02	20°464 803 85	
3968		469 028 37		3 454 27			614 741 65
3840	7°838 128 05		14 149 52	3 536 05	— 02	19°850 062 20	
3712		483 177 89		3 623 13			650 590 88
3584	7°354 950 16		14 870 30	3 716 00	— 01	19°199 471 32	
3456		498 048 19		3 815 16			689 428 37
3328	6°856 901 97		15 691 99	3 921 16	00	18°510 042 95	
3200		513 740 18		4 034 51			731 809 43
3072	6°343 161 79		16 631 61	4 155 77	+ 02	17°778 233 52	
2944		530 371 79		4 285 58			778 450 70
2816	5°812 790 00		17 708 81	4 424 67	+ 01	16°999 782 82	
2688		548 080 60		4 573 90			830 292 26
2560	5°264 709 40		18 949 23	4 734 23	+ 014	16°169 490 56	
2496		281 061 47		1 204 526			436 544 90
2432	4°983 647 93		4 906 89	1 226 510	— 006	15°732 945 66	
2368		285 968 36		1 249 338			452 050 08
2304	4°697 679 57		5 093 18	1 273 061	— 004	15°280 895 58	
2240		291 061 54		1 297 716			468 638 63
2176	4°406 618 03		5 294 41	1 323 350	+ 007	14°812 256 95	
2112		296 355 95		1 350 001			486 463 49
2048	4°110 262 08		5 511 88	1 377 701	+ 005	14°325 793 46	
1984		301 867 83		1 406 482			505 710 60
1920	3°808 394 25		5 746 57	1 436 365	+ 002	13°820 082 86	
1856		307 614 40		1 467 360			526 608 88
1792	3°500 779 85		5 998 94	1 499 462	— 005	13°293 473 98	
1728		313 613 34		1 532 651			549 443 85
1664	3°187 166 51		6 268 42	1 566 872	+ 014	12°744 030 13	
1600		319 881 76		1 602 039			574 577 29
1536	2°867 284 75		6 552 57	1 638 011	+ 066	12°169 452 84	
1472		326 434 33		1 674 575			602 475 81
1408	2°540 850 42		6 845 48	1 711 417	+ 004	11°566 977 03	
1344		333 279 81		1 748 075			633 753 80
1280	2°207 570 61		7 133 82	1 783 899	+ 003	10°933 223 23	
1248		169 297 84		450 341			329 881 30
1216	2°038 272 77		1 817 95	454 536	000	10°603 341 93	
1184		171 115 79		458 537			339 359 89
1152	1°867 156 98		1 848 86	462 295	+ 010	10°263 982 04	
1120		172 964 65		465 743			349 547 31
1088	— 1°694 192 33		+ 1 874 72	468 801	+ 004	+ 9°914 434 73	
— 1056		+174 839 37		+ 471 379			—360 545 21

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	z .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
-31 097 22	-7 522 93 7 769 84 8 034 61	00	- 6.124 778 19	+215 659 86	+ 9 .051 63	+2 199 64 2 261 85 2 328 28	- 01	- 4480 4352 4224
33 297 92	8 319 05 8 625 21	00	5.900 066 70	224 711 49	9 602 37	2 399 33 2 475 43	00	4096 3968
35 849 23	8 955 54 9 312 95	- 01	5.665 752 84	234 313 86	10 234 84	2 557 14 2 645 14	+ 01	3840 3712
38 837 49	9 700 78 10 122 99	- 01	5.421 204 14	244 548 70	10 968 69	2 740 19 2 843 18	+ 01	3584 3456
42 381 06	10 584 14 11 089 69	+ 10	5.165 686 75	255 517 39	11 830 65	2 955 13 3 077 21	00	3328 3200
46 641 27	11 645 81 12 259 95	+ 01	4.898 338 71	267 348 04	12 855 82	3 210 72 3 357 18	+ 01	3072 2944
51 841 56	12 940 99 13 699 63	00	4.618 134 85	280 203 86	14 090 49	3 518 40 3 696 50	- 01	2816 2688
58 302 72	14 548 96	- 002	4.323 840 50	294 294 35	15 598 83	3 894 05 999 891	+ 007	2560 2496
15 505 18	3 751 330 3 874 317	+ 008	4.170 951 03	152 889 47	4 114 24	1 028 145 1 058 056	- 003	2432 2368
16 588 55	4 005 208 4 144 760	+ 008	4.013 947 32	157 003 71	4 361 04	1 089 770 1 123 450	+ 006	2304 2240
17 824 86	4 293 814 4 453 327	+ 004	3.852 582 57	161 364 75	4 639 50	1 159 285 1 197 483	+ 003	2176 2112
19 247 11	4 624 388 4 808 228	- 010	3.686 578 32	166 004 25	4 955 98	1 238 280 1 281 944	+ 007	2048 1984
20 898 28	5 006 276 5 220 147	- 004	3.515 618 09	170 960 23	5 318 64	1 328 780 1 379 131	- 005	1920 1856
22 834 97	5 451 714 5 703 146	- 008	3.339 339 22	176 278 87	5 737 95	1 433 395 1 492 029	000	1792 1728
25 133 44	5 976 972 6 276 146	+ 023	3.157 322 40	182 016 82	6 227 76	1 555 563 1 624 601	- 004	1664 1600
27 898 52	6 604 153 6 965 126	+ 104	2.969 077 82	188 244 58	6 806 60	1 699 869 1 782 209	- 052	1536 1472
31 277 99	7 364 011 7 806 730	+ 010	2.774 026 64	195 051 18	7 499 76	1 872 623 1 972 306	+ 001	1408 1344
35 487 39	8 300 509 8 854 152	- 010	2.571 475 70	202 550 94	8 343 42	2 082 693 535 399	- 192	1280 1248
9 478 59	2 287 987 2 368 335	+ 003	2.467 131 29	104 344 41	2 205 54	551 158 567 821	- 004	1216 1184
10 187 42	2 453 930 2 545 276	+ 001	2.360 581 34	106 549 95	2 342 96	585 471 604 172	- 025	1152 1120
-10 997 90	2 642 937 2 747 554	+ 002	- 2.251 688 43	108 892 91	+ 2 497 60	624 079 645 242	- 028	1088 1056
	-2 859 853			+111 390 51				

TABLE V.—*continued.*

Day	x .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	y .	First Difference.
- 1056		+174 839 37		+ 471 379			-360 545 21
1024	- 1'519 352 96	176 732 07	+ 1 892 70	473 360	+ 006	+ 9'553 889 52	372 477 29
992				474 607			
960	1'342 620 89	178 630 76	1 898 69	474 951	+ 006	9'181 412 23	385 496 12
928				474 187			
896	1'163 990 13	180 517 34	1 886 58	472 062	- 001	8'795 916 11	399 792 10
864				468 268			
832	0'983 472 79	182 364 48	1 847 14	462 419	+ 005	8'396 124 01	415 607 01
800				454 039			
768	0'801 108 31	184 130 69	1 766 21	442 524	- 003	7'980 517 00	433 253 24
736				427 120			
704	0'616 977 62	185 752 06	1 621 37	406 864	- 001	7'547 263 76	453 143 04
672				380 521			
640	0'431 225 56		1 376 26	346 502	- 009	7'094 120 72	234 878 49
624		93 412 79		81 668			
608	0'337 812 77		302 74	75 875	- 014	6'859 242 23	240 955 60
592		93 715 53		69 308			
576	0'244 097 24		246 48	61 863	- 028	6'618 286 63	247 505 83
560		93 962 01		53 418			
544	0'150 135 23		174 06	43 833	- 032	6'370 780 80	254 597 60
528		94 136 07		32 944			
512	- 0'055 999 16	94 216 63	+ 80 56	20 562	- 030	6'116 183 20	262 314 24
496				6 462			
480	+ 0'038 217 47	94 175 89	- 40 74	9 617	- 018	5'853 868 96	270 758 31
464				27 986			
448	0'132 393 36	93 976 76	199 13	49 013	- 014	5'583 110 65	280 057 78
432				73 132			
416	0'226 370 12	93 569 01	407 75	100 870	+ 006	5'303 052 87	290 374 01
400				132 872			
392				37 592			
384	0'319 939 13		685 87	42 389	+ 005	5'012 678 86	301 912 42
376				47 566			
368		92 883 14		53 163			
360				59 229			
352	0'412 822 27		1 065 29	65 822	- 011	4'710 766 44	314 936 82
344				73 016			
336		91 817 85		80 900			
328				89 586			
320	0'504 640 12		1 609 255	99 205	+ 129	4'395 829 62	162 908 067
312		45 348 756		109 911			
304	0'549 988 876		488 917	121 871	+ 007	4'232 921 553	166 884 097
296		44 859 839		135 257			
288	0'594 848 715		602 769	150 230	+ 115	4'066 037 456	171 166 774
280		44 257 070		166 937			
272	0'639 105 785		744 105	185 517	+ 018	3'894 870 682	175 803 042
264		43 512 965		206 116			
256	+ 0'682 618 750		918 131	228 920	+ 007	+ 3'719 067 640	-180 850 667
248		+ 42 594 834		254 168			

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	z.	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
-11 932 08	-2 859 853 2 980 663 3 110 932	- 031	- 2'140 297 92	+111 390 51	+ 2 672 74	+ 645 242 667 801 691 895	- 001	- 1056 1024 992
13 018 83	3 251 749 3 404 372	+ 028	2'026 234 67	114 063 25	2 872 56	717 675 745 320	+ 005	960 928
14 295 98	3 570 254 3 751 101	- 001	1'909 298 86	116 935 81	3 102 40	775 028 807 028	+ 004	896 864
15 814 91	3 948 901 4 166 004	+ 003	1'789 260 65	120 038 21	3 369 20	841 585 878 998	- 004	832 800
17 646 23	4 405 202 4 669 820	+ 002	1'665 853 24	123 407 41	3 682 11	919 623 963 869	+ 003	768 736
19 889 80	4 963 874 5 292 231	+ 001	1'538 763 72	127 089 52	4 053 54	I 012 218 I 065 238	+ 003	704 672
22 691 05	5 660 848 I 464 816	+ 019	1'407 620 66	131 143 06	4 500 54	I 123 599	+ 008	640 624
6 077 11	I 518 393 I 575 502	+ 006	1'340 392 92	67 227 74	I 188 12	288 655 296 917	- 008	608 592
6 550 23	I 636 485 I 701 721	+ 037	1'271 977 06	68 415 86	I 259 77	305 623 314 808	- 019	576 560
7 091 77	I 771 644 I 846 742	+ 019	1'202 301 43	69 675 63	I 339 72	324 512 334 774	- 012	544 528
7 716 64	I 927 570 2 014 765	- 007	1'131 286 08	71 015 35	I 429 48	345 648 357 183	- 023	512 496
8 444 07	2 109 053 2 211 271	- 072	1'058 841 25	72 444 83	I 530 86	369 443 382 496	000	480 464
9 299 47	2 322 379 2 443 481	- 040	0'984 865 56	73 975 69	I 646 36	396 425 411 319	- 010	448 432
10 316 23	2 575 857 2 720 977	+ 058	0'909 243 51	75 622 05	I 779 18	427 287 444 454	- 013	416 400
11 538 41	699 469 719 875	- 017	0'831 842 28	77 401 23	I 933 75	462 972 118 172	+ 004	392 384
13 024 40	741 302 763 813	- 037	0'752 507 30	79 334 98	2 115 39	120 726 123 387	- 017	376 368
14 855 344	787 480 812 378	- 037	0'671 056 93	81 450 37	2 325 045	126 161 129 051	+ 073	360 352
3 976 030	838 591 866 215	+ 092	0'629 473' 815	41 583 115	609 185	132 062 135 194	000	344 336
4 282 677	895 354 926 151	+ 007	0'587 281 515	42 192 300	637 463	138 442 141 797	+ 067	328 320
4 636 268	958 771 I 030 388	- 005	0'544 451 752	42 829 763	665 751	145 241 148 750	- 008	312 304
- 5 047 625	I 069 938 I 112 418	+ 001	- 0'500 956 238	43 495 514	+ 694 397	152 295 155 845	- 248	296 288
	I 158 164 I 207 521	+ 010		+ 44 189 911		162 911 166 433		280 272
	I 260 827 -1 318 440					169 976 173 577		264 256
						+ 177 259		

TABLE V.—*continued.*

Day.	x .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	y .	First Difference.
248		+ 42 594 834		254 168			-180 850 667
240	+ 0.725 213 584		- 1 131 929	282 185	+ 008	+ 3.538 216 973	186 378 853
232		41 462 905		313 383			
224	0.766 676 489		1 397 422	348 275	- 002	3.351 838 120	192 470 725
216		40 065 483		387 491			
208	0.806 741 972		1 733 129	431 784	- 004	3.159 367 395	199 228 564
200		38 332 354		482 074			
192	0.845 074 326		2 166 385	539 477	+ 002	2.960 138 831	206 781 369
184		36 165 969		605 355			
176	0.881 240 295		2 737 834	681 394	+ 005	2.753 357 462	215 295 300
168		33 428 135		769 686			
160	0.914 668 430		3 509 758	872 877	000	2.538 062 162	
156		15 456 348		232 454			111 198 511
152	0.930 124 778		994 319	248 229	+ 001	2.426 863 651	113 789 801
148		14 462 029		265 406			
144	0.944 586 807		1 138 331	284 146	000	2.313 073 850	116 574 472
140		13 323 698		304 633			
136	0.957 910 505		1 310 533	327 082	000	2.196 499 378	119 576 872
132		12 013 165		351 736			
128	0.969 923 670		1 518 333	378 879	+ 001	2.076 922 506	122 825 516
124		10 494 832		408 838			
120	0.980 418 502		1 771 628	441 996	000	1.954 096 990	126 353 911
116		8 723 204		478 798			
112	0.989 141 706		2 083 850	519 767	- 002	1.827 743 079	130 201 483
108		6 639 354		565 520			
104	0.995 781 060		2 473 523	616 785	+ 001	1.697 541 596	134 414 571
100		4 165 831		674 432			
96	0.999 946 891		2 966 642	739 496	000	1.563 127 025	139 047 309
92		+ 1 199 189		813 218			
88	1.001 146 080		3 600 384	897 102	000	1.424 079 716	144 161 982
84		- 2 401 195		992 962			
80	0.998 744 885		4 428 957	1 103 014	- 0016	1.279 917 734	74 168 416
78		2 800 092		290 7592			
76	0.995 944 793		1 229 968	307 1775	- 0006	1.205 749 318	75 659 420
74		4 030 060		324 8544			
72	0.991 914 733		1 377 156	343 9110	- 0020	1.130 089 898	77 230 495
70		5 407 216		364 4816			
68	0.986 507 517		1 548 695	386 7163	- 0005	1.052 859 403	78 885 566
66		6 955 911		410 7813			
64	0.979 551 606		1 749 672	436 8624	- 0001	0.973 973 837	80 627 597
62		8 705 583		465 1660			
60	0.970 846 023		1 986 399	495 9229	- 0015	0.893 346 240	82 457 826
58		10 691 982		529 3887			
56	0.960 154 041		2 266 699	565 8479	- 0012	0.810 888 414	84 374 557
54		12 958 681		605 6157			
52	0.947 195 360		2 600 200	649 0406	- 0041	0.726 513 857	86 371 292
50		15 558 881		696 5072			
48	0.931 636 479		2 998 651	748 4342	- 0031	0.640 142 565	88 433 820
46		18 557 532		805 2785			
44	0.913 078 947		3 476 027	867 5275	- 0044	0.551 708 745	90 535 788
42		22 033 559		935 6979			
40	0.891 045 388		4 048 255	1 010 3202	- 0056	0.461 172 957	92 631 873
39				262 4410			
38		26 081 814		272 8636			
37				283 7541			
36	0.864 963 574		4 731 941	295 1272	- 0035	0.368 541 084	94 647 462
35				306 9967			
34		30 813 755		319 3740			
33				332 2671			
32	0.834 149 819		5 541 225	345 6796	+ 0003	0.273 893 622	48 023 535
31		17 429 122		359 6120			
30	+ 0.816 720 697		- 1 496 736	374 0585	- 0003	+ 0.225 870 087	-48 440 289
29		- 18 925 858		389 0073			

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	z .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
-5 528 186	-1 318 440 1 380 754 1 448 222	+ 016	-0'456 766 327	+44 189 911	+ 724 242	+ 177 259 181 037 184 909	000	- 248 240 232
6 091 872	1 521 386 1 600 897	- 019	0'411 852 174	44 914 153	755 455	188 854 192 834	- 004	224 216
6 757 839	1 687 464 1 782 032	- 018	0'366 182 566	45 669 608	787 130	196 803 200 679	- 011	208 200
7 552 805	1 885 632 1 999 509	000	0'319 725 828	46 456 738	817 116	204 361 207 717	+ 002	192 184
8 513 931	2 125 118 2 264 187	- 001	0'272 451 974	47 273 854	841 535	210 569 212 681	+ 001	176 168
9 693 012	2 418 766	+ 001	0'224 336 585	48 115 389	853 421	213 727	- 007	160 156
2 591 290	625 353 647 498 670 943	- 002	0'199 958 819	24 377 766	213 278	53 459 53 352 53 116	+ 001	152 148
2 784 671	695 789 722 153	- 003	0'175 367 775	24 591 044	210 722	52 726 52 154	000	144 140
3 002 400	750 157 779 935	- 002	0'150 566 009	24 801 766	205 219	51 368 50 328	- 001	136 132
3 248 644	811 639 845 430	+ 001	0'125 559 024	25 006 985	195 588	48 986 47 287	- 001	128 124
3 528 395	881 485 919 996	- 001	0'100 356 451	25 202 573	180 137	45 161 42 527	- 001	120 116
3 847 572	961 171 1 005 235	- 001	0'074 973 741	25 382 710	156 416	39 286 35 316	- 001	112 108
4 213 088	1 052 427 1 102 999	000	0'049 434 615	25 539 126	120 824	30 470 24 566	- 002	104 100
4 632 738	1 157 210 1 215 320	- 001	-0'023 774 665	25 659 950	+ 67 951	17 378 8 629	000	96 92
5 114 673	1 277 578 1 344 196	+ 001	+0'001 953 236	25 727 901	- 10 479	2 033 15 043	- 001	88 84
5 665 854	1 415 327	- 0008	0'027 670 658	25 717 422	127 442	30 958	+ 0003	80 78
1 491 004	363 0795 372 6820	- 0008	0'040 490 890	12 820 232	50 484	9 9918 12 5507	+ 0013	76 74
1 571 075	382 5613 392 7063	+ 0005	0'053 260 638	12 769 748	74 522	15 3895 18 5422	+ 0006	72 70
1 655 071	403 1006 413 7196	+ 0012	0'065 955 864	12 695 226	104 242	22 0475 25 9488	+ 0010	68 66
1 742 031	424 5300 435 4863	- 0004	0'078 546 848	12 590 984	141 153	30 2959 35 1462	0000	64 62
1 830 229	446 5288 457 5804	- 0004	0'090 996 679	12 449 831	187 234	40 5647 46 6262	+ 0005	60 58
1 916 731	468 5398 479 2789	- 0002	0'103 259 276	12 262 597	245 075	53 4164 61 0336	+ 0006	56 54
1 996 735	489 6336 499 3961	+ 0047	0'115 276 798	12 017 522	318 088	69 5908 79 2174	+ 0001	52 50
2 062 528	508 3045 516 0300	+ 0030	0'126 976 232	11 699 434	410 770	90 0623 102 2963	+ 0001	48 46
2 101 968	522 1605 526 1799	+ 0007	0'138 264 896	11 288 664	529 029	116 1150 131 7420	- 0022	44 42
2 096 085	527 4470 525 1581	- 0034	0'149 024 531	10 759 635	680 559	149 4322 169 4729	- 0102	40 39
2 015 589	130 6750 129 6710	+ 0078	0'159 103 607	10 079 076	875 136	45 0744 48 0005	- 0015	38 37
1 816 362	128 3082 126 5416	- 0055	0'168 307 547	9 203 940	1 124 141	51 1158 54 4316	- 0063	36 35
- 416 754	124 3224 121 5977	+ 0005	+0'172 506 003	+ 3 881 343	317 113	57 9589 61 7087	- 0006	34 33
	118 3106 114 3974					65 6942 69 9293		32 31
	109 7874 104 4030					74 4288 79 2059		30 29
	98 1601					84 2730		

TABLE V.—*continued.*

Day.	<i>x.</i>	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	<i>y.</i>	First Difference.
29		18 925 858		389 0073			-48 440 289
28	+ 0.797 794 839		- 1 618 214	404 4396	+ 0007	+ 0.177 429 798	
27		20 544 072		420 3268			48 803 118
26	0.777 250 767		1 746 879	436 6294	- 0011	0.128 626 680	
25		22 290 951		453 2945			49 095 249
24	0.754 959 816		1 881 229	470 2546	+ 0006	0.079 531 431	
23		24 172 180		487 4247			49 296 547
22	0.730 787 636		2 018 781	504 7005	- 0001	+ 0.030 234 884	
21		26 190 961		521 9554			49 383 236
20	0.704 596 675		2 155 809	539 0393	- 0015	- 0.019 148 352	
19		28 346 770		555 7755			49 327 816
18	0.676 249 905		2 287 056	571 9603	- 0011	0.068 476 168	
17		30 633 826		587 3610			49 099 343
16	0.645 616 079		2 405 532	601 7165	- 0007	0.117 575 511	
15		33 039 358		614 7387			48 664 250
14	0.612 576 721		2 502 479	626 1145	+ 0003	0.166 239 761	
13		35 541 837		635 5110			47 987 916
12	0.577 034 884		2 567 652	642 5820	+ 0006	0.214 227 677	
11		38 109 489		646 9764			47 037 148
10	0.538 925 395		2 590 056	648 3502	- 0002	0.261 264 825	
9		40 699 545		646 3794			45 783 615
8	0.498 225 850		2 559 228	640 7748	+ 0003	0.307 048 440	
7		43 258 773		631 2987			44 208 000
6	0.454 967 077		2 466 987	617 7799	- 0014	0.351 256 440	
5		45 725 760		600 1299			42 304 346
4	0.409 241 317		2 309 397	578 3541	- 0025	0.393 560 786	
3		48 035 157		552 5614			40 083 661
2	0.361 206 160		2 088 383	522 9667	- 0015	0.433 644 447	
1		50 123 540		489 8897			37 575 753
0	0.311 082 620		1 812 413	453 7459	- 0013	0.471 220 200	
+		51 935 953		415 0328			34 828 443
1	0.259 146 667		1 495 836	374 3112	- 0011	0.506 048 643	
2		53 431 789		332 1819			31 903 887
3	0.205 714 878		1 156 866	289 2621	- 0016	0.537 952 530	
4		54 588 655		246 1515			28 872 603
5	0.151 126 223		814 765	203 4591	+ 0003	0.566 825 133	
6		55 403 420		161 6850			25 806 467
7	0.095 722 803		487 007	121 3051	- 0003	0.592 631 600	
8		55 890 427		82 7121			22 772 151
9	+ 0.039 832 376		- 187 223	46 2206	0000	0.615 403 751	
10		56 077 650		12 0697			19 826 225
11	- 0.016 245 274		+ 75 711	19 5768	+ 0003	0.635 229 976	
12		56 001 939		48 6274			17 012 447
13	0.072 247 213		297 615	75 0538	+ 0002	0.652 242 423	
14		55 704 324		98 8802			14 361 283
15	0.127 951 537		478 255	120 1726	+ 0012	0.666 603 706	
16		55 226 069		139 0308			11 890 933
17	0.183 177 606		620 149	155 5793	+ 0005	0.678 494 639	
18		54 605 920		169 9601			9 609 301
19	0.237 783 526		727 448	182 3260	- 0008	0.688 103 940	
20		53 878 472		192 8351			7 516 333
21	0.291 661 998		805 039	201 6458	+ 0018	0.695 620 273	
22		53 073 433		208 9141			5 606 273
23	0.344 735 431		857 911	214 7902	+ 0009	0.701 226 546	
24		52 215 522		219 4174			3 869 610
25	0.396 950 953		890 729	222 9298	+ 0005	0.705 096 156	
26		- 51 324 793		225 4525			- 2 294 644
27	+ 0.448 275 746		+ 907 635	227 1009	0000	- 0.707 390 800	
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TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	α .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
- 362 829	- 98 1601 90 9685 82 7317	+ 0002	+ 0'176 387 346	+ 3 881 343	- 358 877	- 84 2730 89 6414 95 3210	+ 0002	- 29 28 27
292 131	73 3469 62 7060	- 0005	0'179 909 812	3 522 466	405 606	101 3201 107 6443	+ 0005	26 25
201 298	50 6961 37 2010	- 0012	0'183 026 672	3 116 860	457 513	114 2965 121 2757	0000	24 23
- 86 689	22 1024 5 2833	- 0001	0'185 686 019	2 659 347	514 613	128 5758 136 1852	+ 0005	22 21
+ 55 420	+ 13 3701 33 9635	+ 0004	0'187 830 753	2 144 734	576 604	144 0850 152 2484	+ 0004	20 19
228 473	56 5908 81 3281	+ 0002	0'189 398 883	1 568 130	642 733	160 6387 169 2088	- 0016	18 17
435 093	108 2275 137 3101	+ 0002	0'190 324 280	925 397	711 648	177 8996 186 6393	+ 0007	16 15
676 334	168 5815 201 9078	+ 0001	0'190 538 029	+ 213 749	781 234	195 3424 203 9096	+ 0003	14 13
950 768	237 2408 274 3778	- 0008	0'189 970 544	- 567 485	848 540	212 2285 220 1738	- 0004	12 11
1 253 533	313 0729 353 0102	+ 0008	0'188 554 519	1 416 025	909 789	227 6105 234 3953	- 0011	10 9
1 575 615	393 8030 434 9979	- 0009	0'186 228 705	2 325 814	960 583	240 3818 245 4246	- 0005	8 7
1 903 654	476 0815 516 4925	- 0006	0'182 942 308	3 286 397	996 331	249 3847 252 1362	+ 0008	6 5
2 220 685	555 6387 592 9158	+ 0007	0'178 659 580	4 282 728	1 012 892	253 5723 253 6112	0000	4 3
2 507 908	627 7315 659 5292	0000	0'173 363 960	5 295 620	1 007 337	252 2010 249 3238	0000	2 1
2 747 310	687 8112 712 1598	+ 0014	0'167 061 003	6 302 957	978 597	244 9980 239 2780	- 0008	0 + 1
2 924 556	732 2555 747 8868	+ 0016	0'159 779 449	7 281 554	927 822	232 2526 224 0410	- 0022	2 3
3 031 284	758 9571 765 4826	- 0004	0'151 570 073	8 209 376	858 274	214 7880 204 6568	+ 0002	4 5
3 066 136	767 5856 765 4825	+ 0003	0'142 502 423	9 067 650	774 765	193 8222 182 4635	+ 0003	6 7
3 034 316	759 4676 749 8964	- 0019	0'132 660 008	9 842 415	682 850	170 7572 158 8712	+ 0009	8 9
2 945 926	737 1665 721 6989	+ 0023	0'122 134 743	10 525 265	587 946	146 9587 135 1566	+ 0008	10 11
2 813 778	703 9186 684 2429	+ 0010	0'111 021 532	11 113 211	494 678	123 5859 112 3497	- 0001	12 13
2 651 164	663 0719 640 7794	+ 0021	0'099 413 643	11 607 889	406 601	101 5307 91 1906	- 0007	14 15
2 470 350	617 7068 594 1589	+ 0019	0'087 399 153	12 014 490	326 052	81 3749 72 1125	- 0009	16 17
2 281 632	570 4027 546 6681	+ 0004	0'075 058 611	12 340 542	254 250	63 4192 55 2999	- 0008	18 19
2 092 968	523 1485 500 0041	+ 0012	0'062 463 819	12 594 792	191 555	47 7494 40 7556	+ 0007	20 21
1 910 060	477 3642 455 3306	+ 0031	0'049 677 473	12 786 346	137 716	34 3004 28 3613	- 0017	22 23
1 736 663	433 9808 413 3714	+ 0006	0'036 753 410	12 924 063	92 116	22 9131 17 9287	- 0002	24 25
1 574 966	393 5410 374 5131	+ 0005	0'023 737 231	13 016 179	53 924	13 3796 9 2373	- 0012	26 27
+1 426 007	+ 356 2985	+ 0010	+ 0'010 667 128	-13 070 103	- 22 244	- 5 4734	- 0005	+ 28

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	γ .	First Difference.
+ 28	- 0.448 275 746	- 50 417 158	+ 907 635	+ 227 1009	0000	- 0.707 390 800	- 868 637
29				227 9807			
30	0.498 692 904		912 166	228 1879	+ 0002	0.708 259 437	+ 421 369
31		49 504 992		227 8097			
32	0.548 197 896		3 622 001	907 2618	- 0007	0.707 838 068	
34		96 300 149		895 3105			4 231 242
36	0.644 498 045		3 509 254	878 2215	+ 0004	0.703 606 826	8 061 266
38		92 790 895		857 5009			11 205 732
40	0.737 288 940		3 335 742	834 3234	- 0006	0.695 545 560	13 798 327
42		89 455 153		809 5937			15 946 320
44	0.826 744 093		3 135 674	784 0032	- 0003	0.684 339 828	17 734 894
46		86 319 479		758 0736			19 231 472
48	0.913 063 572		2 929 111	732 1939	- 0004	0.670 541 501	20 489 463
50		83 390 368		706 6492			21 551 315
52	0.996 453 940		2 727 263	681 6445	- 0011	0.654 595 181	22 450 929
54		80 663 105		657 3237			23 215 528
56	1.077 117 045		2 535 975	633 7835	- 0003	0.636 860 287	23 867 109
58		78 127 130		611 0840			
60	1.155 244 175		2 357 927	589 2596	- 0011	0.617 628 815	49 323 038
62		75 769 203		568 3227			50 962 831
64	1.231 013 378		2 193 963	548 2722	- 0013	0.597 139 352	52 164 653
66		73 575 240		529 0946			53 041 535
68	1.304 588 618		2 043 909	510 7703	- 0014	0.575 588 037	53 673 684
70		71 531 331		493 2724			54 119 087
72	1.376 119 949		1 907 052	476 5717	+ 0001	0.553 137 108	54 420 387
74		69 624 279		460 6363			54 609 416
76	1.445 744 228		1 782 432	445 4332	- 0005	0.529 921 580	54 710 264
78		67 841 847		430 9288			54 741 385
80	1.513 586 075		6 686 097	1 668 992	+ 0005	0.506 054 471	
84		130 780 029		1 565 682			109 365 554
88	1.644 366 104		5 894 201	1 471 500	+ 001	0.456 731 433	108 956 505
92		124 885 828		1 385 520			108 340 063
96	1.769 251 932		5 234 194	1 306 898	000	0.405 768 602	
100		119 651 634		1 234 878			107 590 595
104	1.888 903 566		4 680 439	1 168 780	+ 001	0.353 603 949	
108		114 971 195		1 108 002			
112	2.003 874 761		4 212 333	1 052 007	+ 003	0.300 562 414	
116		110 758 862		1 000 320			
120	2.114 633 623		3 813 591	952 520	+ 001	0.246 888 730	
124		106 945 271		908 232			
128	2.221 578 894		3 471 383	867 125	+ 001	0.192 769 643	
132		103 473 888		828 902			
136	2.325 052 782		3 175 594	793 301	- 002	0.138 349 256	
140		100 298 294		760 088			
144	2.425 351 076		2 918 204	0 729 053	- 002	0.083 739 840	
148		97 380 090		700 008			
152	2.522 731 166		2 692 818	672 786	- 002	- 0.029 029 576	
156		94 687 272		647 236			
160	2.617 418 438		9 999 907	2 494 298	- 003	+ 0.025 711 809	
168		182 067 455		2 318 492			
176	2.799 485 893		8 664 581	2 162 009	000	0.135 077 363	
184		173 402 874		2 022 071			
192	2.972 888 767		7 597 848	1 896 378	- 002	0.244 033 868	
200		165 805 026		1 783 019			
208	3.138 693 793		6 730 963	1 680 394	000	0.352 373 931	
216		159 074 063		1 587 156			
224	3.297 767 856		6 015 935	1 502 164	- 004	0.459 964 526	
232		-153 058 128		1 424 447			
+ 240	- 3.450 825 984		+ 5 418 429	+1 353 174	- 003	+ 0.566 721 645	+106 757 119

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	α .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
+1 426 007	+ 356 2985	+ 0010	+0°010 667 128	-13 092 347	- 22 244	- 5 4734	- 0005	+ 28
1 290 006	338 8979	0000	-0°002 425 219	13 088 531	- 2 0604	2 0604	- 0004	29
	322 3036				+ 1 0286	1 0286		30
	306 5009				3 8188	3 8188		31
4 678 510	1 166 6351	+ 0015	0°015 513 750	26 084 577	96 301	25 0857	+ 0016	32
3 830 024	1 055 2353	- 0007	0°041 598 327	25 862 750	221 827	42 3156	+ 0010	34
3 144 466	954 9578	- 0016	0°067 461 077	25 561 158	301 592	56 1615	- 0002	36
2 592 595	864 8724	- 0015	0°093 022 235	25 211 224	349 934	67 1894	- 0009	38
2 147 993	784 0337	- 0024	0°118 233 459	24 834 271	376 953	75 8806	- 0002	40
1 788 574	711 5246	- 0006	0°143 067 730	24 444 636	389 635	82 6412	- 0005	42
1 496 578	646 4812	- 0005	0°167 512 366	24 051 874	392 762	87 8104	+ 0008	44
1 257 991	588 1065	- 0003	0°191 564 240	23 662 270	389 604	91 6711	+ 0003	46
1 061 852	535 6752	+ 0007	0°215 226 510	23 279 886	382 384	94 4580	+ 0003	48
899 614	488 5337	+ 0017	0°238 506 396	22 907 265	372 621	96 3657	+ 0004	50
764 599	446 0973	+ 0029	0°261 413 661	22 545 918	361 347	97 5550	+ 0012	52
651 581	407 8451	+ 0034	0°283 959 579	22 196 651	349 267	98 1588	+ 0008	54
	373 3158					98 2869		56
	342 1008					98 0302		58
	313 8391					97 4632		60
	288 2117					96 6477		62
	264 9371					95 6349		64
	243 7668					94 4668		66
	224 4815					93 1784		68
	206 8859					91 7978		70
	190 8089					90 3493		72
	176 0982					88 8518		74
	162 6183					87 3219		76
	150 2496					85 7722		78
2 240 401	556 449	+ 0204	0°306 156 230	43 395 160	1 347 409	336 856	+ 0018	80
1 639 793	475 939	+ 018	0°349 551 390	42 146 007	1 249 153	324 431	- 002	84
1 201 822	407 462	+ 016	0°391 697 397	40 990 193	1 155 814	312 204	000	88
876 882	348 948	+ 014	0°432 687 590	39 920 467	1 069 726	300 312		92
632 149	298 725	+ 010	0°472 608 057	38 928 989	991 478	288 837	+ 001	96
445 403	255 440	+ 005	0°511 537 046	38 008 134	920 855	277 828	000	100
301 300	217 991	- 001	0°549 545 180	37 150 844	857 290	267 308	+ 001	104
189 029	185 474	- 003	0°586 696 024	36 350 743	800 101	257 283	- 001	108
100 848	157 147	- 002	0°623 046 767	35 602 147	748 596	247 751	- 001	112
+ 31 121	132 391	- 004	0°658 648 914	34 900 018	702 129	238 696	- 002	116
	110 694					230 103		120
	91 629					221 953		124
	74 833					214 222		128
	60 004					206 892		132
	46 884					199 936		136
	35 254					193 336		140
	24 926					187 070		144
	15 740					181 119		148
	7 558					175 462		152
	261					170 084		156
- 86 095	24 318	- 001	0°693 548 932	67 857 812	2 644 353	660 111	+ 008	160
409 049	68 577	000	0°761 406 744	65 505 212	2 352 600	622 012	- 008	168
616 442	104 016	- 001	0°826 911 956	63 394 926	2 110 286	587 382	000	176
749 468	132 440	- 001	0°890 306 882	61 488 017	1 906 909	555 816	000	184
833 476	155 243	+ 001	0°951 794 899	-59 753 535	1 734 482	526 968	- 001	192
- 884 564	173 517	+ 005	-1°011 548 434			500 534	000	200
	188 116					476 247		208
	199 720					453 881		216
	208 873					433 234		224
	216 009					414 132		232
	221 484					396 419		240

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	β .	First Difference.
+ 240	— 3°45' 825 984	— 147 639 699	+ 5 418 429	+ 1 353 174	— 003	+ 0°56' 721 645	+ 105 872 555
248				1 287 631			
256	3°59' 465 683		4 913 377	1 227 200	000	0°67' 594 200	104 959 352
264		142 726 322		1 171 346			
272	3°74' 192 005		4 482 127	1 119 605	— 003	0°77' 553 552	104 032 953
280		138 244 195		1 071 568			
288	3°87' 436 200		4 110 554	1 026 879	— 006	0°88' 586 505	103 104 057
296		134 133 641		985 222			
304	4°01' 569 841		3 787 803	946 321	— 011	0°98' 690 562	102 180 102
312		130 345 838		909 928			
320	4°14' 915 679		14 055 078	3 505 398	+ 196	1°08' 870 664	
336		250 424 401		3 256 686			201 632 135
352	4°39' 340 080		12 169 364	3 036 329	+ 014	1°28' 502 799	
368		238 255 037		2 840 034			198 096 195
384	4°63' 595 117		10 674 862	2 664 297	+ 018	1°48' 598 994	
400		227 580 175		2 506 252			194 702 465
416	4°86' 175 292		9 467 364	2 363 514	+ 012	1°68' 301 459	
432		218 112 811		2 234 096			191 459 400
448	5°07' 288 103		8 475 553	2 116 332	+ 013	1°87' 760 859	
464		209 637 258		2 008 806			188 366 018
480	5°28' 925 361		7 649 226	1 910 309	+ 009	2°06' 126 877	
496		201 988 032		1 819 811			185 416 275
512	5°48' 913 393		6 952 006	1 736 420	+ 002	2°24' 543 152	
528		195 036 026		1 659 357			182 601 547
544	5°68' 949 419		6 356 893	1 587 954	— 004	2°42' 144 699	
560		188 679 133		1 521 624			179 912 226
576	5°87' 628 552		5 843 538	1 459 855	— 002	2°60' 056 925	
592		182 835 595		1 402 202			177 338 851
608	6°05' 464 147		5 396 498	1 348 276	000	2°78' 395 776	
624		177 439 097		1 297 744			174 872 902
640	6°23' 903 244		20 061 974	1 250 309	+ 002	2°96' 268 678	
656				1 205 713			
672		340 212 718		1 163 729			342 742 439
688				1 124 157			
704	6°57' 115 962		17 430 364	4 349 308	+ 001	3°30' 011 117	
736		322 782 354		4 074 421			334 004 697
768	6°89' 898 316		15 336 811	3 828 042	— 002	3°63' 015 814	
800		307 445 543		3 606 304			325 916 893
832	7°20' 343 859		13 642 366	3 405 939	— 002	3°96' 932 707	
864		293 803 177		3 224 182			318 405 255
896	7°49' 147 036		12 249 094	3 058 700	— 001	4°28' 337 962	
928		281 554 083		2 907 511			311 402 713
960	7°77' 701 119		11 086 895	2 768 932	+ 001	4°59' 740 675	
992		— 270 467 188		2 641 521			+ 304 850 188
+ 1024	— 8°05' 168 307		+ 10 105 055	+ 2 524 046	+ 001	+ 4°89' 590 863	

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	z.	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
— 884 564	— 221 484	+ 005	— 1°011 548 434	— 58 166 605	+ 1 586 930	+ 396 419	000	+ 240
913 203	225 582	— 001	1°069 715 039	56 707 020	1 459 585	379 960	— 003	248
926 399	230 546	— 001	1°126 422 059	55 358 202	1 348 818	304 638	000	256
928 896	231 765	— 001	1°181 780 261	54 106 411	1 251 791	350 346	000	264
923 955	232 324	— 001	1°235 886 672	52 940 156	1 166 255	336 991	000	272
	232 337	— 001				324 490	000	280
	231 892	— 001				312 770	000	288
	231 068	— 001				301 764	000	296
	229 927	— 001				291 414	000	304
		— 001				281 666	000	312
3 652 024	913 884	000	1°288 826 828	102 676 708	4 369 859	1 090 407	+ 003	320
3 535 940	900 301	— 001	1°391 503 536	98 821 780	3 854 928	1 022 790	— 007	336
3 393 730	884 364	— 001	1°490 325 316	95 383 306	3 438 474	962 216	— 007	352
3 243 065	866 912	— 001	1°585 708 622	92 287 035	3 096 271	907 713	— 004	368
3 093 382	848 550	— 001	1°677 995 657	89 475 814	2 811 221	858 473	— 009	384
2 949 743	829 719	— 001	1°767 471 471	86 904 999	2 570 815	813 819	— 009	400
2 814 728	810 743	— 001	1°854 376 470	84 539 433	2 365 566	773 186	— 010	416
2 689 321	791 861	— 002	1°938 915 903	82 351 406	2 188 027	736 089	— 007	432
2 573 375	773 247	— 002	2°021 267 309	80 319 030	2 032 376	702 115	— 006	448
2 465 949	755 029	— 003	2°101 586 339	78 424 824	1 894 206	670 911	— 005	464
	737 299	— 003				642 160	— 005	480
	720 119	— 001				615 594	— 007	496
	703 530	— 001				590 903	— 005	512
	687 550	— 003				568 053	— 005	528
	672 182	— 003				546 668	— 006	544
	657 410	— 000				526 643	— 006	560
	643 210	— 003				507 825	— 005	576
	629 545	— 003				490 089	— 005	592
	616 373	— 003				473 329	— 005	608
	603 655	— 003				457 464	— 005	624
9 469 314	591 352	+ 017	2°180 011 163	151 649 771	7 094 083	442 418	+ 016	640
	579 428	— 007				428 140	— 011	656
	567 860	— 007				414 582	— 003	672
	556 629	— 007				401 704	— 003	688
8 737 742	2 183 186	— 007	2°331 660 934	145 406 020	6 243 751	1 558 491	— 003	704
8 087 804	2 099 600	— 004	2°477 066 954	139 854 988	5 551 032	1 467 772	— 003	736
7 511 638	2 020 797	— 000	2°616 921 942	134 871 563	4 983 425	1 385 811	— 003	768
7 002 542	1 946 614	— 002	2°751 793 505	130 358 187	4 513 376	1 311 641	— 003	800
6 552 525	1 876 858	— 000	2°882 151 692	— 126 239 182	4 119 005	1 244 344	— 002	832
— 6 153 451	1 811 308	— 004	— 3°008 390 874		+ 3 783 901	1 183 099	— 001	864
	1 749 713	— 002				1 127 173	— 001	896
	1 691 810	— 002				1 075 934	— 001	928
	1 637 337	— 000				1 028 834	— 001	960
	1 586 041	— 000				985 405	— 001	992
	1 537 683	— 004				945 245	— 001	1024

TABLE V.—*continued.*

Day.	x .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	y .	First Difference.
+ 1024	- 8°050 168 307		+10 105 055	+ 2 524 046	+ 001	+ 4°898 590 863	
1056		-260 362 133		2 415 443			+298 696 737
1088	8°310 530 440		9 266 318	2 314 792	000	5°197 287 600	
1120		251 095 815		2 221 291			292 898 782
1152	8°561 626 255		8 542 803	2 134 242	+ 002	5°490 186 382	
1184		242 553 012		2 053 030			287 419 022
1216	8°804 179 267		7 913 289	1 977 116	- 002	5°777 605 404	
1248		234 639 723		1 906 025			282 225 476
1280	9°038 818 990		29 510 135	7 361 358	- 012	6°059 830 880	
1344		447 682 600		6 874 120			549 880 510
1408	9°486 501 59		25 811 560	6 441 335	- 004	6°609 711 39	
1472		421 871 04		6 054 766			531 915 31
1536	9°908 372 63		22 864 87	5 707 712	+ 005	7°141 626 70	
1600		399 006 17		5 394 685			515 452 56
1664	10°307 378 80		20 470 25	5 111 142	+ 015	7°657 079 26	
1728		378 535 92		4 853 296			500 261 58
1792	10°685 914 72		18 491 66	4 617 961	+ 010	8°157 340 84	
1856		360 044 26		4 402 452			486 159 63
1920	11°045 958 98		16 833 48	4 204 475	- 003	8°643 500 47	
1984		343 210 78		4 022 075			472 999 67
2048	11°389 169 76		15 426 71	3 853 567	- 001	9°116 500 14	
2112		327 784 07		3 697 500			460 661 81
2176	11°716 953 83		14 220 49	3 552 604	- 001	9°577 161 95	
2240		313 563 58		3 417 781			449 047 09
2304	12°030 517 41		13 176 49	3 292 061	+ 010	10°026 209 04	
2368		300 387 09		3 174 597			438 072 96
2432	12°330 904 50		12 265 40	3 064 641	+ 008	10°464 282 00	
2496		288 121 69		2 961 529			427 669 89
2560	12°619 026 19		45 949 84	11 464 43	- 002	10°891 951 89	
2688		542 558 94		10 755 57			826 127 66
2816	13°161 585 13		40 564 24	10 124 50	+ 02	11°718 079 55	
2944		501 994 70		9 559 69			790 041 14
3072	13°663 579 83		36 255 85	9 051 69	+ 01	12°508 120 69	
3200		465 738 85		8 592 79			756 868 64
3328	14°129 318 68		32 743 48	8 176 54	- 01	13°264 989 33	
3456		432 995 37		7 797 60			726 138 80
3584	14°562 314 05		29 834 71	7 451 44	- 01	13°991 128 13	
3712		403 160 66		7 134 22			697 482 04
3840	14°965 474 71		27 393 46	6 842 66	00	14°688 610 17	
3968		375 767 20		6 573 92			670 602 75
4096	15°341 241 91		25 320 39	6 325 54	- 01	15°359 212 92	
4224		350 446 81		6 095 38			645 260 51
4352	15°691 688 72		23 540 82	5 881 54	+ 01	16°004 473 43	
4480		-326 905 99		+ 5 682 37			+621 257 43
+ 4608	-16°018 594 71		+ 21 997 85			+16°625 730 86	

TABLE V.—*continued.*

Second Difference.	Second Difference New Computation.	New minus Old.	z .	First Difference.	Second Difference.	Second Difference New Computation.	New minus Old.	Day.
- 6 153 451	-1 537 683 1 492 040	+ 004	-3'008 390 874	-122 455 281	+ 3 783 901	+ 945 245 908 005	- 001	+ 1024 1056
5 797 955	1 448 908 1 408 098	+ 001	3'130 846 155	118 959 372	3 495 909	873 387 841 128	- 002	1088 1120
5 479 760	1 369 439 1 332 774	+ 010	3'249 805 527	115 713 420	3 245 952	811 004 782 814	- 002	1152 1184
5 193 546	1 297 961 1 264 869	- 019	3'365 518 947	112 686 279	3 027 141	756 383 731 555	- 006	1216 1248
19 763 988	4 935 010 4 700 416	- 013	3'478 205 226	217 041 574	11 358 125	2 834 131 2 662 749	+ 021	1280 1344
17 965 200	4 486 720 4 291 352	- 008	3'695 246 80	206 987 33	10 054 244	2 509 660 2 372 172	- 003	1408 1472
16 462 75	4 112 117 3 947 169	- 005	3'902 234 13	197 983 35	9 003 98	2 248 095 2 135 625	+ 007	1536 1600
15 190 98	3 794 913 3 653 989	- 004	4'100 217 48	189 841 48	8 141 87	2 033 257 1 939 740	+ 009	1664 1728
14 101 95	3 523 209 3 401 556	- 013	4'290 058 96	182 418 56	7 422 92	1 854 011 1 775 172	+ 014	1792 1856
13 159 96	3 288 130 3 182 148	- 004	4'472 477 52	175 603 30	6 815 26	1 702 451 1 635 190	+ 004	1920 1984
12 337 86	3 082 927 2 989 853	+ 005	4'648 080 82	169 307 65	6 295 65	1 572 816 1 514 837	+ 009	2048 2112
11 614 72	2 902 394 2 820 068	+ 011	4'817 388 47	163 460 78	5 846 87	1 460 820 1 410 387	- 006	2176 2240
10 974 13	2 742 449 2 669 156	+ 008	4'980 849 25	158 005 00	5 455 78	1 363 205 1 318 982	- 001	2304 2368
10 403 07	2 599 848 2 534 223	- 005	5'138 854 25	152 892 70	5 112 30	1 277 458 1 238 403	+ 001	2432 2496
39 615 19	9 891 14 9 429 81	+ 025	5'291 746 95	291 630 17	19 267 53	4 808 53 4 538 17	+ 001	2560 2688
36 086 52	9 012 15 8 632 42	- 01	5'583 377 12	274 421 08	17 209 09	4 296 20 4 078 53	+ 01	2816 2944
33 172 50	8 285 84 7 968 41	- 01	5'857 798 20	258 875 67	15 545 41	3 881 83 3 703 33	+ 11	3072 3200
30 729 84	7 676 74 7 407 95	00	6'116 673 87	244 698 72	14 176 95	3 540 74 3 392 13	- 01	3328 3456
28 656 76	7 159 60 6 929 60	+ 01	6'361 372 59	231 664 21	13 034 51	3 255 88 3 130 61	- 01	3584 3712
26 879 29	6 716 09 6 517 52	- 01	6'593 036 80	219 595 00	12 069 21	3 015 12 2 908 38	+ 02	3840 3968
25 342 24	6 332 49 6 159 76	- 02	6'812 631 80	208 349 95	11 245 05	2 809 50 2 717 68	+ 01	4096 4224
24 003 08	5 998 22 -5 846 89	- 01	7'020 981 75	-197 815 41	10 534 54	2 632 21 +2 552 46	+ 02	4352 4480
- 22 827 67			-7'218 797 16		+ 9 916 00			+ 4608

TABLE V.—continued.

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	δ .	First Difference.
+ 4736		-304 908 14		- 1 349 13		+ 17'224 160 62	+ 598 429 76
4864	-16'323 502 85		+ 20 648 72		+ 162 15		
4992		284 259 42		1 186 98		17'800 802 37	576 641 75
5120	16'607 762 27		19 461 74		137 48		
5248		264 797 68		1 049 50		18'356 581 83	555 779 46
5376	16'872 559 95		18 412 24		116 95		
5504		246 385 44		932 55		18'892 326 90	535 745 07
5632	17'118 945 39		17 479 69		99 56		
5760		228 905 75		832 99		19'408 780 10	516 453 20
5888	17'347 851 14		16 646 70		85 43		
6016		212 259 05		747 56		19'906 609 11	497 829 01
6144	17'560 110 19		15 899 14		73 46		
6272		196 359 91		674 10		20'386 415 83	479 806 72
6400	17'756 470 10		15 225 04		63 73		
6528		181 134 87		610 37		20'848 744 56	462 328 73
6656	17'937 604 97		14 614 67		55 88		
6784		166 520 20		554 49		21'294 088 83	445 344 27
6912	18'104 125 17		14 060 18		49 28		
7040		152 460 02		505 21		21'722 897 22	428 808 39
7168	18'256 585 19		13 554 97		43 97		
7296		138 905 05		461 24		22'135 578 22	412 681 00
7424	18'395 490 24		13 093 73		38 76		
7552		125 811 32		422 48		22'532 504 32	396 926 10
7680	18'521 301 56		12 671 25		35 37		
7808		113 140 07		387 11		22'914 015 67	381 511 35
7936	18'634 441 63		12 284 14		31 68		
8064		100 855 93		355 43		23'280 422 64	366 406 97
8192	18'735 297 56		11 928 71		28 41		
8320		88 927 22		327 02		23'632 008 25	351 585 61
8448	18'824 224 78		11 601 69		25 37		
8576		77 325 53		301 65		23'969 030 28	337 022 03
8704	18'901 550 31		11 300 04		22 77		
8832		66 025 49		278 88		24'291 723 34	322 693 06
8960	18'967 575 80		11 021 16		20 89		
9088		55 004 33		257 99		24'600 300 98	308 577 64
9216	19'022 580 13		10 763 17		19 54		
9344		44 241 16		238 45		24'894 957 65	294 656 67
9472	19'066 821 29		10 524 72		18 36		
9600		33 716 44		220 09		25'175 870 11	280 912 46
9728	19'100 537 73		10 304 63		17 04		
9856		23 411 81		203 05		25'443 198 27	267 328 16
9984	19'123 949 54		10 101 58		15 63		
10112		13 310 23		187 42		25'697 085 79	253 887 52
10240	19'137 259 77		9 914 16		14 31		
10368		- 3 396 07		173 11		25'937 660 71	240 574 92
10496	19'140 655 84		9 741 05		13 15		
10624		+ 6 344 98		159 96		26'165 036 15	227 375 44
10752	19'134 310 86		9 581 09		12 14		
10880		15 926 07		147 82		26'379 311 21	214 275 06
11008	19'118 384 79		9 433 27		11 30		
11136		25 359 34		136 52		26'580 571 57	201 260 36
11264	19'093 025 45		9 296 75		10 89		
11392		34 656 09		125 63		26'768 890 25	188 318 68
11520	19'058 369 36		9 171 12		10 18		
11648		43 827 21		115 45		26'944 328 09	175 437 84
11776	19'014 542 15		9 055 67		9 84		
11904		52 882 88		105 61		+27'106 934 19	162 606 10
12032	- 18'961 659 27		+ 8 950 06		+ 9 44		
+12160		+ 61 832 94		- 96 17			+ 149 811 96

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	<i>z.</i>	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
- 21 788 01	+1 039 66	- 113 94	-7.406 696 57	-187 899 41	+ 9 372 52	- 543 48	+ 62 69	+ 4736
20 862 29	925 72	97 82	7.585 223 46	178 526 89	8 891 73	480 79	53 67	4864
20 034 39	827 90	85 38	7.754 858 62	169 635 16	8 464 61	427 12	46 59	4992
19 291 87	742 52	74 84	7.916 029 17	161 170 55	8 084 08	380 53	39 99	5120
18 624 19	667 68	65 78	8.069 115 64	153 086 47	7 743 54	340 54	34 72	5248
18 022 29	601 90	57 60	8.214 458 57	145 342 93	7 437 72	305 82	29 90	5376
17 477 99	544 30	50 77	8.352 363 78	137 905 21	7 161 80	275 92	26 04	5504
16 984 46	493 53	44 95	8.483 107 19	130 743 41	6 911 92	249 88	22 85	5632
16 535 88	448 58	40 09	8.606 938 68	123 831 49	6 684 89	227 03	20 17	5760
16 127 39	408 49	36 00	8.724 085 28	117 146 60	6 478 03	206 86	18 10	5888
15 754 90	372 49	32 34	8.834 753 85	110 668 57	6 289 27	188 76	15 91	6016
15 414 75	340 15	29 78	8.939 133 15	104 379 30	6 116 42	172 85	14 76	6144
15 104 38	310 37	27 35	9.037 396 03	98 262 88	5 958 33	158 09	13 37	6272
14 821 36	283 02	25 24	9.129 700 58	92 304 55	5 813 61	144 72	12 13	6400
14 563 58	257 78	23 17	9.216 191 52	86 490 94	5 681 02	132 59	10 91	6528
14 328 97	234 61	21 06	9.297 001 44	80 809 92	5 559 34	121 68	9 72	6656
14 115 42	213 55	19 10	9.372 252 02	75 250 58	5 447 38	111 96	8 74	6784
13 920 97	194 45	17 69	9.442 055 22	69 803 20	5 344 16	103 22	8 15	6912
13 744 21	176 76	16 85	9.506 514 26	64 459 04	5 249 09	95 07	7 80	7040
13 584 30	159 91	16 25	9.565 724 21	59 209 95	5 161 82	87 27	7 50	7168
13 440 64	143 66	15 62	9.619 772 34	54 048 13	5 082 05	79 77	7 05	7296
13 312 60	128 04	14 92	9.668 738 42	48 966 08	5 009 33	72 72	6 59	7424
13 199 48	113 12	14 02	9.712 695 17	43 956 75	4 943 20	66 13	6 07	7552
13 100 38	99 10	13 42	9.751 708 72	39 013 55	4 883 14	60 06	5 68	7680
13 014 70	85 68	12 66	9.785 839 13	34 130 41	4 828 76	54 38	5 26	7808
12 941 68	73 02	12 18	9.815 140 78	29 301 65	4 779 64	49 12	4 98	7936
12 880 84	60 84	11 74	9.839 662 79	24 522 01	4 735 50	44 14	4 80	8064
12 831 74	49 10	11 50	9.859 449 30	19 786 51	4 696 16	39 34	4 59	8192
- 12 794 14	37 60	- 11 41	+9.874 539 65	15 090 35	+ 4 661 41	34 75	+ 4 57	8320
	+ 26 19			- 10 428 94		- 30 18		8448
								8576
								8704
								8832
								8960
								9088
								9216
								9344
								9472
								9600
								9728
								9856
								9984
								10112
								10240
								10368
								10496
								10624
								10752
								10880
								11008
								11136
								11264
								11392
								11520
								11648
								11776
								11904
								12032
								+12160

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	β .	First Difference.
+12160		+ 61 832 94		- 96 17		+149 811 96	
12288	- 18°899 826 33	70 686 83	+ 8 853 89	86 94	+ 9 23	+27°256 746 15	
12416			8 766 95	78 46	8 48	27°393 790 16	137 044 01
12544	18°829 139 50	79 453 78	8 688 49	70 59	7 87	27°518 080 82	124 290 66
12672		88 142 27	8 617 90	63 12	7 47	27°629 621 27	111 540 45
12800	18°749 685 72	96 760 17	8 554 78	55 81	7 31	27°728 403 32	98 782 05
12928		105 314 95	8 498 97	48 33	7 48	27°814 407 79	86 004 47
13056	18°661 543 45	113 813 92	8 450 64	40 80	7 53	27°887 604 72	73 196 93
13184		122 264 56	8 409 84	33 37	7 43	27°947 953 59	60 348 87
13312	18°564 783 28	130 674 40	8 376 47	26 16	7 21	27°995 402 67	47 449 08
13440		139 050 87	8 350 31	19 31	6 85	28°029 888 61	34 485 94
13568	18°459 468 33	147 401 18	8 331 00	12 14	7 17	28°051 336 00	21 447 39
13696		155 732 18	8 318 86	5 46	6 68	28°059 656 82	+ 8 320 82
13824	18°345 654 41	164 051 04	8 313 40	+ 1 33	6 79	28°054 750 96	- 4 905 86
13952		172 364 44	8 314 73	8 29	6 96	28°036 505 08	18 245 88
14080	18°223 389 85	180 679 17	8 323 02	15 54	7 25	28°004 792 45	31 712 63
14208		189 002 19	8 338 56	23 04	7 50	27°959 472 46	45 319 99
14336	18°092 715 45	197 340 75	8 361 60	30 85	7 81	27°900 389 92	59 082 54
14464		205 702 35	8 392 45	38 87	8 02	27°827 374 17	73 015 75
14592	17°953 664 58	214 094 80	8 431 32	46 87	8 00	27°740 237 92	87 136 25
14720		222 526 12	8 478 19	54 81	7 94	27°638 776 00	101 461 92
14848	17°806 263 40	231 004 31	8 533 00	62 91	8 10	27°522 764 04	116 011 96
14976		239 537 31	8 595 91	71 62	8 71	27°391 957 32	130 806 72
15104	17°650 531 22	248 133 22	8 667 53	81 16	9 54	27°246 089 69	145 867 63
15232		256 800 75	8 748 69	91 44	10 28	27°084 872 23	161 217 46
15360	17°486 480 18	265 549 44	8 840 13	102 24	10 80	26°907 991 33	176 880 90
15488		274 389 57	8 942 37	113 53	11 29	26°715 106 18	192 885 15
15616	17°314 115 74	283 331 94	9 055 90	125 41	11 88	26°505 846 02	209 260 16
15744		292 387 84	9 181 31	138 12	12 71	26°279 807 22	226 038 80
15872	17°133 436 57	301 569 15	9 319 43	151 87	13 75	26°036 550 24	243 256 98
16000		310 888 58	+ 9 471 30	+ 166 94	+ 15 07	+25°775 596 12	260 954 12
16128	16°944 434 38	+320 359 88					-279 173 65
16256							
16384	16°747 093 63						
16512	16°541 391 28						
16640							
16768	16°327 296 48						
16896	16°104 770 36						
17024							
17152	15°873 766 05						
17280							
17408	15°634 228 74						
17536							
17664	15°386 095 52						
17792							
17920	15°129 294 77						
18048							
18176	14°863 745 33						
18304							
18432	14°589 355 76						
18560							
18688	14°306 023 82						
18816							
18944	14°013 635 98						
19072							
19200	13°712 066 83						
19328							
19456	- 13°401 178 25						
19584							
19712							
+19840							

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	z.	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
- 12 767 95	+ 26 19	- 11 59	- 9'884 968 59	- 10 428 94	+ 4 631 23	- 30 18	+ 4 62	+ 12160
	14 60			5 797 71		25 56		12288
12 753 35	+ 3 14	11 46	9'890 766 30	- 1 192 04	4 605 67	21 17	4 39	12416
12 750 21	- 8 19	11 33	9'891 958 34	+ 3 392 46	4 584 50	17 00	4 17	12544
12 758 40	19 18	10 99	9'888 565 88	7 959 96	4 567 50	13 08	3 92	12672
12 777 58	29 96	10 78	9'880 605 92	12 514 38	4 554 42	9 39	3 69	12800
12 807 54	40 52	10 56	9'868 091 54	17 059 41	4 545 03	5 62	3 77	12928
12 848 06	51 73	11 21	9'851 032 13	21 598 82	4 539 41	- 1 71	3 91	13056
12 899 79	63 35	11 62	9'829 433 31	26 136 52	4 537 70	+ 2 26	3 97	13184
12 963 14	75 41	12 06	9'803 296 79	30 676 48	4 539 96	6 56	4 30	13312
13 038 55	88 02	12 61	9'772 620 31	35 223 00	4 546 52	10 66	4 10	13440
13 126 57	100 11	12 09	9'737 397 31	39 780 18	4 557 18	14 62	3 96	13568
13 226 68	113 34	13 23	9'697 617 13	44 351 98	4 571 80	18 84	4 22	13696
13 340 02	126 73	13 39	9'653 265 15	48 942 62	4 590 64	22 99	4 15	13824
13 466 75	140 61	13 88	9'604 322 53	53 556 25	4 613 63	27 26	4 27	13952
13 607 36	155 19	14 58	9'550 766 28	58 197 14	4 640 89	31 73	4 47	14080
13 762 55	170 66	15 47	9'492 569 14	62 869 76	4 672 62	36 45	4 72	14208
13 933 21	187 29	16 63	9'429 699 38	67 578 83	4 709 07	41 53	5 08	14336
14 120 50	205 17	17 88	9'362 120 55	72 329 43	4 750 60	46 94	5 41	14464
14 325 67	224 37	19 20	9'289 791 12	77 126 97	4 797 54	52 64	5 70	14592
14 550 04	244 72	20 35	9'212 664 15	81 977 15	4 850 18	58 45	5 81	14720
14 794 76	266 15	21 43	9'130 687 00	86 885 78	4 908 63	64 52	6 07	14848
15 060 91	288 92	22 77	9'043 801 22	91 858 93	4 973 15	70 74	6 22	14976
15 349 83	313 61	24 69	8'951 942 29	96 902 82	5 043 89	77 55	6 81	15104
15 663 44	340 81	27 20	8'855 039 47	102 024 26	5 121 44	85 14	7 59	15232
16 004 25	370 76	29 95	8'753 015 21	107 230 84	5 206 58	93 42	8 28	15360
16 375 01	403 63	32 87	8'645 784 37	112 530 84	5 300 00	102 38	8 96	15488
16 778 64	439 54	35 91	8'533 253 53	117 933 22	5 402 38	112 02	9 64	15616
17 218 18	478 96	39 42	8'415 320 31	123 447 62	5 514 40	122 41	10 39	15744
17 697 14	522 39	43 43	8'291 872 69	129 084 43	5 636 81	133 78	11 37	15872
- 18 219 53	- 570 58	- 48 49	- 8'162 788 26	+ 134 855 02	+ 5 770 59	+ 146 30	+ 12 52	15999
								+ 19840

TABLE V.—continued.

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	γ .	First Difference.
+19840		+320 359 88		+ 166 94			-279 173 65
19968	- 13°080 818 37		+ 9 638 24		+ 16 62	+25°496 422 47	
20096		329 998 12		183 56			297 963 76
20224	12°750 820 25		9 821 80		18 44	25°198 458 71	
20352		339 819 92		202 00			317 378 32
20480	12°411 000 33		10 023 80		20 55	24°881 080 39	
20608		349 843 72		222 55			337 477 98
20736	12°061 156 61		10 246 35		22 87	24°543 602 41	
20864		360 090 07		245 42			358 331 56
20992	11°701 066 54		10 491 77		25 17	24°185 270 85	
21120		370 581 84		270 59			380 017 75
21248	11°330 484 70		10 762 36		27 35	23°805 253 10	
21376		381 344 20		297 94			402 626 90
21504	10°949 140 50		11 060 30		29 72	23°402 626 20	
21632		392 404 50		327 66			426 263 12
21760	10°556 736 00		11 387 96		33 35	22°976 363 08	
21888		403 792 46		361 01			451 045 86
22016	10°152 943 54		11 748 97		38 98	22°525 317 22	
22144		415 541 43		399 99			477 113 01
22272	9°737 402 11		12 148 96		45 86	22°048 204 21	
22400		427 690 39		445 85			504 625 69
22528	9°309 711 72		12 594 81		52 97	21°543 578 52	
22656		440 285 20		498 82			533 775 67
22784	8°869 426 52		13 093 63		60 56	21°009 802 85	
22912		453 378 83		559 38			564 793 97
23040	8°416 047 69		13 653 01		69 81	20°445 008 88	
23168		467 031 84		629 19			597 960 72
23296	7°949 015 85		14 282 20		80 74	19°847 048 16	
23424		481 314 04		709 93			633 619 44
23552	7°467 701 81		14 992 13		94 89	19°213 428 72	
23680		496 306 17		804 82			672 195 02
23808	6°971 395 64		15 796 95		112 69	18°541 233 70	
23936		512 103 12		917 51			714 221 61
24064	6°459 292 52		16 714 46		135 04	17°827 012 09	
24192		528 817 58		1 052 55			760 382 61
24320	5°930 474 94		17 767 01		163 08	17°066 629 48	
24448		546 584 59		1 215 63			811 571 05
24576	5°383 890 35		18 982 64		197 49	16°255 058 43	
24704		565 567 23		1 413 12			868 982 42
24832	4°818 323 12		20 395 76		237 38	15°386 076 01	
24960		585 962 99		1 650 50			934 265 43
25088	4°232 360 13		22 046 26		275 43	14°451 810 58	
25152		301 135 29					494 690 68
25216	5°931 224 84		5 738 67	1 925 93		13°957 119 90	
25280		306 873 96		249 76			515 085 54
25344	3°624 350 88		5 988 43		18 47	13°442 034 36	
25408		312 862 39		268 23			537 316 52
25472	3°311 488 49		6 256 66		17 03	12°904 717 84	
25536		319 119 05		285 26			561 718 56
25600	2°992 369 44		6 541 92		+ 11 83	12°342 999 28	
25664		325 660 97		297 09			588 721 74
25728	2°666 708 47		6 839 01		- 1 13	11°754 277 54	
25792		332 499 98		295 96			618 889 53
25856	2°334 208 49		7 134 97		30 04	11°135 388 01	
25920		339 634 95		265 92			652 977 21
25984	1°994 573 54		7 400 89		85 33	10°482 410 80	
26016		172 578 65					340 769 77
26048	1°821 994 89		1 878 54	180 59		10°141 641 03	
26080		174 457 19		19 48			351 252 32
26112	- 1°647 537 70		+ 1 898 02		- 10 60	+ 9°790 388 71	
+26144		+176 355 21		+ 8 88			-362 586 21

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	<i>z.</i>	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
-18 790 11	- 570 58	- 53 87	- 8°027 933 24	+134 855 02	+5 916 89	+ 146 30	+13 89	+19840
19 414 56	624 45	60 65	7°887 161 33	140 771 91	6 077 08	160 19	15 63	19968
20 099 66	685 10	68 82	7°740 312 34	146 848 99	6 252 90	175 82	17 71	20096
20 853 58	753 92	78 69	7°587 210 45	153 101 89	6 446 43	193 53	20 18	20224
21 686 19	832 61	90 35	7°427 662 13	159 548 32	6 660 14	213 71	23 13	20352
22 609 15	922 96	104 11	7°261 453 67	166 208 46	6 896 98	236 84	26 19	20480
23 636 22	1 027 07	119 45	7°088 348 23	173 105 44	7 160 01	263 03	29 56	20608
24 782 74	1 146 52	137 89	6°908 082 78	180 265 45	7 452 60	292 59	33 38	20736
26 067 15	1 284 41	161 12	6°720 364 73	187 718 05	7 778 57	325 97	38 63	20864
27 512 68	1 445 53	191 77	6°524 868 11	195 496 62	8 143 17	364 60	46 06	21120
29 149 98	1 637 30	231 02	6°321 228 32	203 639 79	8 553 83	410 66	55 29	21248
31 018 30	1 868 32	280 13	6°109 034 70	212 193 62	9 019 78	465 95	66 41	21376
33 166 75	2 148 45	343 52	5°887 821 30	221 213 40	9 552 14	532 36	80 42	21632
35 658 72	2 491 97	424 89	5°657 055 76	230 765 54	10 164 92	612 78	97 80	21760
38 575 58	2 916 86	534 15	5°416 125 30	240 930 46	10 875 50	710 58	121 01	21888
42 026 59	3 451 01	683 40	5°164 319 34	251 805 96	11 707 09	831 59	152 25	22016
46 161 00	4 134 41	893 03	4°900 806 29	263 513 05	12 690 93	983 84	195 42	22144
51 188 44	5 027 44	1 195 49	4°624 602 31	276 203 98	13 870 19	1 179 26	256 64	22272
57 411 37	6 222 93	1 648 71	4°334 528 14	290 074 17	15 306 09	1 435 90	346 53	22400
65 283 01	7 871 64	2 356 14	4°029 147 88	305 380 26	17 088 52	1 782 43	483 41	22528
75 510 79	10 227 78	3 520 29	3°706 679 10	322 468 78	19 354 36	2 265 84	702 55	22656
20 394 86	13 748 07		3°538 352 51	168 326 59	5 169 96	2 968 39		22784
22 230 98	1 836 12	334 94	3°364 855 96	173 496 55	5 564 43	394 47	65 03	22912
24 402 04	2 171 06	430 08	3°185 794 98	179 060 98	6 023 93	459 50	82 06	23040
27 003 18	2 601 14	563 47	3°000 710 07	185 084 91	6 565 49	541 56	105 46	23168
30 167 79	3 164 61	755 28	2°809 059 67	191 650 40	7 212 51	647 02	137 99	23296
34 087 68	3 919 89	1 037 31	2°610 196 76	198 862 91	7 997 52	785 01	182 56	23424
39 044 88	4 957 20	1 464 16	2°403 336 33	206 860 43	8 965 09	967 57	245 26	23552
10 482 55	6 421 36		2°296 613 45	106 722 88	2 379 76	1 212 83		23680
- 11 333 89	851 34	- 130 68	- 2°187 510 81	109 102 64	+ 2 539 38	159 62	+ 20 40	23808
	- 982 02			+111 642 02		+ 180 02		23936

TABLE V.—*continued.*

Day.	α .	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	δ .	First Difference.
+26144		+176 355 21		+ 8 88			-362 586 21
26176	- 1'471 182 49		+ 1 906 90		- 14 70	+ 9'427 802 50	
26208		178 262 11		- 5 82		9'052 900 38	374 902 12
26240	1'292 920 38		1 901 08		20 73		388 361 22
26272		180 163 19		26 55	30 60	8'664 539 16	
26304	1'112 757 19		1 874 53			8'261 373 11	403 166 05
26336		182 037 72		57 15	46 92		419 576 00
26368	0'930 719 47		1 817 38		73 76	7'841 797 11	
26400		183 855 10		104 07		7'403 867 55	437 929 56
26432	0'746 864 37		1 713 31		118 40		458 677 52
26464	0'561 295 96		1 535 48			6'945 190 03	
26528	0'374 192 07		1 239 25		194 94		238 029 71
26560		94 041 58		491 17		6'707 160 32	
26576	0'280 150 49		259 98		67 98		244 405 52
26592		94 301 56		192 00		6'462 754 80	251 294 52
26608	0'185 848 93			87 90	19 92		258 773 79
26624		94 493 56		114 29	26 39	6'211 460 28	
26656	- 0'091 355 37		+ 104 10		35 48	5'952 686 49	266 937 78
26672		94 597 66		149 77	48 44	5'685 748 71	
26688	+ 0'003 242 29		- 10 19		67 52	5'409 845 00	275 903 71
26704		94 587 47		198 21		5'124 025 80	285 819 20
26720	0'097 829 76		159 96		96 18		296 873 26
26736		94 427 51		265 73	140 71	4'827 152 54	
26752	0'192 257 27		358 17		212 67	4'517 840 10	159 840 69
26768		94 069 34		361 91		4'357 999 41	163 624 77
26784	0'286 326 61		623 90		20 20	4'194 374 64	167 694 20
26800		93 445 44		502 62	25 67	4'026 680 44	172 087 81
26816	0'379 772 05		985 81		33 03	3'854 592 63	176 852 21
26832		92 459 63		715 29	43 16	3'677 740 42	182 043 91
26848	0'472 231 68		1 488 43		57 27	3'495 696 51	187 732 18
26856		45 710 27		96 54	77 43	3'307 964 33	194 002 84
26864	0'517 941 95		449 34		106 93	3'113 961 49	200 963 71
26872		45 260 93		116 74	151 33	2'912 997 78	208 752 09
26880	0'563 202 88		545 88		220 36	2'704 245 69	217 545 62
26888		44 715 05		142 41	331 86	2'486 700 07	227 578 02
26896	0'607 917 93		662 62		- 520 21	2'259 122 05	239 162 23
26904		44 052 43		175 44		2'019 959 82	-252 724 21
26912	0'651 970 36		805 03				
26920		43 247 40		980 47			
26928	0'695 217 76		980 47				
26936		42 266 93		218 60			
26944	0'737 484 69		1 199 07				
26952		41 067 86		275 87			
26960	0'778 552 55		1 474 94				
26968		39 592 92		353 30			
26976	0'818 145 47		1 828 24				
26984		37 764 68		460 23			
26992	0'855 910 15		2 288 47				
27000		35 476 21		611 56			
27008	0'891 386 36		2 900 03				
27016		32 576 18		831 92			
27024	0'923 962 54		3 731 95				
27032		28 844 23		1 163 78			
27040	0'952 806 77		4 895 73				
27048		23 948 50		-1 683 99			
27056	0'976 755 27		- 6 579 72				
27064		+ 17 368 78					
+27072	+ 0'994 124 05					+ 1'767 235 61	

TABLE V.—*continued.*

Second Difference.	Third Difference.	Fourth Difference.	z.	First Difference.	Second Difference.	Third Difference.	Fourth Difference.	Day.
- 12 315 91	- 982 02	- 161 17	- 2'075 868 79	+ 111 642 02	+ 2 719 40	+ 180 02	+ 24 33	+ 26144
13 459 10	1 143 19	202 54	1'961 507 37	114 361 42	2 923 75	204 35	29 75	26176
14 804 83	1 345 73	259 39	1'844 222 20	117 285 17	3 157 85	234 10	37 17	26208
16 409 95	1 605 12	338 49	1'723 779 18	120 443 02	3 429 12	271 27	47 10	26240
18 353 56	1 943 61	450 79	1'599 907 04	123 872 14	3 747 49	318 37	60 31	26272
20 747 96	2 394 40	615 35	1'472 287 41	127 619 63	4 126 17	378 68	78 03	26304
23 757 71	3 009 75	865 62	1'340 541 61	131 745 80	4 582 88	456 71	102 49	26336
6 375 81	3 875 37		1'272 982 33	67 559 28	1 210 12	559 20		26368
6 889 00	513 19	77 08	1'204 212 93	68 769 40	1 283 41	73 29	8 44	26392
7 479 27	590 27	94 45	1'134 160 12	70 052 81	1 365 14	81 73	9 82	26408
8 163 99	684 72	117 22	1'062 742 17	71 417 95	1 456 69	91 55	11 48	26424
8 965 93	801 94	147 62	0'989 867 53	72 874 64	1 559 72	103 03	13 43	26440
9 915 49	949 56	189 01	0'915 433 17	74 434 36	1 676 18	116 46	15 74	26456
11 054 06	1 138 57	246 55	0'839 322 63	76 110 54	1 808 38	132 20	18 35	26472
12 439 18	1 385 12	328 72	0'761 403 71	77 918 92	1 958 93	150 55	21 16	26488
14 153 02	1 713 84	449 69	0'681 525 86	79 877 85	2 130 64	171 71	23 55	26504
3 784 08	2 163 53		0'640 799 57	40 726 29	555 91	195 26		26520
4 069 43	285 35	38 83	0'599 517 37	41 282 20	581 10	25 19	1 50	26536
4 393 61	324 18	46 61	0'557 654 07	41 863 30	607 79	26 69	1 50	26552
4 764 40	370 79	56 51	0'515 182 98	42 471 09	635 98	28 19	1 26	26568
5 191 70	427 30	69 27	0'472 075 91	43 107 07	665 43	29 45	87	26584
5 688 27	496 57	85 82	0'428 303 41	43 772 50	695 75	30 32		26600
6 270 66	582 39	107 82	0'383 835 16	44 468 25	726 11	30 36	+ 04	26616
6 960 87	690 21	137 30	0'338 640 80	45 194 36	755 06	28 95	- 1 41	26632
7 788 38	827 51	177 64	0'292 691 38	45 949 42	780 00	24 94	4 01	26648
8 793 53	1 005 15	233 72	0'245 961 96	46 729 42	796 29	+ 16 29	8 65	26664
10 032 40	1 238 87	312 94	0'198 436 25	47 525 71	795 52	- 77	17 06	26680
11 584 21	1 551 81	- 425 96	0'150 115 02	48 321 23	762 09	33 43	32 66	26696
- 13 561 98	- 1 977 77		0'101 031 70	49 083 32	+ 665 96	- 96 13	- 62 70	26712
			0'051 282 42	+ 49 749 28				26728
								+ 27072

SUPPLEMENTARY NOTE.

THIS Appendix, though complete in itself, is conditioned by the Essay published by the *Astronomische Gesellschaft* (*Publikation der Astronomischen Gesellschaft*, xxiii., Leipzig, 1910).

The object of that Essay was to calculate an orbit for Halley's Comet. In the present Appendix, a more thorough examination is made into the forces required to maintain motion in the orbit of the *Ast. Ges.* Essay, and the differences that exist between the known impressed forces and the effective forces.

Had the *Ast. Ges.* Essay been entirely free from numerical blunders, and had the prediction made in it been exactly verified, there would have been nothing to add in this Appendix. As soon, however, as a single error was discovered in the Essay, choice had to be made between two courses, either to throw aside the Essay and to continue to compute the rectified orbit, or to pursue the present course. The former alternative would certainly have been preferable, if numerical errors could have been entirely eliminated, and if all the data of the problem, such as the masses and positions of the planets, and the nature of any non-gravitational forces, were exactly known, or, in other words, if in a revised edition a perfect accordance between observation and theory could have been attained. It might also have been properly adopted, if the revised edition had diminished to less than one half the discordances between prediction and observation. But it turns out that the numerical blunders are not very serious ones; they are perhaps of the same order of importance as the uncertainties of the positions and masses of the planets, and they only account for a small fraction of the observed discordances. To throw aside the *Ast. Ges.* Essay and to re-compute the whole orbit from the point where the first error of computation was discovered would not render appreciably clearer the inference that there are forces of an unrecognised kind influencing the Comet's motion.

The object of giving in Table V the third and fourth differences of the co-ordinates is to show that there are no errors of a serious nature in the second differences actually employed in developing the co-ordinates, for an error of $0^d.01$ in the predicted time of perihelion would correspond to a very large number of units in the last figure given. In the period between -4608 and $+4608$ it may be taken that the revision of the work has entirely eliminated sensible errors of computation. The differences "New minus Old" arise partly from the use of shorter intervals and an additional decimal place in the New Computations, partly from the existence of a few numerical errors in the Old, which the comparison has brought to light.

SUGGESTIONS FOR FUTURE COMPUTATIONS.

It is perhaps advisable to give some practical recommendations, gained from experience, in some cases too late to be made use of.

(i.) In place of the fundamental formula

$$x_2 = X + \frac{1}{12} X_2 - \frac{1}{240} X_4 + \frac{1}{1951} X_6,$$

it would have been far better to use

$$x = X_{-2} + \frac{1}{12} X - \frac{1}{240} X_2 + \frac{1}{1951} X_4.$$

(ii.) Short time intervals ought to be employed, as errors in that case are far easier to detect. The intervals in the *Ast. Ges.* Essay were far too long, and those in the revised calculations of this Appendix not too short. The intervals should be 1 day at perihelion, and may be doubled at 40, 80, 160 days, and so on from perihelion. The interval should not be changed during a close approach to a planet.