

KG
11365
501

60

30

6

-30

30°

Арм.

10°

0-

For observations falling within the red oval, the $2\frac{d}{a}$ term of the refraction in declination does not need to be computed.

KG 11365.501



(Hells)

Cumulative I, 1882 Mar 19.

2.64

$$Z = +70.3^\circ$$

$$\log \varphi + 9.8684'$$

$$\text{" sin } t - 9.9993'$$

$$- 9.8677'$$

$$\text{" sin } Z + 9.9938'$$

$$q = -51.6 - 9.8939'$$

$$2q = -103.2$$

$$\log R = 6.4322$$

$$\& S \times S'$$

$$HA - 6 \quad 13$$

$$\Delta S + 0 \quad 24.7'$$

$$S + 33 \quad 25'$$

None in B.A.

$$\log R + 6.4322'$$

$$(d-d) + 0.8922'$$

$$\tan Z + 1.3927'$$

$$\cos 2q = 9.3586'$$

$$- 0.01 = -8.0757 \checkmark$$

Mar 22/82 : Camer 1882 I

2.74

$$J = 65.9^{\circ}$$

$$+9.8684^{\circ}$$

$$-9.9997^{\circ}$$

$$-9.8681^{\circ}$$

$$+9.9604^{\circ}$$

$$-54.0$$

$$-9.9077^{\circ}$$

$$-108.0$$

$$\log R + 6.4371$$

$$\delta N \times N'$$

$$WA - 5.52$$

$$\Delta \delta - 5.25.5^{\circ}$$

$$\delta + 35.1$$

Name in A.R.

$$\log R + 6.4371$$

$$(d'a) - 2.5126$$

$$\tan^2 \beta + 0.6988$$

$$\cos 2q - 9.4900$$

$$+0.14 = +9.1385^{\circ} \checkmark$$

Mar 24/82 Comet 1882 I

2.86

$$3 = 66.0^\circ$$

$$+ 9.8684'$$

$$- 0.0000'$$

$$- 9.8684'$$

$$+ 9.9607'$$

$$- 9.9077'$$

$$- 54.0$$

$$- 108.0$$

$$\log R + 6.4370$$

$$\delta S \times N'$$

$$HA - 5 \quad 58$$

$$\Delta \delta - 12 \quad 45.5'$$

$$\delta + 36 \quad 17$$

$$\log R + 6.4370$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0936$$

$$D - 2.9474$$

$$\tan^2 3 + 0.7028$$

$$\sin 2q - 9.9782$$

$$+ 0.042 = + 8.6819'$$

$$\log R + 6.4370$$

$$D - 2.9474$$

$$\tan^2 3 + 0.7028$$

$$\sin^2 q + 9.8160$$

$$- 0.20 = - 9.9032' \checkmark$$

$$\log R + 6.4370$$

$$(d'-a) - 2.8840$$

$$\tan^2 3 + 0.7028$$

$$\cos 2q_1 - 9.4900$$

$$+ 0.33 = + 9.5138'$$

$$- 0.20$$

$$- 0.47 (\Delta' - \Delta)$$

Mar 25/82 Comet 1882 I

2.92

$$3 = 65.0 \quad \wedge \quad \checkmark$$

$$+9.8684 \quad \checkmark$$

$$-9.9997 \quad \checkmark$$

$$-9.8681 \quad \checkmark$$

$$+9.9573 \quad \checkmark$$

$$-54.5 \quad \checkmark \quad -9.9108 \quad \checkmark$$

$$-109.0 \quad \checkmark = 29$$

$$\log - 12 \quad +6.4378$$

$$\frac{1}{30} \quad +8.5229$$

$$\sec \delta \quad +0.0956$$

$$D \quad +2.9474$$

$$\tan 3 \quad +0.6626$$

$$\sin 29 \quad -9.9757$$

$$-0.04 = -8.6420$$

$$\log 12 \quad +6.4378$$

$$\delta \approx n \times 8'$$

$$12/4 \quad -5 \quad 52$$

$$\Delta 5 \quad +16 \quad 28.4'$$

$$\delta \quad +36 \quad 38'$$

$$\log 12 \quad +6.4378$$

$$D \quad +2.9474$$

$$\tan 3 \quad +0.6626$$

$$\sin 29 \quad +9.8214$$

$$+0.74 = +9.8692$$

$$\log 12 \quad +6.4378 \quad \checkmark$$

$$(d'-d) \quad +2.9950$$

$$\tan 3 \quad +0.6626 \quad \checkmark$$

$$\sin 29 \quad -9.5126 \quad \checkmark$$

$$-0.41 = -9.6080 \quad \checkmark$$

$$+0.74$$

$$+0.33 = 4' - 11$$

Mar 28/82 Comet 1882 I

2.102

$$\begin{aligned}
 3 &= 61.0^\circ \\
 +9.8684^\circ \\
 -9.9974^\circ \\
 -9.8658^\circ \\
 +9.9418^\circ \\
 -57.1 &-9.9240 \\
 -114.2
 \end{aligned}$$

$$\begin{aligned}
 \log K &+ 6.4400 \\
 S &\times N^\circ \\
 HA &-5^\circ 35' \\
 \Delta \delta &-6^\circ 46.4' \\
 \delta &+ 38^\circ 41'
 \end{aligned}$$

$$\begin{aligned}
 \log K &+ 6.4400 \\
 \frac{1}{30} &+ 8.5229 \\
 \sec \delta &+ 0.1076 \\
 D &- 2.9474 \\
 \tan^2 3 &+ 0.5124 \\
 \sin^2 g &- 9.9600 \\
 +0.03 &= +8.4903^\circ
 \end{aligned}$$

$$\begin{aligned}
 \log K &+ 6.4400 \\
 D &- 2.9474 \\
 \tan^2 3 &+ 0.5124 \\
 \sin^2 g &+ 9.8482 \\
 -0.56 &- 9.7480^\circ
 \end{aligned}$$

$$\begin{aligned}
 \log K &+ 6.4400 \\
 (d-d) &- 2.6089 \\
 \tan^2 3 &+ 0.5124 \\
 \cos^2 g &- 9.6127 \\
 +0.15 &= +9.1740^\circ \\
 -0.56 \\
 -0.51 &= \Delta' - \Delta
 \end{aligned}$$

Mar 31/82 Comet 1882 I

5.24

$$3 = 62.5^{\circ}$$

$$+9.8684$$

$$-9.9926$$

$$-9.8680$$

$$+9.9479$$

$$-56.3$$

$$-9.9201$$

$$-112.6$$

$$\log R + 6.4392$$

$$\Delta N \times S^{\circ}$$

$$HA - 5^{\circ} 50'$$

$$\Delta \delta + 5^{\circ} 50.1'$$

$$\delta + 40^{\circ} 33'$$

$$\log R + 6.4392$$

$$\frac{1}{3}0 + 8.5229$$

$$\sec \delta + 0.1193$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5670$$

$$\sin^2 \gamma - 9.9653$$

$$-0.04 = -8.5611'$$

$$\log R + 6.4392$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5670$$

$$\sin^2 \gamma + 9.8402$$

$$+0.62 = +9.7938'$$

$$\log R + 6.4392$$

$$(d'd) + 2.5442$$

$$\tan^2 3 + 0.5670$$

$$\cos 2\gamma - 9.5847$$

$$-0.14 = -9.1351'$$

$$+0.62$$

$$+0.48 = \Delta' - \Delta$$

Apr 3/82 Comet 1882 I

2.118

$$\beta = 61.2^\circ$$

$$+9.8684$$

$$-9.9995$$

$$-9.8679$$

$$+9.9427$$

$$-57.3$$

$$-9.9252$$

$$-114.6$$

$$\log R + 6.4399$$

$$\delta N \times S^7$$

$$HA -5 49$$

$$\Delta \delta +10 28.3^7$$

$$\delta +42 38$$

$$\log R + 6.4399$$

$$\frac{1}{20} + 8.5229$$

$$\sec \delta + 0.1333$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5196$$

$$\sin 2g - 9.9587$$

$$-0.03 = -8.5218^7$$

$$\log R + 6.4399$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5196$$

$$\sin^2 g + 9.8502$$

$$+0.57 + 9.7571^7$$

$$\log R + 6.4399$$

$$(d'-d) + 2.7982$$

$$\tan^2 3 + 0.5196$$

$$\cos 2g - 9.6194$$

$$-0.24 = -9.3771^7$$

$$+0.57$$

$$+0.33 = d' - d$$

June 22/82 Cambr 1882 I

5.36

$$3 = 85.5^\circ$$

$$+9.8684^\circ$$

$$+9.9965^\circ$$

$$+9.8649^\circ$$

$$+9.9987^\circ$$

$$+47.3$$

$$+9.8662^\circ$$

$$+94.6$$

$$\log(R) + 6.2584$$

$$\delta N \times S$$

$$1+A + 6.29$$

$$\Delta \delta + 5.59.2^\circ$$

$$\delta + 14.19$$

$$\log(R) + 6.2584$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0137$$

$$D + 2.9474$$

$$\tan^2 3 + 2.2080$$

$$\sin^2 2 + 9.9986$$

$$+0.29 = +9.9490^\circ$$

$$\log(R) + 6.2584$$

$$D + 2.9474$$

$$\tan^2 3 + 2.2080$$

$$\sin^2 2 + 9.7324$$

$$+14.00 = +1.1462^\circ$$

$$\log(R) + 6.2584$$

$$(\alpha-d) + 2.5553$$

$$\tan^2 3 + 2.2080$$

$$\cos 2\theta - 8.9042$$

$$-0.2K = -9.9259^\circ$$

$$+14.00$$

$$+13.16 = A' - A$$

22

June 26/82. Comet 1882 I

3.74

$$\begin{aligned}
 & 3 = 87.6^{\circ} \\
 & + 9.8684^{\circ} \\
 & + 9.9942^{\circ} \\
 & + 9.8627^{\circ} \\
 & + 9.9996^{\circ} \\
 & + 46.9 \quad + 9.8631^{\circ} \\
 & + 93.8
 \end{aligned}$$

$$\log(12) + 6.0305$$

$$6 S * m$$

$$HA + 6.37$$

$$\Delta \delta - 12.23.9^{\circ}$$

$$\delta + 13.25$$

$$\log(12) + 6.0305$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0120$$

$$D - 2.9474$$

$$\tan^2 3 + 2.7554$$

$$\sin^2 q + 9.9990$$

$$-1.27 = -0.2672^{\circ}$$

$$\log(12) + 6.0305$$

$$D - 2.9474$$

$$\tan^2 3 + 2.7554$$

$$\sin^2 q + 9.7268$$

$$\neq 2.244 = 1.4601^{\circ}$$

$$\log(12) + 6.0305$$

$$(d-d) - 2.8715$$

$$\tan^2 3 + 2.7554$$

$$\sin^2 q - 8.8213$$

$$+3.01 = +0.4787$$

$$\neq 2.244$$

$$+3.01 = 1.4787$$

$$25.83$$

12

June 28/82. Comet 1882 I.

3.76

$$J = 87.2^{\wedge}$$

$$+9.8684$$

$$+9.9958$$

$$+9.8642^{\circ}$$

$$+9.9995^{\circ}$$

$$+47.1$$

$$+9.8647^{\circ}$$

$$+94.2$$

$$\log(12) + 6.0974$$

$$\Delta S \times S^{\circ}$$

$$HA +6 32$$

$$\Delta S - 3 56.2$$

$$S +12 47$$

$N_m \approx R.H.$

$$\log(14) + 6.0974^{\circ}$$

$$(a-a) - 2.3733$$

$$+ \log 3 + 2.6212$$

$$\log 2 - 8.8647$$

$$+0.90 = +9.9566^{\circ}$$

July 6./82. Comet 1882 I.

3.78

$$3 = 82.3^{\wedge}$$

$$+9.8684$$

$$+0.0000$$

$$+9.8684$$

$$+9.9961^{\circ}$$

$$+48.2$$

$$+9.8723^{\circ}$$

$$+96.4$$

$$\log(12) = +6.3649$$

$$\leq N \quad * N$$

$$14A \quad +5 \quad 57$$

$$\Delta \delta \quad -0 \quad 9.7$$

$$\delta \quad +10 \quad 30$$

None in R.A.

$$\log(12) \quad +6.3649$$

$$(d-a) - 0.9868$$

$$\tan^2 3 + 1.7380$$

$$\cos 2\epsilon - 9.0472$$

$$+0.01 = +8.1369^{\circ}$$

25

July 7/82. Comet 1882 I.

3.80

$$\bar{z} = 82.4^{\circ}$$

$$+9.8684$$

$$+0.0000$$

$$+9.8684$$

$$+9.9962$$

$$+48.2$$

$$+9.8722$$

$$+96.4$$

$$\log(K) = +6.3630$$

$$\delta S \times N$$

$$14.8 + 5.57$$

$$\Delta \delta - 7.23$$

$$\delta + 10.18$$

$$\log(K) + 6.3630$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0071$$

$$D - 2.9474$$

$$\tan^2 3 + 1.7496$$

$$\sin 2\alpha + 9.9973$$

$$-0.39 = -9.5873$$

$$\log(K) + 6.3630$$

$$D - 2.9474$$

$$\tan^2 3 + 1.7496$$

$$\sin^2 \alpha + 9.7448$$

$$-6.3A = -0.8048$$

$$\log(K) + 6.3630$$

$$(d'd) + 1.7496$$

$$\tan^2 3 = 2.6256$$

$$\cos 2\alpha - 9.0472$$

$$+0.61 = +9.7854$$

$$-6.3A$$

$$-5.77 = \Delta' - \Delta$$

Comet 1882 III Sept 14/82.

2.154

$$J = +67.1''^{\wedge}$$

$$+9.8684$$

$$-9.9817$$

$$-9.8501$$

$$+9.9643$$

$$-50.2$$

$$-9.8858$$

$$-100.4$$

$$\log R = +6.4360$$

$$\delta N * S$$

$$H.A. -4 \ 54'$$

$$\Delta S +10 \ 14.4$$

$$\text{Dec.} +15 \ 59'$$

$$\log R + 6.4360$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0171$$

$$D + 2.9474$$

$$\tan^2 J + 0.7486$$

$$\sin 2q = 9.9934$$

$$-0.05 - 8.6654'$$

$$\log R + 6.4360$$

$$D + 2.9474$$

$$\tan^2 J + 0.7486$$

$$\sin^2 q + 9.7710$$

$$+0.80 + 9.9030'$$

$$\log R + 6.4360$$

$$(d-a) + 2.7885$$

$$\tan^2 J + 0.7486$$

$$\sin 2q = 9.2565$$

$$+0.17 - 9.2296'$$

$$+0.63$$

Comet 1882 III Sept 16, 1882.

2.160

$$\zeta = +60.9^\circ$$

$$+9.8684$$

$$-9.9508$$

$$-9.8192$$

$$+9.9414$$

$$-49.0$$

$$-9.8778$$

$$-98.0$$

$$\log R = +6.4400$$

$$\delta N * S$$

$$H.A. -4 \quad 13$$

$$\Delta \delta +5 \quad 37.0$$

$$\delta +14 \quad 24$$

$$\log 12 + 6.4400$$

$$\log 30 + 8.5229$$

$$\sec \delta + 0.0139$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5090$$

$$\sin 2q - 9.9958$$

$$-0.03 -8.4290$$

$$\log R + 6.4400$$

$$D + 2.9474$$

$$\tan^2 3 + 0.5090$$

$$\sin^2 q + 9.7556$$

$$+0.45 +9.6520$$

$$\log R + 6.4400$$

$$(d'-a) + 2.5276$$

$$\tan^2 3 + 0.5090$$

$$\sin 2q - 9.1436$$

$$-0.04 -8.6202$$

$$+0.41$$

Comet 1883 I Mar 5, 1883.

3.8

$$J = +66.2^{\wedge}$$

$$\log K = +6.4362$$

$$+9.8684$$

$$\delta S * S$$

$$+9.9989$$

$$H.A. +544$$

$$+9.8673$$

$$\Delta \delta -018.1$$

$$+9.9614$$

$$\delta +3159$$

$$+53.6$$

$$+9.9059$$

$$+107.2$$

$$\log 12 +6.4368$$

$$M_{\text{min}} \approx 2.18$$

$$(d'a) -1.2577$$

$$\tan^2 \delta +0.7110$$

$$\sin^2 \delta -9.4709$$

$$+0.01 +7.8764$$

Comet 1884 I Sept 6, 1883.

3.54

$$J = +71.1^\circ$$

$$+9.8684$$

$$+9.6495$$

$$+9.5179^\circ$$

$$+9.9759$$

$$+20.4$$

$$+9.5420$$

$$+40.8$$

$$\log K = +. +6.4309$$

$$\delta \ S \ * \ S$$

$$H.A. + 10 \ 14$$

$$\Delta \delta - 0 \ 35.4$$

$$\delta + 64 \ 10$$

None in R.A.

$$\log K + 6.4309$$

$$(d'a) - 0.5490$$

$$\tan 3 + 0.9310$$

$$\cos 2q. + 9.8791$$

$$-0.06 \quad -8.7900'$$

Comet 1884 I; Sept 6, 1883.

3.5*

$$\delta = +71.1^{\circ}$$

$$+9.8684$$

$$+9.6523$$

$$+9.5217$$

$$+9.9759$$

$$+9.5458$$

$$+20.6$$

$$+41.2$$

$$\log R = +6.4309$$

$$\delta S * S$$

$$H.A. +10.13$$

$$\Delta \delta +1.13.2$$

$$\delta +64.11$$

Name in R.A.

$$\log R +6.4309$$

$$(d'd) +1.8645$$

$$\tan^2 \delta +0.9310$$

$$\cos 2\varphi +9.8765$$

$$+0.13 +9.1029$$

Comet 1884 I, Sept 26, 1883.

3.114

1st series.

$$3 = +74.0^{\wedge} \checkmark$$

$$+9.8684 \checkmark$$

$$+9.7531 \checkmark$$

$$+9.6215 \checkmark$$

$$+9.9828 \checkmark$$

$$+25.8 \checkmark$$

$$+9.6387 \checkmark$$

$$+51.6 \checkmark$$

$$\log K = +6.4246$$

&

$$14A +9.42 \checkmark$$

 $\Delta \delta$

$$\delta +59.55$$

$$\log K = +6.4246 \checkmark$$

$$" \frac{1}{30} = +1.5229 \checkmark$$

$$" \cos \delta = +9.7001 \checkmark$$

$$" (-\sin \delta) = +2.9474 \checkmark$$

$$" \tan^{-1} \delta = +1.0250 \checkmark$$

$$" \sin 2\delta = +9.9444 \checkmark$$

$$-0.046 \checkmark = +2.6624 \checkmark$$

$$\log K = +6.4246 \checkmark$$

$$" (-\sin \delta) = +2.9474 \checkmark$$

$$" \tan^{-1} \delta = +1.0250 \checkmark$$

$$" \sin 2\delta = +9.7224 \checkmark$$

$$-1.76 \checkmark = +0.2454 \checkmark$$

$$" K = +6.4246 \checkmark \checkmark$$

$$(670.7) " (d' - d) = +2.4265 \checkmark$$

$$" \tan^{-1} \delta = +1.0250 \checkmark \checkmark$$

$$" \cos 2\delta = +9.7932 \checkmark$$

$$+0.50 \checkmark = +9.6947 \checkmark$$

$$-1.35 \checkmark = +0.1293$$

$$-1.76 \checkmark$$

$$-3.11 \checkmark \text{ Cor. Value.}$$

Comet 1884 I. Oct. 15, 1883.

4.166

$$3 = +74.2^{\circ} \checkmark$$

$$+9.8684 \checkmark$$

$$+9.8606 \checkmark$$

$$+9.7290 \checkmark$$

$$+9.9833 \checkmark$$

$$+33.8 \checkmark$$

$$+9.7457 \checkmark$$

$$+67.6 \checkmark$$

$$\log R = +6.4240$$

$$\delta N \quad N$$

$$11.8 + 8.54$$

$$\Delta 5 - 4.58.3$$

$$5 + 55.51$$

Num in R. P.

$$\log R + 6.4240 \checkmark$$

$$(d^2/d) - 2.4746$$

$$\tan^2 3 + 1.0966 \checkmark$$

$$\ln 2q + 9.5810 \checkmark$$

$$-0.38 - 9.5762 \checkmark$$

Comet 1884 I. Dec 22, 1883.

4.160

$$3 = +74.0^{\wedge}$$

$$+9.8684$$

$$+9.9927$$

$$+9.8611$$

$$+9.9828 \quad 15 \quad 15$$

$$+49.1$$

$$+9.8783$$

$$+98.2$$

$$\log R = +6.4246$$

$$\delta S \quad * S$$

$$HA \quad +6.42$$

$$\Delta S \quad -1.44.8$$

$$\delta \quad +34.58$$

num in R.A.

$$\log R \quad +6.4246$$

$$(d'-d) \quad -2.0203$$

$$\log 23 \quad +1.0850$$

$$\log 29 \quad -9.1542$$

$$+0.05 \quad +8.6841$$

Come 1884 II. Aug. 16, 1884.

5-130

$$Z = +80.0 \checkmark ^\wedge$$

$$\log = +9.8684 \checkmark$$

$$\text{" sin } t = +9.4200 \checkmark$$

$$\text{Lun} = +9.2884 \checkmark$$

$$\text{" sin } g = +9.9934 \checkmark$$

$$+11.4 \checkmark \quad +9.2950 \checkmark$$

$$+22.8 \checkmark$$

$$\log R = +6.3947 \checkmark$$

$$\delta S * S \quad \cdot$$

$$14A \quad +1 \ 01 \quad \text{...}$$

$$D5 \quad +0 \ 20.5$$

$$\delta \quad -36 \ 21$$

Now in R.A.

$$\log R \quad +6.3947 \checkmark$$

$$(d^2a) \quad +1.3118 \checkmark$$

$$\tan^3 \quad +1.5074 \checkmark$$

$$\cos^2 g \quad +9.9647 \checkmark$$

$$+0.15 \quad +9.1786 \checkmark$$

Comet 1885 III Sept 3, 1885.

6.8

$$Z = +63.0^\circ$$

$$+9.8684$$

$$+9.8985$$

$$+9.8669$$

$$+9.9499$$

$$+55.7$$

$$+9.9170$$

$$+111.4$$

$$\log K. = +6.4390$$

$$\delta S * N.$$

$$1st. A. +5.41$$

$$\Delta S -6.61$$

$$S +37.9$$

$$\log K +6.4390$$

$$\frac{1}{S_0} +8.5229$$

$$\sec \delta +0.0985$$

$$D -2.9474$$

$$\tan^2 3 +0.5856$$

$$\sin^2 q. +9.9690$$

$$-0.04 -8.5624$$

$$\log K +6.4390$$

$$D -2.9474$$

$$\tan^2 3 +0.5856$$

$$\sin^2 q. +9.8340$$

$$-0.64 -9.8060$$

$$\log K +6.4390$$

$$(d'a) -2.5636$$

$$\tan^2 3 +0.5856$$

$$\cos^2 q. -9.5621$$

$$+0.04 +9.1503$$

$$-0.50$$

$$-0.78$$

Canal 1885 V. Jan 5, 1886.

4.25-

$$3 = 70.8^{\circ} \dots +$$

$$+ 9.8684$$

$$+ 9.9770$$

$$+ 9.8454$$

$$+ 9.9751$$

$$+ 47.9$$

$$+ 9.8703$$

$$+ 95.8$$

$$\log R = +6.4314$$

$$\delta N \approx N$$

$$H.A. = +4.46$$

$$\Delta \delta = -0.46.9$$

$$\delta = +8.12$$

num in R.H.

$$\log R \quad +6.4314$$

$$(d'-d) = 1.6712$$

$$\tan^2 \delta \quad +0.9162$$

$$\cos^2 \theta \quad -9.0046$$

$$+0.01 \quad +8.0234$$

Comet 1886 V. Apr 30, 1886.

442

$$3 = 76.7^{\circ}$$

$$+9.8684$$

$$+9.2126$$

$$+9.0860$$

$$+9.9882$$

$$+7.2$$

$$+9.0998$$

$$+14.4$$

$$\log K = +6.4159$$

$$\& S * N$$

$$H.A. = +11.22$$

$$\Delta\delta = -8.22.7$$

$$\delta = +60.49$$

$$\log K + 6.4159$$

$$\frac{1}{30} + 8.5229$$

$$\sec\delta + 0.3119$$

$$D - 2.9474$$

$$\tan^2 3 + 1.2528$$

$$\sin^2 q + 9.3957$$

$$-0.07 - 8.8466'$$

$$\log K + 6.4159$$

$$D - 2.9474$$

$$\tan^2 3 + 1.2528$$

$$\sin^2 q + 8.1962$$

$$-0.06 - 8.8123'$$

$$\log K + 6.4159$$

$$(d'a) - 2.7013$$

$$\tan^2 3 + 1.2528$$

$$\cos^2 q + 9.9861$$

$$-0.27 - 0.3561'$$

$$-2.33$$

Comet 1886 V. May 1, 1886.

4.38

$$3 = 76.8^\circ$$

$$+ 9.8684$$

$$+ 9.3602$$

$$+ 9.2286$$

$$+ 9.9884$$

$$+ 10.0$$

$$+ 9.2402$$

$$+ 20.0$$

$$\log K = +6.4154$$

$$\& N \ast S$$

$$H.A. = +11 \quad 7 \quad 11 \quad 1$$

$$\Delta \delta = +8 \quad 13.2$$

$$\delta = +60 \quad 10$$

$$\log K + 6.4154$$

$$\frac{1}{26} + 8.5229$$

$$\sec \delta + 0.3032$$

$$D + 2.9474$$

$$\tan^2 3 + 1.2596$$

$$\sin 2q + 9.5341$$

$$+ 0.00 + 8.9826$$

$$\log K + 6.4154$$

$$D + 2.9474$$

$$\tan^2 3 + 1.2596$$

$$\sin^2 q + 8.4794$$

$$+ 0.13 + 9.1018$$

$$\log K + 6.4154$$

$$(d'ad) + 2.6930$$

$$\tan^2 3 + 1.2596$$

$$\cos 2q + 9.9730$$

$$+ 2.19 + 0.3410$$

$$+ 2.32$$

Sept 1886 V. May 6, 1886.

4.52

$$3 = 77.9^\circ$$

$$+9.8684$$

$$+9.6418$$

$$+9.5102$$

$$+9.9902$$

$$+9.5200$$

$$+19.3$$

$$+38.6$$

$$\log 12 = +6.4102$$

$$\delta \text{ S } * \text{ N}$$

$$1 + 15 = +10 \ 16$$

$$\Delta \delta = -12 \ 13.4$$

$$\delta = +57 \ 17$$

$$\log 12 + 6.4102$$

$$\frac{1}{20} + 8.5229$$

$$\sec^2 + 0.2672$$

$$D - 2.9474$$

$$\tan^2 3 + 1.3376$$

$$\sin^2 \theta + 9.7951$$

$$-0.20 - 9.2804$$

$$\log 12 + 6.4102$$

$$D - 2.9474$$

$$\tan^2 3 + 1.3376$$

$$\sin^2 \theta + 9.0384$$

$$-0.54 - 9.7336$$

$$\log 12 + 6.4102$$

$$(d'-d) - 2.8653$$

$$\tan^2 3 + 1.3376$$

$$\cos 2\theta + 9.8929$$

$$-3.21 - 0.5060$$

$$-3.75$$

Comm 1886 VII. Oct 19, 1886.

3.104

$$S = 78.3^{\circ}$$

$$+ 9.8684$$

$$+ 9.8103$$

$$+ 9.6787$$

$$+ 9.9909$$

$$+ 29.2$$

$$+ 58.4$$

$$+ 9.6878$$

$$\log K = +6.4080$$

$$\delta \quad S \quad N$$

$$10 H. = +2.41$$

$$\Delta \delta = -10.285$$

$$\delta = -26.32$$

$$\log K + 6.4080$$

$$\log \delta + 8.5229$$

$$\sec \delta + 0.0483$$

$$D + 2.9474$$

$$\log 3 + 1.3676$$

$$\sin 2\phi + 9.9303$$

$$-0.17 - 9.2245$$

$$\log K + 6.4080$$

$$D - 2.9474$$

$$\log 3 + 1.3676$$

$$\sin 2\phi + 9.3766$$

$$-1.26 - 0.0996$$

$$\log K + 6.4080$$

$$(d'-d) - 2.7983$$

$$\log 3 + 1.3676$$

$$\cos 2\phi + 9.7193$$

$$-1.96 - 0.2932$$

$$-3.22$$

Cumult 1886 VII Oct 20, 1886.

3.110

$$3 = .761^{\wedge}$$

$$+ 9.8684$$

$$+ 9.7586$$

$$+ 9.6270$$

$$+ 9.9871$$

$$+ 25.9$$

$$+ 9.6399$$

$$+ 51.8$$

$$\log K = +6.4184$$

$$\ll S * m$$

$$H/H. = +2.20$$

$$\Delta \delta = -13.43.2$$

$$\delta = -26.29$$

$$\log K + 6.4184$$

$$\frac{1}{30} + 8.8229$$

$$\sec \delta + 0.0482$$

$$D - 2.9474$$

$$\tan^2 3 + 1.2130$$

$$\sin 2q + 9.8953$$

$$-0.11' - 9.0452'$$

$$\log K + 6.4184$$

$$D - 2.9474$$

$$\tan^2 3 + 1.2130$$

$$\sin^2 q + 9.2806$$

$$-0.72' - 9.8594'$$

$$\log K + 6.4184$$

$$(d'a) - 2.9155$$

$$\tan^2 3 + 1.2130$$

$$\sin 2q + 9.7913$$

$$-2.18' - 0.22' - 0.3382'$$

$$-2.90$$

Comet 1886 VII. Jan 3, 1887.

8.184

$$\begin{array}{rcl}
 & & 3 = 64.0 \quad \checkmark^{\wedge} \\
 \log \cos \varphi & & + 9.8684 \quad \checkmark \\
 \text{" sin } t & & + 9.9093 \quad \checkmark \\
 \text{Sun} & & + 9.7777 \quad \checkmark \\
 \text{" sin } \zeta & & + 9.9537 \quad \checkmark \\
 + 41.8 \quad \checkmark & & + 9.8240 \quad \checkmark \\
 + 83.6 \quad \checkmark & &
 \end{array}$$

$$\log 12 = 6.4324$$

$$\delta \quad N * N$$

$$1st. A. = +3 \quad 37$$

$$\Delta 5 = -1 \quad 10.9$$

$$\delta = +0 \quad 46$$

Now in R.A.

$$\log 12 \quad + 6.4384 \quad \checkmark$$

$$(\text{d}^{\circ} \text{d}) \quad + 0.6236 \quad (\text{tan}^2 \zeta) \quad \checkmark$$

$$\text{tan}^2 \zeta \quad - 1.8506 \quad (\text{d}^{\circ} \text{d})$$

$$\cos 2\varphi \quad + 9.0472 \quad \checkmark$$

$$-0.01^7 \quad -7.9598 \quad \checkmark$$

Comet 1887 III. Feb. 17. 1887.

~~3. Not wanted~~

+9.8684

~~log K = 6~~

~~*~~

H.A. = -1 40 4 +

~~$\Delta \delta =$~~

~~$\delta = -12 21$~~

Comet 1886 VIII. Jan 24, 1887.

4.104

$$Z = 62.0^{\wedge}$$

$$+9.8684$$

$$+9.9844$$

$$+9.8528$$

$$+9.9459$$

$$+9.9069$$

$$+53.8$$

$$+107.6$$

$$\log K = 6.4395$$

$$\& S * S$$

$$H.A. = -4.59$$

$$\Delta F = -3.31.6$$

$$\delta = +26.0$$

num in R.H.

$$\log 12 + 6.4395$$

$$(d^1-d) - 2.3255$$

$$\tan^2 3 + 0.5486$$

$$\log 29 - 9.4805$$

$$+0.06 + 8.7941'$$

Comet 1888 I. July 5, 1888.

6.166

$$\beta = 73.5^\circ \quad \wedge \quad \cdot \cdot \cdot$$

$$+9.8684$$

$$-9.2469$$

$$-9.8153$$

$$+9.9817$$

$$-43.0$$

$$-9.8336$$

$$-86.0$$

$$\log K = 6.4259$$

$$\delta N * N$$

$$H.A. = -7.51$$

$$\Delta \delta = -3.514$$

$$\delta = +49.0'$$

now in R.A.

$$\log K + 6.4259$$

$$(d'-d) - 2.3643$$

$$\log 3 + 1.0568$$

$$\log 2g + 8.8436$$

$$-0.05 - 8.6906$$

Comet 1889 I, Oct 27, 1888.

$\delta =$
+9.8684

$\log K = +6.$

δ *

H.A. = -3 20'

$\Delta \delta =$

$\delta = +3^{\circ} 0'$

~~Not wanted.~~

Comet 1889 V. Dec 17, 1889.

9.66

$$3 = 62.1^{\wedge}$$

$$+ 9.8684$$

$$+ 9.9198$$

$$+ 9.7882$$

$$+ 9.9463$$

$$+ 44.0$$

$$+ 9.8419$$

$$+ 88.0$$

$$\log K = 6.4395$$

$$E N * N$$

$$H.A. = +3.45$$

$$\Delta \delta = -4.50$$

$$\delta = +5.0$$

Non in Q#.

$$\log K + 6.4395$$

$$(d'-d) - 2.3892$$

$$\tan^2 \beta + 0.5524$$

$$\cos 2\gamma + 8.5428$$

$$-0.01 - 7.9239$$

Comet 1889 V. Jan 17, 1890.

$$\delta = +9.8684$$

$$\log R =$$

$$\epsilon = *$$

$$H, A. = +3.09$$

$$\Delta \delta =$$

$$\delta = +10.18$$

~~Not wanted.~~

Comet 1889 T. Jan 20, 1890.

9.130

$$Z = 67.2^{\wedge}$$

$$+9.8684$$

$$+9.9702$$

$$+9.8386$$

$$+9.9647$$

$$+48.4$$

$$+9.8739$$

$$+96.8$$

$$\log K = 6.4359$$

$$\delta S * S$$

$$H.A. = +436.$$

$$\Delta \delta = +227.7$$

$$\delta = +1054$$

Now in R.A.

$$\log K + 6.4359$$

$$(d^2-d) + 2.1694$$

$$\log^2 B + 0.7528$$

$$\log 2q - 9.0734$$

$$-0.03^{\circ} - 8.4315^{\circ}$$

Comet 1889 V. Feb 20, 1890.

9.174

$$Z = 63.4^{\wedge} \rightarrow \rightarrow$$

$$+9.8684$$

$$+9.9694$$

$$+9.8378$$

$$+9.9514$$

$$+50.3$$

$$+9.8864$$

$$+100.6$$

$$\log K. = +6.4322$$

$$E \ S \ * \ S$$

$$H.A. +435$$

$$\Delta \delta +147.0$$

$$\delta +1629$$

$$nm \text{ in } R.A.$$

$$\log K \quad +6.4388$$

$$(d'-a) +2.0294$$

$$\tan^2 \delta +0.6008$$

$$\log \mu -9.2647$$

$$-0.02^* \quad -8.3337^*$$

Comb 1888 V Mar 18, 1890.

9.12

$$B = 73.0^{\wedge}$$

$$+9.8684$$

$$+9.9985$$

$$+9.8669$$

$$+9.9806$$

$$+50.3$$

$$+9.8863$$

$$+100.6$$

$$\log R = 6.4271$$

$$\leq N * N$$

$$12.15 = +5.41$$

$$\Delta \delta = -1.83$$

$$\delta = +20.36$$

$$m = B.A.$$

$$\log R + 6.4271$$

$$(d'-a) - 1.8344$$

$$\tan^2 3 + 1.0294$$

$$\cos 2\alpha - 9.2647$$

$$+0.04' + 8.5556'$$

Comet 1890 II. Sept 8, 1890.

10.106

$380.8^{\sqrt{A}}$
 by crop $+9.8684^{\checkmark}$
 " init $+9.9730^{\checkmark}$
 Linn $+9.8414^{\checkmark}$
 " init $+9.9944^{\checkmark}$
 $+44.7^{\checkmark}$ $+9.8470^{\checkmark}$
 $+89.4^{\checkmark}$

 $\log K. = +6.3260$ $\delta S * S$ $H.A. = +7.20$ $\Delta S = -2.42.8$ $\delta = +33.34$ $\mu m \sim R.A.$ $\log K + 6.3860^{\checkmark}$ $(d^1-d) - 2.2116^{\checkmark}$ $\log 23 + 1.5812^{\checkmark}$ $\log 29 + 8.0200^{\checkmark}$ $-0.02^{\checkmark} - 8.1988^{\checkmark}$

Comet 1890 III. July 21, 1890.

10.74

$$3 = 87.6 \checkmark^1$$

$$\log \cos \varphi = +9.8684 \checkmark$$

$$\log \sin \epsilon = +9.8169 \checkmark$$

$$\log \cos = +9.6853 \checkmark$$

$$\log \sin \delta = +9.9996 \checkmark$$

$$+29.0 \checkmark \quad +9.6857 \checkmark$$

$$+58.0 \checkmark$$

$$\log(K) = 6.0305$$

$$\delta \quad S \quad * \quad N$$

$$H.A. = +9 \quad 16$$

$$\Delta \delta = -8 \quad 43.4$$

$$\delta = +42 \quad 27$$

$$\log K \quad + 6.0305 \checkmark$$

$$\frac{1}{20} \quad + 8.5229$$

$$\log \cos \delta \quad + 0.1320$$

$$D \quad - 2.9474$$

$$\log \tan^2 \delta \quad + 2.7554$$

$$\log \sin^2 \varphi \quad + 9.9284$$

$$-2.07 \quad -0.3166 \checkmark$$

$$\log K \quad + 6.0305 \checkmark$$

$$D \quad - 2.9474$$

$$\log \tan^2 \delta \quad + 2.7554$$

$$\log \sin^2 \varphi \quad + 9.3712$$

$$-12.72 \quad -1.1045 \checkmark$$

$$\log K \quad + 6.0305 \checkmark$$

$$(d'-a) \quad -2.7188 \checkmark$$

$$\log \tan^2 \delta \quad + 2.7554 \checkmark$$

$$\log \cos 2\varphi \quad + 9.7242 \checkmark$$

$$-16.93 \quad -1.2289 \checkmark$$

$$-29.65$$

Comet 1890 III. July 22, 1890.

10.80

3-81.0[^] 2020

$$\log(R) = 6.3836$$

+9.8684

$$\epsilon N * N$$

+9.9308

$$H_1/H_2 = +8.06$$

+9.7992

$$\Delta F = -3.28.9$$

+9.9946

$$\delta = +41.39$$

+39.6

+9.8046

+79.2

None in a.R.

$$\log R = +6.3836$$

$$(d-d) = -2.3200$$

$$\tan^2 3 = +1.6006$$

$$\cos 29 = +9.2727$$

$$-0.38' = -9.5769'$$

Canal 1890 III July 23, 1890.

10.66

$$Z = 80.1^\circ$$

$$+9.8684$$

$$+9.9439$$

$$+9.8123$$

$$+9.9938$$

$$+41.2$$

$$+9.8188$$

$$+82.4$$

$$\log K = 6.3937$$

$$E \quad N \quad * \quad S$$

$$H.A. = +7 \quad 54$$

$$\Delta \delta = +4 \quad 41.4$$

$$\delta = +40 \quad 46$$

$$\log K + 6.3937$$

$$j_0 + 8.5229$$

$$\sec \delta + 0.1207$$

$$D + 2.9474$$

$$\tan^2 3 + 1.5162$$

$$\sin 2q + 9.9962$$

$$+0.31 + 9.4971$$

$$\log K + 6.3937$$

$$D + 2.9474$$

$$\tan^2 3 + 1.5162$$

$$\sin^2 q + 9.6374$$

$$+3.12 + 0.4947$$

$$\log K + 6.3937$$

$$(d^2 a) + 2.4493$$

$$\tan^2 3 + 1.5162$$

$$\sin 2q + 9.1214$$

$$+0.30 + 9.4806$$

$$+3.42$$

Comet 1890 III Aug 1, 1890.

10.164

$$Z = 80.0^\circ$$

$$\log \cos \varphi = +9.8684 \checkmark$$

$$\log \sin t = +9.9776 \checkmark$$

$$\log \sin \delta = +9.8460 \checkmark$$

$$\log \sin \delta = +9.9934 \checkmark$$

$$+45.4 \checkmark \quad +9.8526 \checkmark$$

$$+90.8 \checkmark$$

$$\log K_1 = 6.3947$$

$$\log S \times S$$

$$\log H_1 = +7.13$$

$$\log \delta = -2.134$$

$$\log \delta = +3.34$$

None in R.A.

$$\log K_1 + 6.3947 \checkmark$$

$$(\log \omega) - 2.1252 \checkmark$$

$$\log \delta + 1.5074 \checkmark$$

$$\log \delta - 8.1450 \checkmark$$

$$+0.01 \checkmark \quad +8.1723 \checkmark$$

Comet 1891 w. Apr 1, 1891.

11.8

$$Z = 79.9^\circ$$

$$+ 9.8684$$

$$+ 9.9386$$

$$+ 9.8070$$

$$+ 9.9932$$

$$+ 40.6$$

$$+ 9.8138$$

$$+ 81.2$$

$$\log K = 6.3956$$

$$\text{E N * S}$$

$$14. A. = +7.59$$

$$\Delta \delta = +8.64$$

$$\delta = +41.45$$

$$\log K + 6.3956$$

$$\frac{1}{2} \circ + 8.5229$$

$$\sec \delta + 0.1272$$

$$D + 2.9474$$

$$\tan^2 3 + 1.4986$$

$$\sin^2 \varphi + 9.9949$$

$$+ 0.31' + 9.4866'$$

$$\log K + 6.3956$$

$$D + 2.9474$$

$$\tan^2 3 + 1.4986$$

$$\sin^2 \varphi + 9.6268$$

$$+ 2.94' + 0.4684'$$

$$\log K + 6.3956$$

$$(d'd) + 2.6870$$

$$\tan^2 3 + 1.4986$$

$$\cos^2 \varphi + 9.1847$$

$$+ 0.58' + 9.7659'$$

$$+ 3.52$$

Cameh (89) a. Apr 8, 1891.

11.2

$$J = 81.4 \checkmark^1$$

$$+ 9.8684 \checkmark$$

$$+ 9.9664 \checkmark$$

$$+ 9.8348 \checkmark$$

$$+ 9.9951 \checkmark$$

$$+ 43.7 \checkmark$$

$$+ 87.4 \checkmark$$

$$+ 9.8397 \checkmark$$

$$\log K = 6.3787$$

$$\delta \approx N * S$$

$$H.A. = +7 \ 29$$

$$\Delta \delta = +8 \ 41.0$$

$$\delta = +34 \ 25$$

$$\Delta 1.6$$

$$9.2624$$

$$9.9664$$

$$9.2342$$

$$9.9953$$

$$\log K + 6.3787$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0836$$

$$D + 2.9474$$

$$\tan^2 3 + 1.6406$$

$$\sin^2 q + 9.9996$$

$$+ 0.37' + 9.5728'$$

$$\log K + 6.3787$$

$$D + 2.9474$$

$$\tan^2 3 + 1.6406$$

$$\sin^2 q + 9.6788$$

$$+ 4.42' + 0.6455'$$

$$\log K + 6.3787 \checkmark$$

$$(d \cdot d) + 2.7168$$

$$\tan^2 3 + 1.6406 \checkmark$$

$$\sin^2 q + 8.6567 \checkmark \checkmark$$

$$+ 0.25' + 9.3928' \checkmark$$

$$+ 4.67$$

Comet 1891. a Apr 9. 1891.

11.16

$$\beta = 83.3^\circ$$

$$+9.8684$$

$$+9.9590$$

$$+9.8274$$

$$+9.9970$$

$$+42.6$$

$$+9.8304$$

$$+85.2$$

$$\log K. 6.3436$$

$$\propto N * S$$

$$H. H. = +7.38$$

$$\Delta \delta = +8.03$$

$$\delta = +33.21$$

$$\log K + 6.3436$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0781$$

$$D + 2.9474$$

$$\tan^2 3 + 1.8602$$

$$\sin 2q. + 9.9985$$

$$+0.56 + 9.7507$$

$$\log K + 6.3436$$

$$D + 2.9474$$

$$\tan^2 3 + 1.8602$$

$$\sin^2 q + 9.6610$$

$$+0.65 + 9.8122$$

$$\log K + 6.3436$$

$$(d'd) + 2.6815$$

$$\tan^2 3 + 1.8602$$

$$\sin 2q. + 8.9226$$

$$+0.64 + 9.8079$$

$$+1.29$$

Comet Creusa (1882 II) Mar 7, 1883.

8.216

$$3 = 62.3^{\circ}$$

$$+ 9.8684$$

$$+ 9.6923$$

$$+ 9.5507$$

$$+ 9.9471$$

$$+ 23.7$$

$$+ 47.4$$

$$+ 9.6036$$

None in R.H.

$$\log K = -6.4393$$

$$\delta S * S$$

$$H.A. = +1.58$$

$$\Delta \delta = +4.447$$

$$\delta = -13.51$$

$$\log K + 6.4393$$

$$(\delta - \alpha) + 2.4544$$

$$\log 3 + 0.5596$$

$$\cos 2q + 9.8305$$

$$+0.19' + 9.2838'$$

Cont 1882 II Mar 7. 1883.

8.216

See p. 49, This book.

 $\log K =$ $\log S \times S$ $\log H + 4 \log 8.9$ $\Delta 5$ $+6.4393$ $+2.4606$ $+0.5596$ $+9.8385$ $+0.20$ $+9.2900'$

Cent 1882 II Mar 7. 1883.

8.216

 $\approx S \quad * S$

See p. 49. This book.

 $\Delta S = +4 \ 49.5$ $+6.4393$ $+2.4617$ $+0.5596$ $+9.8345$ $+0.20 \quad +9.2911'$

Coma 1882 II. Apr. 2, 1883.

5.78

$$B = 70.6^{\circ}$$

$$+9.8684$$

$$+9.8980$$

$$+9.7664$$

$$+9.9746$$

$$+38.3$$

$$+9.7918$$

$$+76.6$$

$$\log K = 6.4317$$

$$\epsilon S * S$$

$$H.A. = +329$$

$$\Delta S = +215.7$$

$$\delta = -19^{\circ} 33'$$

none in R. 18.

$$\log K + 6.4317$$

$$(d-a) + 2.4826$$

$$+23 + 0.9066$$

$$\cos 2q + 9.3650$$

$$+0.07' + 8.8359'$$

Cont 1882 II Apr 23, 1883.

5.78

$$S = 70.6^{\wedge}$$

$$+9.8684$$

$$+9.8980$$

$$+9.7664$$

$$+9.9746$$

$$+38.3$$

$$+9.7918$$

$$+7.6.6.$$

$$\log K = 6.4317.$$

$$E \rightarrow * S$$

$$H.A. = +3.29$$

$$\Delta \sigma = +2.18.7$$

$$\delta = -9.35$$

Name is R. H.

$$\log K = +6.4317$$

$$(d^{\wedge}a) + 2.1422$$

$$t^{\wedge}3 + 0.9066$$

$$\cos 2q + 9.3650$$

$$+0.07^{\wedge} + 8.8455^{\wedge}$$

Camel 1882 II Apr 6, 1883.

5182

$$Z = 71.3^\wedge$$

$$+9.8684$$

$$+9.9080$$

$$+9.7764$$

$$+9.9764$$

$$+9.8000$$

$$+39.1$$

$$+78.2$$

$$\log K = +6.4305$$

$$\Delta N * \Delta$$

$$10.A. = +3.36$$

$$D\delta = +13.44.2$$

$$\delta = -9.10$$

$$\log K +6.4305$$

$$\frac{1}{30} +8.5229$$

$$\sec \delta +0.0056$$

$$D +2.9474$$

$$\tan^3 \delta +0.9410$$

$$\sec \delta +9.9907$$

$$+0.069 +8.8381'$$

$$\log K +6.4305$$

$$D +2.9474$$

$$\tan^3 \delta +0.9410$$

$$\sec \delta +9.5996$$

$$+0.83' +9.9185'$$

$$\log K +6.4305$$

$$(d'-d) +2.9160$$

$$\tan^3 \delta +0.9410$$

$$(z-z_g) +9.3107$$

$$+0.40' +9.5982'$$

$$+1.23$$

Camel 1882 II. Apr 6, 1883.

5-82

See p. 54, This book.

log K =

8 N * 4.

10.15.

 $\Delta \delta = +13 \ 42.5$ $\delta =$

+ 6.4305

+ 2.9152

+ 0.9410

+ 0.83

+ 9.3107

+ 0.40

+ 9.5974

+ 1.23

~~+ 1.63~~

Sappho (80) Apr 16, 1888.

6-16

$$3 = 60.91^{\wedge}$$

$$+9.8684$$

$$-9.7022$$

$$-9.5706$$

$$+9.9414$$

$$-25.2$$

$$-9.6292$$

$$-50.4$$

$$\log K. = 6.4400$$

$$\textcircled{80} N * N$$

$$1d.A. = -2 \ 01$$

$$\Delta \delta = -2 \ 17.1$$

$$\delta = -11 \ 48$$

num in R.A.

$$\log K + 6.4400$$

$$(d'a) - 2.1370$$

$$\tan 3 + 0.5090$$

$$\cos 2g + 9.8044$$

$$-0.08' - 8.8944'$$

Sappho (80) Apr 17, 1888.

0.22

$$Z = 62.3^{\wedge}$$

$$+9.8684$$

$$-9.7447$$

$$-9.6131$$

$$+9.9471$$

$$-27.6$$

$$-9.6660$$

$$-55.2$$

$$\log K = 6.4393$$

$$\textcircled{80} N * S$$

$$H.A. = -2 \ 15-$$

$$\Delta \delta = +6 \ 12.4$$

$$\delta = -11 \ 47$$

$$\log K + 6.4393$$

$$\log \sigma + 8.5229$$

$$\sec \epsilon + 0.0092$$

$$D + 2.9474$$

$$\tan^2 \beta + 0.5596$$

$$\sin 2q - 9.9144$$

$$-0.02' - 8.3928'$$

$$\log K + 6.4393$$

$$D + 2.9474$$

$$\tan^2 \beta + 0.5596$$

$$\sin^2 q + 9.3318'$$

$$+0.19' + 9.2781'$$

$$\log K + 6.4393$$

$$(d-a) + 2.5710$$

$$\tan^2 \beta + 0.5596$$

$$\cos 2q + 9.7564$$

$$+0.21' + 9.3263'$$

$$+0.40$$

Septho 80 Apr 18, 1888.

6.28

$$3 = 66.5^{\wedge}$$

$$+9.8684$$

$$-9.8297$$

$$-9.6981$$

$$+9.9824$$

$$-33.0$$

$$-9.7357$$

$$-66.0$$

$$\log 12 = 6.4366$$

$$(80) S * N$$

$$\log 12 = -2.50$$

$$\Delta 8 = -6.275$$

$$\delta = -11.29$$

$$\log 12 + 6.4366$$

$$\frac{1}{30} + 8.5229$$

$$\sec \delta + 0.0088$$

$$\Delta - 2.9474$$

$$\tan^2 3 + 0.7234$$

$$\sin^2 \gamma - 9.9607$$

$$+0.04^{\wedge} + 8.5998^{\wedge}$$

$$\log K + 6.4366$$

$$\Delta - 2.9474$$

$$\tan^2 3 + 0.7234$$

$$\sin^2 \gamma + 9.4722$$

$$-0.38^{\wedge} - 9.5796^{\wedge}$$

$$\log 12 + 6.4366$$

$$(d-d) - 12.5883$$

$$\tan^2 3 + 0.7234$$

$$\cos 2\gamma + 9.6093$$

$$-0.23^{\wedge} - 9.3576^{\wedge}$$

$$-0.61$$

Sappho (80). Apr 18, 1888.

6-30

$$3 = 63.6^{\wedge}$$

$$+ 9.8684$$

$$- 9.7769$$

$$- 9.6453$$

$$+ 9.9522$$

$$- 29.6$$

$$- 9.6931$$

$$- 59.2$$

$$\log 12 \quad 6.4386$$

$$(80) \quad S * N$$

$$15, 18, = -2 \quad 27$$

$$\Delta \delta = -6 \quad 18-1$$

$$\delta = -11 \quad 29$$

$$\log 12 \quad + 6.4386$$

$$\frac{1}{30} \quad + 8.5229$$

$$\sec \delta \quad + 0.0088$$

$$D \quad - 2.9474$$

$$\tan^2 3 \quad + 0.6084$$

$$\sin 2\gamma \quad - 9.9340$$

$$+ 0.03^{\wedge} \quad + 8.4601^{\wedge}$$

$$\log 12 \quad + 6.4386$$

$$D \quad - 2.9474$$

$$\tan^2 3 \quad + 0.6084$$

$$\sin^2 \gamma \quad + 9.3874$$

$$- 0.24^{\wedge} \quad - 9.3888^{\wedge}$$

$$\log 12 \quad + 6.4386$$

$$(d^1-d) \quad - 2.5776.$$

$$\tan^2 3 \quad + 0.6084$$

$$\cos 2\gamma \quad + 9.7093$$

$$- 0.22^{\wedge} \quad - 9.3339^{\wedge}$$

$$- 0.46$$

Peters New Astronomical (257) Sept 19/89.

7.126

$$3 = 60.5^{\wedge}$$

$$+9.8684$$

$$-9.1822$$

$$-9.0506$$

$$+9.9397$$

$$-9.1109$$

$$-7.4$$

$$-14.8$$

$$\log K = 6.4402$$

$$(257) N * N$$

$$1+A = -0.35$$

$$\Delta \delta + 1.30.0$$

$$\delta - 17.29$$

in R.A.

$$\log K + 6.4402$$

$$(d^1d) + 2.9542$$

$$d^23 + 0.4948$$

$$m2g. + 9.9853$$

$$+0.07' + 8.8745'$$

(287), Sept 19, 1889.

7.128

$$Z = 61.2^{\wedge} \dots$$

$$+9.8684$$

$$+9.3760$$

$$+9.2444$$

$$+9.9427$$

$$+11.6 \quad +9.3017$$

$$+23.2$$

$$\log R = 6.4399$$

$$(287) N * N$$

$$) + A \quad +0.55-$$

$$\Delta \delta \quad +1.78$$

$$\delta \quad -17.29$$

Arm in R. A.

$$\log R \quad +6.4399$$

$$(d'-a) \quad +1.8312$$

$$\log 3 \quad +0.5196$$

$$\log 29 \quad +9.9634$$

$$+0.06' \quad +8.7541'$$

(287) Sept 23, 1889.

7.134

$$z = 60.3^{\wedge}$$

$$+9.8684$$

$$-9.9614$$

$$-8.8298$$

$$+9.9388$$

$$-4.5$$

$$-8.8910$$

$$-9.0$$

$$\log K = 6.4403$$

$$(287) N \times S$$

$$1414 - 0.21$$

$$\Delta 5 + 445.9$$

$$\delta - 17.50$$

$$\log K + 6.4403$$

$$\frac{1}{30} + 8.5229$$

$$\sin \delta + 0.0214$$

$$D + 2.9474$$

$$\sin^2 3 + 0.4876$$

$$\sin^2 \gamma = 9.1943$$

$$-0.00 - 7.6139$$

$$\log K + 6.4403$$

$$D + 2.9474$$

$$\sin^2 3 + 0.4876$$

$$\sin^2 \gamma + 7.7892$$

$$+0.00 + 7.6645$$

$$\log K + 6.4403$$

$$(d'-d) + 2.4562$$

$$\sin^2 3 + 0.4876$$

$$\sin^2 \gamma + 9.9946$$

$$+0.24 + 9.3787$$

$$+0.24$$

(267). Sept 24, 1889.

7.138

$$z = 61.5^{\wedge}$$

$$+9.8684$$

$$-9.3912$$

$$-9.2596$$

$$+9.9439$$

$$-11.9$$

$$-9.3157$$

$$-23.8$$

$$\log K = +6.4398$$

$$(267) N * N$$

$$H A = -0.57$$

$$\Delta \delta + 0.43$$

$$\delta -17.51$$

num in R.A.

$$\log K + 6.4398$$

$$(d'-d) + 0.6335$$

$$\log 3 + 0.5304$$

$$\log 4 + 9.9614$$

$$+0.00' + 7.5651''$$

(287) Sept 24, 1889.

7.140

$$3 = 64.0^{\wedge}$$

$$+9.8684$$

$$+9.6050$$

$$+9.4734$$

$$+9.9537$$

$$+19.3 \quad +9.5197$$

$$+38.6$$

$$m = R.H.$$

$$\log K = +6.4384$$

$$(287) N * N$$

$$H/A \quad +1.35-$$

$$\Delta \delta \quad -0.26.3$$

$$\delta \quad -17.51 +$$

$$\log K \quad +6.4384$$

$$(d'-d) \quad -1.4200$$

$$\log 3 \quad +0.6236$$

$$\log q \quad +9.8929$$

$$-0.02 \quad -8.3749$$

1882 I. June 22, 1882

$$Z = +55.5$$

$$q = +47.3$$

$$\log 0.5 = +9.6990$$

$$\tan^2 Z = +2.2080$$

$$\sin^2 q = +9.9986$$

$$Z_1 + 80.46 = \text{true log.} + 1.9056$$

$$\log \tan Z = +1.1040$$

$$\sin q = +9.8662$$

$$\tan \delta = +9.4064$$

$$Z_2 + 2.38 = \text{true log.} + 0.3766$$

$$+ 82.84 = \text{true log.} + 1.9182$$

$$\log R = +6.2584$$

$$\frac{1}{15} = +8.8239$$

$$\sec \delta = +0.0137$$

$$D = +2.9474$$

$$Z_3 = +0.915 = \text{true log.} + 9.9616$$

$$\log 2 = +0.3010$$

$$R = +6.2584$$

$$\frac{1}{15} = +8.8239$$

$$\sec \delta = +0.0137$$

$$d'-d = +2.5553$$

$$\tan Z = +1.1040$$

$$\sin q = +9.8662$$

$$\tan \delta = +9.4064$$

$$Z_4 = +0.052 = \text{true log.} + 8.3289$$

$$+ 0.894$$

$$E N * S.$$

$$\log R = 6.2584$$

$$\Delta \delta = +559.2$$

$$H K = +629$$

$$\delta = +1419$$

$$\log \tan^2 Z = +2.2080$$

$$\sin^2 q = +9.7324$$

$$\text{true log.} = +1.9404$$

$$Z_1 = +87.18$$

$$Z_2 + 1 = +88.18$$

$$\log d_0 = +1.9454$$

$$K = +6.2584 \checkmark$$

$$+ D = +2.9474$$

$$\text{true log.} + 1.1516$$

$$\text{Cor. } Z_2 = +14.18$$

$$K = +6.2584 \checkmark$$

$$|d'-d| = +2.5553 \checkmark$$

$$\tan^2 Z = +2.2080 \checkmark$$

$$\sin^2 q = +8.9042 \checkmark$$

$$\text{true log.} - 9.9259 \checkmark$$

$$Z_3 = -0.84$$

$$+ 13.34$$

$$\text{Cor. in } a = +0.89$$

$$.. \delta = +13.3$$

1882 I June 26, 1882

$$Z = +87.6^\circ$$

$$q = +46.9$$

$$\delta \ S \ * \ n$$

$$\log R \ 6.0305$$

$$\Delta J \ +12 \ 23.9$$

$$1st. \ +6 \ 37$$

$$\delta. \ +13 \ 25$$

$$\log \ 0.5 \ +9.6990$$

$$\tan^2 3 \ +2.7554$$

$$\sin 2q \ +9.9990$$

$$+284.1 = +2.4534$$

$$\log \tan 3 \ +1.3777$$

$$\sin q \ +9.8634$$

$$\tan \delta \ +9.3776$$

$$+4.16 = +0.6187$$

$$288.26 = +2.4598$$

$$\log R \ +6.0305$$

$$\frac{1}{15} \ +8.8239$$

$$\sec \delta \ +0.0120$$

$$D \ -2.9474$$

$$-1.878 = -0.2736$$

$$\log 2 \ +0.3010$$

$$K \ +6.0305$$

$$\frac{1}{15} \ +8.8239$$

$$\sec \delta \ +0.0120$$

$$(d'd) \ -2.8715$$

$$\tan 3 \ +1.3777$$

$$\sin q \ +9.8634$$

$$\tan \delta \ +9.3776$$

$$-0.045 \ -8.6576$$

$$-1.833$$

$$\log \tan^2 3 \ +2.7554$$

$$\sin^2 q \ +9.7268$$

$$\sin \ +2.4822$$

$$2y \ +303.5$$

$$2y+1 \ +304.5$$

$$\log d_0 \ +2.4836$$

$$" \ R \ +6.0305$$

$$" \ D \ -2.9474$$

$$\text{sum.} \ +1.4615$$

$$Qy \ -28.94$$

$$\log R \ +6.0305$$

$$(d'd) \ -2.8715$$

$$\tan^2 3 \ +2.7554$$

$$\log q \ -8.8213$$

$$\text{sum} \ +0.4787$$

$$Qy \ +3.01$$

$$\cos \delta = -25.93$$

$$\alpha = -1.83$$

1882 I June 28, 1882.

$$Z = +87.2^\circ$$

$$q = -47.1$$

$$\left. \begin{array}{l} \log 0.5 \\ \tan^2 3 \\ \sin 2q \\ = \\ \log \tan 3 \\ \sin q \\ \tan \delta \\ = \\ = \\ \log R \\ \frac{1}{15} \\ \sec \delta \\ D \end{array} \right\} = 0$$

0.000

$$\begin{array}{ll} \log R & + 6.0974 \\ \frac{1}{15} & + 8.8239 \\ \sec \delta & + 0.0109 \\ (d'-d) & - 2.3733 \\ \tan 3 & + 1.3106 \\ \sin q & - 9.8648 \\ \tan \delta & + 9.3558 \\ Z & + 0.3010 \\ & + 8.1377 \end{array}$$

$$\pm 0.014$$

$$-0.014$$

$$\approx S, * S$$

$$\log R = 6.0974$$

$$\Delta \delta = -3 \ 56.2$$

$$1st. +6 \ 32$$

$$\delta + 12 \ 47$$

$$\left. \begin{array}{l} \log \tan^2 3 \\ \sin^2 q \\ = \\ = \\ \log R \\ D \end{array} \right\} = 0$$

$$= 0.000$$

$$\left. \begin{array}{l} \log R \\ (a'-a) \\ \tan^2 3 \\ \sin 2q \end{array} \right\} \text{ See p 12.}$$

$$\text{See p 12.} = +0.90$$

$$\left. \begin{array}{l} \sin 2 = -0.01 \\ \delta = +0.9 \end{array} \right\}$$

1890 III. 1890 July 21.

$$z = +87.6^\circ$$

$$q = +29.0$$

ES, * N.

$$\log R = 6.0305$$

$$\Delta \delta = -843.6$$

$$H.A. + 9.16$$

$$\delta + 42.27$$

$$\log 0.5 + 9.6990$$

$$\tan^2 3 + 2.7554$$

$$\sin^2 q + 9.9284$$

$$+ 241.4 = + 2.3828$$

$$\log \tan 3 + 1.3777$$

$$\sin q + 9.6856$$

$$\tan \delta + 9.9613$$

$$+ 10.58 = + 1.0246$$

$$+ 251.98 = + 2.4014$$

$$\log R + 6.0305$$

$$\frac{1}{10} + 8.8239$$

$$\sec \delta + 0.1320$$

$$D - 2.9474$$

$$- 2.164 = - 9.3352$$

$$\log R + 6.0305$$

$$\frac{1}{10} + 8.8239$$

$$\sec \delta + 0.1320$$

$$(a'-a) - 2.7188$$

$$\tan 3 + 1.3777$$

$$\sin q + 9.6856$$

$$\tan \delta + 9.9613$$

$$2 + 0.3010$$

$$- 0.107$$

$$- 2.057$$

$$- 9.0308$$

$$\log \tan^2 3 + 2.7554$$

$$\sin^2 q + 9.3712$$

$$+ 2.1266 = 133.9$$

$$+ 2.1300 = 134.9$$

$$\log R + 6.0305$$

$$D - 2.9474$$

$$- 1.1079 = - 12.82$$

$$\log R$$

$$(a'-a)$$

$$\tan^2 3$$

$$\sin^2 q$$

$$\left. \begin{array}{l} \log R \\ (a'-a) \\ \tan^2 3 \\ \sin^2 q \end{array} \right\} = (\sec p 42) \quad \begin{array}{l} -16.93 \\ -29.75 \end{array}$$

$$\left. \begin{array}{l} \text{Cor in } \alpha = -2.06 \\ \text{'' } \delta = -29.8 \end{array} \right\}$$



Comet Gröff. = 1491 II.
Sept. 9. 1491.

$$\varphi = 67.0^\circ \checkmark$$

$$t = -5^h 14^m 3^s \checkmark$$

$$d_0 = +22^\circ 22' \checkmark$$

$$\log \sin \varphi =$$

$$\log \cos \varphi = +9.4644 \checkmark$$

$$\log \sin t = \underline{+9.9913 \checkmark}$$

$$\text{Sum} = +9.4557 \checkmark$$

$$\log \sin \varphi = +9.9640 \checkmark$$

$$\log \sin \varphi = \underline{+9.4957 \checkmark}$$

$$g = -51.9^\circ \checkmark$$

$$2g = -103.8^\circ \checkmark$$

$$d' - d = +73.40^\circ \checkmark$$

$$\log K = +6.4361 \checkmark$$

$$\log \frac{1}{30} = +2.5229 \checkmark$$

$$\log \cos d_0 = +9.9657 \checkmark$$

$$\log +g' = +2.9474 \checkmark$$

$$\log \tan^2 \varphi = +0.7443 \checkmark$$

$$\log \sin 2g = \underline{+9.9473 \checkmark}$$

$$\text{Cor. in } d = -0.04^\circ \checkmark = \underline{+2.6037 \checkmark}$$

$$\log K = +6.4361 \checkmark$$

$$\log +g' = +2.9474 \checkmark$$

$$\log \tan^2 \varphi = +0.7443 \checkmark$$

$$\log \sin^2 g = \underline{+9.7918 \checkmark}$$

$$\text{Sum} = +9.9196 \checkmark$$

$$+0.23^\circ \checkmark$$

$$\log K = +6.4361 \checkmark$$

$$\log (d' - d) = +2.8681 \checkmark$$

$$\log \tan^2 \varphi = +0.7443 \checkmark$$

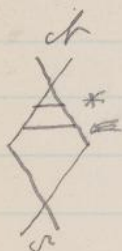
$$\log \cos 2g = \underline{+9.3775 \checkmark}$$

$$-0.27^\circ \checkmark = \underline{+9.4260 \checkmark}$$

$$+0.23^\circ \checkmark$$

$$+0.56^\circ \checkmark \text{ Cor. for Ref. in } d$$

Comet Groll.
Sept. 10. 1291.



$$\zeta = 62.6^\circ \checkmark$$

$$\zeta \cos \varphi = +9.2624 \checkmark$$

$$'' \sin t = \underline{+9.9799} \checkmark$$

$$\sin \quad = +9.4423 \checkmark$$

$$\zeta \sin \zeta = \underline{+9.9423} \checkmark$$

$$'' \sin \zeta = \underline{+9.9000} \checkmark$$

$$\varphi = -52.6^\circ \checkmark$$

$$2\varphi = -105.2^\circ \checkmark$$

No. ref. in R. A.

$$t = -4^\circ 50.2' \checkmark$$

$$\delta_0 = +22^\circ 16' \checkmark$$

$$d' - d = -102.3 \checkmark$$

$$\zeta K = +6.4392 \checkmark$$

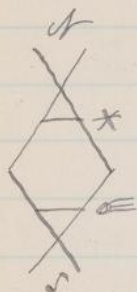
$$''(d' - d) = -2.0099 \checkmark$$

$$'' \tan^2 \zeta = +0.5702 \checkmark$$

$$'' \cos 2\varphi = \underline{+9.4126} \checkmark$$

$$+0.83 \checkmark = +2.4325 \checkmark$$

Const. Tralf.
Sept. 12. 1891.



$$S = 67.5^\circ \checkmark$$

$$\Sigma \cos \varphi = +9.2624 \checkmark$$

$$\text{" sin } t = \underline{+9.9911 \checkmark}$$

$$\text{Sum} = +9.2595 \checkmark$$

$$\Sigma \sin S = +9.9656 \checkmark$$

$$\text{" sin } g = \underline{+9.2939 \checkmark}$$

$$g = -51.6^\circ \checkmark$$

$$2g = -103.2^\circ \checkmark$$

$$\Sigma K = +6.4356 \checkmark$$

$$\text{" } \frac{1}{30} = +2.5229 \checkmark$$

$$\text{" cos } \delta_0 = +9.9622 \checkmark$$

$$\text{" } -g' = -2.9474 \checkmark$$

$$\text{" tan } 2g = +0.7656 \checkmark$$

$$\text{" sin } 2g = \underline{+9.9224 \checkmark}$$

$$\text{Cor. in } \delta = +0.04 \checkmark \quad = +2.6221 \checkmark$$

$$t = -5^\circ 13.7' \checkmark$$

$$\delta_0 = +21^\circ 39' \checkmark$$

$$d' - d = -442.4 \checkmark$$

$$\Sigma K = +6.4356 \checkmark$$

$$\text{" } -g' = -2.9474 \checkmark$$

$$\text{" tan } 2g = +0.7656 \checkmark$$

$$\text{" sin } 2g = \underline{+9.7222 \checkmark}$$

$$\text{Sum} = -9.9362 \checkmark$$

$$-0.26 \checkmark$$

$$\text{" } K = +6.4356 \checkmark$$

$$\text{" } (d' - d) = -2.6452 \checkmark$$

$$\text{" tan } 2g = +0.7656 \checkmark$$

$$\text{" cos } 2g = \underline{+9.3526 \checkmark}$$

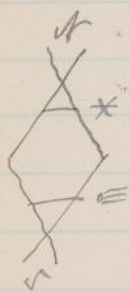
$$\text{Sum} = +9.2056 \checkmark$$

$$+0.16 \checkmark$$

$$-0.26 \checkmark$$

$$-0.70 \checkmark \text{ Cor. in } \delta$$

Comet Grolf.
Sept. 14. 1891.



$$\zeta = 64.5'' \checkmark$$

$$\text{Log cos } \varphi = +9.2624'' \checkmark$$

$$\text{" sin } t = \underline{+9.9925''} \checkmark$$

$$\text{Sum} = \underline{+9.2609''} \checkmark$$

$$\text{Log sin } \zeta = \underline{+9.9647''} \checkmark$$

$$\text{" sin } g = \underline{+9.8922''} \checkmark$$

$$\varphi = -51.3'' \checkmark$$

$$2g = -102.6'' \checkmark$$

$$\text{Log } K = +6.4345'' \checkmark$$

$$\text{" } \frac{t}{30} = +2.5229'' \checkmark$$

$$\text{" cos } \delta_0 = +9.9704'' \checkmark$$

$$\text{" } -g' = -2.9474'' \checkmark$$

$$\text{" tan } \zeta = +0.2092'' \checkmark$$

$$\text{" sin } 2g = \underline{+9.9694''} \checkmark$$

$$\text{Cor. in } t = +0.05'' \checkmark$$

$$+2.6732'' \checkmark$$

$$t = -5^h 17.5^m \checkmark$$

$$\delta_0 = +20^\circ 56' \checkmark$$

$$d' - d = -254.4'' \checkmark$$

$$\text{Log } K = +6.4345'' \checkmark$$

$$\text{" } -g' = -2.9474'' \checkmark$$

$$\text{" tan } \zeta = +0.2092'' \checkmark$$

$$\text{" sin } 2g = \underline{+9.7246''} \checkmark$$

$$\text{Sum} = \underline{-9.9757''} \checkmark$$

$$-0.95'' \checkmark$$

$$\text{Log } K = +6.4345'' \checkmark$$

$$\text{" } (d' - d) = -2.4055'' \checkmark$$

$$\text{" tan } \zeta = +0.2092'' \checkmark$$

$$\text{" cos } 2g = \underline{+9.3324''} \checkmark$$

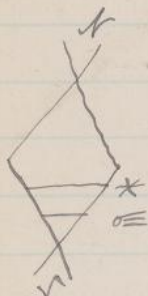
$$\text{Sum} = \underline{+2.9279''} \checkmark$$

$$+0.10'' \checkmark$$

$$-0.95'' \checkmark$$

$$-0.25'' \text{ Cor. in } \delta \checkmark$$

Comet Grubb
Sept. 16. 1891.



$$S = 65.2^{\circ} \checkmark^{\wedge}$$

$$t = -\sqrt{h} \quad 1.4^{\circ} \checkmark$$

$$d_0 = +20^{\circ} 22' \checkmark$$

$$\text{Log cos } \varphi = +9.2640^{\circ}$$

$$\text{" sin } t = \underline{+9.9256^{\circ}}$$

$$\text{Sum} = \underline{+9.2540^{\circ}}$$

$$\text{Log sin } S = +9.9600^{\circ}$$

$$\text{" sin } g = \underline{+9.4940^{\circ}}$$

$$d' - d = -155.9^{\circ}$$

$$g = -51.6^{\circ}$$

$$2g = -103.2^{\circ}$$

to ref. in R. A.

$$\text{Log } K = +6.4372^{\circ}$$

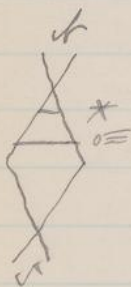
$$\text{" (d' - d) = -2.1922^{\circ}$$

$$\text{" tan } S = +0.6947^{\circ}$$

$$\text{" cos } 2g = \underline{+9.3526^{\circ}}$$

$$+0.0^{\circ} = +4.6233$$

Comet Wolf,
Sept. 26, 1891.



$$\vartheta = 60.3^\circ \checkmark$$

$$t = -4^h 16.2^m \checkmark$$

$$\delta = +16^\circ 3' \checkmark$$

$$\log \cos \varphi = +9.2664 \checkmark$$

$$\text{" sin } t = \underline{-9.9544} \checkmark$$

$$\text{Sum} = +9.2222 \checkmark$$

$$\log \sin \vartheta = \underline{+9.9362} \checkmark$$

$$\text{" sin } \varphi = +9.2240 \checkmark$$

$$d' - d = -120.7'' \checkmark$$

$$\varphi = -50.0^\circ \checkmark$$

$$2\varphi = -100.0^\circ \checkmark$$

No ref. in R.A.

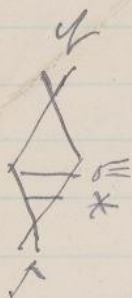
$$\log K = +6.4403 \checkmark$$

$$\text{" } (d' - d) = -2.0217 \checkmark$$

$$\text{" tan } 2\varphi = +0.4277 \checkmark$$

$$\text{" cos } 2\varphi = \underline{-9.2397} \checkmark$$

$$+0.0 \checkmark = +0.2494 \checkmark$$

Brooks' New Comet (Aug. 22.)Obs. of Sept 1. 1892.

$$\zeta = +70.9''$$

$$t = -6^h 9^m 10^s$$

$$d_0 = +31^\circ 35' 32''$$

$$d' - d = +37.4''$$

$$\zeta_{\text{cor}} = +9.2644''$$

$$\text{" unit} = +9.9997''$$

$$\text{sum} = +9.2641''$$

$$\zeta_{\text{true}} = +9.9997''$$

$$g = -14.6''$$

$$2g = -29.2''$$

$$\text{" em } g = +9.8927''$$

$$\zeta_K = +6.4032''$$

$$\text{" } d' - d = +1.5729''$$

$$\text{" } \zeta = +1.5727''$$

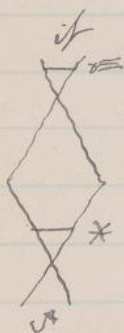
$$\text{" } \cos 2g = +9.1447''$$

$$-0.03 = -0.514''$$

$$8.2394$$

No cor. in R.A.

Brooks' Comet (Nov. 19. 1892)

Obs. of Nov. 22. 1892.

$$\zeta = 63.3^\circ$$

$$t = -4^h 26^m 30^s$$

$$J_0 = +14^\circ 1' 35''$$

$$\text{Log } \cos \varphi = +9.2624$$

$$\text{" sin } t = \underline{+9.9632}$$

$$\text{Sum} = +9.2316$$

$$\text{" sin } \zeta = \underline{+9.9510}$$

$$\text{" sin } \varphi = +9.2206$$

$$\begin{aligned} -49.4 &= \\ -9.4 & \end{aligned}$$

$$\text{" } K = +6.4322$$

$$\text{" } \frac{1}{30} = +0.5229 \checkmark$$

$$\text{" sec } J_0 = +0.0134 \checkmark$$

$$\text{" } +g = +2.9474 \checkmark$$

$$\text{" } \tan^2 \zeta = +0.5970 \checkmark$$

$$\text{" sin } 2g = \underline{+9.9959 \checkmark}$$

$$\text{Cor. in } t = -0.03 = +0.5144 \checkmark$$

$$\text{Log } K = +6.4322$$

$$\text{" } +g = +2.9474 \checkmark$$

$$\text{" } \tan^2 \zeta = +0.5970 \checkmark$$

$$\text{" sin } 2g = \underline{+9.7602 \checkmark}$$

$$+0.55 = +9.7440 \checkmark$$

$$\text{" } K = +6.4322$$

$$\text{" } (h'-d) = +2.9666 \checkmark$$

$$\text{" } \tan^2 \zeta = +0.5970 \checkmark$$

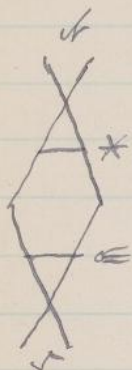
$$\text{" } \cos 2g = \underline{+9.1447 \checkmark}$$

$$-0.15 = +9.1271 \checkmark$$

$$+0.55$$

$$+0.80 \text{ Cor. in } J$$

Brooks' Comet. (Nov. 19, 1892).
Nov. 24, 1892.



$$\zeta = 62.4$$

$$\log \cos \varphi = +9.8644$$

$$\text{" sin } t = \underline{+9.9599}$$

$$\text{Sum} = +9.8243$$

$$\text{" sin } \zeta = \underline{+9.9875}$$

$$\text{" sin } \varphi = +9.8204$$

$$-49.5$$

$$-99.0 = 2\varphi$$

$$\text{" } K = +6.4393 \checkmark$$

$$\text{" } \frac{1}{30} = +2.5229$$

$$\text{" sec } \delta_0 = +0.0156$$

$$\text{" } -g = -2.9474$$

$$\text{" tan } \zeta = +0.5634$$

$$\text{" sin } 2\varphi = \underline{+9.9986}$$

$$\alpha' - \alpha = +0.03 = +2.4232 \checkmark$$

$$t = -4^h 23^m$$

$$\delta = +15^\circ 15'$$

$$\underline{\alpha' - \alpha = -327.4}$$

$$\log K = +6.4393$$

$$\text{" } -g = -2.9474$$

$$\text{" tan } \zeta = +0.5634$$

$$\text{" sin } \varphi = \underline{+9.7620}$$

$$-0.52 = -9.7121$$

$$\text{" } K = +6.4393$$

$$\text{" } (\alpha' - \alpha) = +2.5145$$

$$\text{" tan } \zeta = +0.5634$$

$$\text{" cos } 2\varphi = \underline{+9.1943}$$

$$+0.05 = +2.7115$$

$$-0.52$$

$$-0.47 = \delta' - \delta$$

Kalff's Per. =
Jan. 20. 1892.

$$\gamma = 63.2^\circ$$



$$\begin{aligned} \gamma &= 29^\circ 42' \\ 2\gamma &= 59^\circ 24' \end{aligned}$$

$$\Sigma \cos \varphi = +9.2624$$

$$\text{" sin } t = +9.7795$$

$$\text{Shen} = +9.6479$$

$$\text{" sin } \gamma = +9.9529$$

$$\text{" sin } \varphi = +9.6950$$

$$\Sigma K = +6.4325$$

$$\text{" } \frac{1}{30} = +0.5229$$

$$\text{" sec } d_0 = +0.0090$$

$$\text{" } -\gamma = -2.9474$$

$$\text{" tan }^2 \gamma = +0.6160$$

$$\text{" sin } 2\gamma = +9.9349$$

$$-0.029 = -2.4627$$

$$t_0 = +2^h 24.0$$

$$d_0 = -11^\circ 38'$$

$$(d' - d) = -43.1''$$

$$\Sigma K = +6.4325$$

$$\text{" } -\gamma = -2.9474$$

$$\text{" tan }^2 \gamma = +0.6160$$

$$\text{" sin }^2 \gamma = +9.3900$$

$$-0.25 = -9.3919$$

$$\text{" } K = +6.4325$$

$$\text{" } (d' - d) = -2.6345$$

$$\text{" tan }^2 \gamma = +0.6160$$

$$\text{" cos } 2\gamma = +9.7062$$

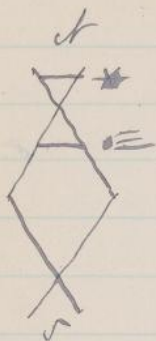
$$-0.25 = -9.3952$$

$$-0.25$$

$$-0.50$$

(26.2)

Comet a 1892.
Mar. 20. 1892.



$$\sigma = 75.4^{\circ}$$

$$t = -3^h 12^m$$

$$\delta_0 = -12^{\circ} 43'$$

$$(d' - d) = -344''$$

$$\log \cos \varphi = +9.2624^{\checkmark}$$

$$\text{" sin } t = \underline{+9.2711^{\checkmark}}$$

$$\text{Sum} = +9.7395^{\checkmark}$$

$$\text{" sin } \sigma = \underline{+9.9257^{\checkmark}}$$

$$g = -34^{\circ} 34' \quad \text{" sin } g = \underline{+9.7532^{\checkmark}}$$

$$2g = -69^{\circ} 8'$$

$$\log K = +6.4202^{\checkmark}$$

$$\text{" } (d' - d) = -2.5243^{\checkmark}$$

$$\text{" tan } \sigma = +1.1624^{\checkmark}$$

$$\text{" cos } 2g = \underline{+9.5517^{\checkmark}}$$

$$-0.5 = -9.7252$$

Comet c 1892 (Stanning)
Mar. 21. 1892.

$$\zeta = 76.6^\circ$$



$$\Sigma \cos \varphi = +9.4644^\circ$$

$$\text{" sin } t = +9.5592^\circ$$

$$\text{Sum} = +9.4276^\circ$$

$$\text{" sin } \zeta = +9.9260^\circ$$

$$\text{" sin } \varphi = +9.4396^\circ$$

$$\varphi = +16.0$$

$$2\varphi = +32.0$$

$$t_0 = -13.25^\circ \quad (+10.35^\circ)$$

$$\delta_0 = +59.39^\circ$$

$$\underline{(d'-d) = +22.4^\circ}$$

$$\Sigma K = +6.4163^\circ$$

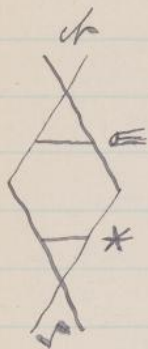
$$\text{" } (d'-d) = +2.3502^\circ$$

$$\text{" } \tan^2 \zeta = +1.2460^\circ$$

$$\text{" } \cos 2\varphi = +9.9244^\circ$$

$$+0.9^\circ = +9.9409^\circ$$

Comet a 1892.
May 1 A. 1892.



$$S = 64. A^{\wedge}$$

$$\log \cos \varphi = +9.2624^{\checkmark}$$

$$\text{" sin } t = \underline{+9.9960^{\checkmark}}$$

$$\text{Sum} = +9.2652^{\checkmark}$$

$$\text{" sin } S = \underline{+9.9566^{\checkmark}}$$

$$\text{" sin } g = +9.9026^{\checkmark}$$

$$-54.1^{\circ} = g$$

$$-102.2$$

$$\log K = +6.4379^{\checkmark}$$

$$\text{" } \frac{1}{30} = +2.5229^{\checkmark}$$

$$\text{" cos } d_0 = +9.9309^{\checkmark}$$

$$\text{" } +g = +2.9474^{\checkmark}$$

$$\text{" tan }^2 S = +0.6542^{\checkmark}$$

$$\text{" sin } 2g = \underline{+9.9777^{\checkmark}}$$

$$-0.030^{\checkmark} = \underline{+2.4716^{\checkmark}}$$

$$t_0 = -\sqrt{h} 32^m$$

$$S_0 = +31^{\circ} 24'$$

$$(d'-d) = +309."$$

$$\log K = +6.4379^{\checkmark}$$

$$\text{" } +g = +2.9474^{\checkmark}$$

$$\text{" tan }^2 S = +0.6542^{\checkmark}$$

$$\text{" sin }^2 g = \underline{+9.2170^{\checkmark}}$$

$$\text{" } +0.72^{\checkmark} = \underline{+9.2571^{\checkmark}}$$

$$\text{" } K = +6.4379^{\checkmark}$$

$$\text{" } (d'-d) = +2.4900^{\checkmark}$$

$$\text{" tan }^2 S = +0.6542^{\checkmark}$$

$$\text{" cos } 2g = \underline{+9.4946^{\checkmark}}$$

$$-0.12^{\checkmark} = \underline{+9.0773^{\checkmark}}$$

$$+0.72^{\checkmark}$$

$$+0.60^{\checkmark}$$

C

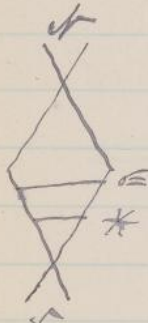
Comet a 1892.
June 15. 1892.

$$S = 66.3^\circ$$

$$t_0 = -6^h 23^m$$

$$d_0 = +K2^\circ 33'$$

$$(d'-d) = +47.0$$



$$-53.4$$

$$-106.2$$

$$\log \cos \varphi = +9.2644^{\checkmark}$$

$$u \sin t = u9.9972^{\checkmark}$$

$$\sin u = u9.2662^{\checkmark}$$

$$u \sin S = +9.9617^{\checkmark}$$

$$u \sin \varphi = u9.9045^{\checkmark}$$

$$\log K = +6.4367^{\checkmark}$$

$$u(d'-d) = +1.6721^{\checkmark}$$

$$u \tan^2 \varphi = +0.7152^{\checkmark}$$

$$u \cos 2\varphi = u9.4609^{\checkmark}$$

$$-0.02 = u4.2449^{\checkmark}$$

Comet Holmes.
Jan. 16. 1893.

$$\zeta = 65.0^\circ$$

$$\text{Log cos } \varphi = +9.4624$$

$$\text{" sin } t = +9.9926$$

$$\text{Sum} = +9.4670$$

$$\text{" sin } \zeta = +9.9573$$

$$\text{" sin } g = +9.9097$$

$$+5K.3 \checkmark$$

$$+10A.6 \checkmark$$

$$\text{Log } K = +6.4372 \checkmark$$

$$\text{" } \frac{1}{30} = +2.5229 \checkmark$$

$$\text{" cos } \delta_0 = +9.9199 \checkmark$$

$$\text{" } -g = -2.9474 \checkmark$$

$$\text{" tan } 2\zeta = +0.6626 \checkmark$$

$$\text{" sin } 2g = +9.9767 \checkmark$$

$$-0.03 \checkmark = -2.4673 \checkmark$$

$$+5^h 41.3 = H.A.$$

$$+33^\circ K.1 = \text{Dec.}$$

$$\text{Log } K = +6.4372 \checkmark$$

$$\text{" } -g = -2.9474 \checkmark$$

$$\text{" tan } 2\zeta = +0.6626 \checkmark$$

$$\text{" sin } 2g = +9.9767 \checkmark$$

$$-0.7 \checkmark = -9.4670 \checkmark$$

Comet Holmes.
Jan. 20. 1893.

$$\zeta = 65.4^{\circ}$$

$$\sqrt{KKA} = K. V. \\ +33.6 = \text{Sec.}$$

No ref. in B. A.

No ref. in Sec.

86

Rordane = Stew = disc July 2nd 1893.
1st obs. of July 10. 1893.

13.2

$$\cancel{S = 77.0} \quad S = 76.2^\circ$$

$$\Delta K \times 0 = H. A.$$

$$+K6.2 = Sec.$$

No ref. in R.A.

$$(d' - d = +271.3)$$

$$\log \cos \varphi = +9.462K^\circ$$

$$\text{" sin } t = +9.9331^\circ$$

$$\text{Sum} = +9.4015^\circ$$

$$\text{" sin } S = +9.922K^\circ$$

$$\text{" sin } g = +9.2131^\circ$$

$$g = +80.6^\circ$$

$$2g = +161.2^\circ$$

$$\log K = +6.415K^\circ$$

$$\text{" (d' - d) = +2.433K^\circ$$

$$\text{" tan } S = +1.2664^\circ$$

$$\text{" cos } 2g = +9.12K7^\circ$$

$$+0.20 = +9.2999^\circ$$

Comet Roddam,Obs. of July 11, 1893, (1st series)

$$\zeta = 73.9^\circ$$

$$+7^h 30^m \approx H. A.,$$

$$+45.2 = Dec.$$

$$\log \cos \varphi = +9.2624^\circ$$

$$\text{" sin } t = +9.9656^\circ$$

$$\text{Sum} = +9.2340^\circ$$

$$\text{" sin } \zeta = 9.9426^\circ$$

$$\text{" sin } \varphi = +9.2514^\circ$$

$$d' - d = -549''$$

$$\varphi = 45.3$$

$$2\varphi = 90.6$$

$$\log K = +6.4249$$

$$\text{" } \frac{1}{30} = +4.5229$$

$$\text{" cos } \varphi = +9.2420$$

$$\text{" } -\varphi = -2.9474$$

$$\text{" tan } 2\varphi = +1.0794$$

$$\text{" sin } 2\varphi = +0.0000$$

$$\text{Corr in } K = -0.066 = -2.226^\circ$$

$$\log K = +6.4249$$

$$\text{" } -\varphi = -2.9474$$

$$\text{" tan } 2\varphi = +1.0794$$

$$\text{" sin } 2\varphi = +9.7034$$

$$-1.43 = -0.1551^\circ$$

$$\text{" } K = +6.4249$$

$$\text{" } d' - d = \approx 2.7400$$

$$\text{" tan } 2\varphi = +1.0794$$

$$\text{" cos } 2\varphi = \approx 4.0200$$

$$+1.24 = +2.2643^\circ$$

$$-1.43$$

$$+0.81 \text{ Corr. in } \delta$$

Cor. for Ref. $3 \frac{1}{2}$ obs.
Comet Roodance. July 11. 1893.

$$\gamma = AKz^1$$

$$\begin{aligned} g^h \quad 6. \tilde{x} &= K, d, \\ +K, t &= \text{Sec.} \\ d' - d &= -10K, t \end{aligned}$$

$$\begin{aligned} \text{Log } K &= +6.3162 \\ \text{" } \frac{1}{30} &= +0.5229 \\ \text{" sec } d_0 &= +0.1513 \\ \text{" } -g &= -2.9474 \\ \text{" } \tan 2g &= +1.9264 \\ \text{" } \sin 2g &= +9.9427 \\ -0.736 &= -9.2669 \end{aligned}$$

$$\begin{aligned} \text{Log } \cos \gamma &= +9.2624 \\ \text{" } \sin t &= +9.4362 \\ \text{Sum} &= +9.7046 \\ \text{" } \sin S &= +9.9972 \\ \text{" } \sin g &= +9.7064 \\ g &= +30.6 \\ 2g &= +61.2 \end{aligned}$$

$$\begin{aligned} \text{Log } K &= +6.3162 \\ \text{" } -g &= -2.9474 \\ \text{" } \tan 2g &= +1.9264 \\ \text{" } \sin 2g &= +9.4136 \\ -4.61 &= -0.6636 \end{aligned}$$

$$\begin{aligned} \text{" } K &= +6.3162 \\ \text{" } (d' - d) &= -3.0175 \\ \text{" } \tan 2g &= +1.9264 \\ \text{" } \cos 2g &= +9.6420 \\ -10.07 &= -1.0029 \\ -4.61 & \\ \hline &= (K, 6A) \text{ Ref. Cor.} \end{aligned}$$

Comet Roddane.
Obs. of July 11, 1893 (2^d series)

$$\delta = 77.2^\circ$$

$$+7^h 59^m = H. A.
+4^m = Dec.
d' - d = -70 K.5$$

$$\begin{aligned} \log K &= +6.4136 \checkmark \\ \log \frac{1}{30} &= +1.5229 \checkmark \\ \log \sec \delta &= +0.1520 \checkmark \\ \log -g &= -2.9474 \checkmark \\ \log \tan^2 \delta &= +1.2272 \checkmark \\ \log \sin^2 \delta &= +9.9960 \checkmark \\ -0.202 &= -9.3191 \checkmark \end{aligned}$$

$$\begin{aligned} \log \cos \delta &= +9.2624 \checkmark \\ \log \sin \delta &= +9.9326 \checkmark \\ \log \sec &= +9.2070 \checkmark \\ \log \sin \delta &= +9.9291 \checkmark \\ \log \sin \delta &= +9.2179 \checkmark \\ +41.1 &= g \\ 22.2 &= 2g \end{aligned}$$

$$\begin{aligned} \log K &= +6.4136 \\ \log -g &= -2.9474 \\ \log \tan^2 \delta &= +1.2272 \\ \log \sin^2 \delta &= +9.6356 \\ -1.92 &= -0.2232 \checkmark \end{aligned}$$

$$\begin{aligned} \log K &= +6.4136 \\ \log (d' - d) &= -2.2479 \\ \log \tan^2 \delta &= +1.2272 \\ \log \cos^2 \delta &= +9.1326 \\ -0.142 &= -9.6213 \checkmark \\ -1.92 &= \\ -2.10 & \text{ Cor. in } d. \end{aligned}$$

Comet Rordane.
1st obs. of July 14, 1893.

$$\zeta = 70.5^\circ$$

$$H. A. = +6^h 32^m$$

$$Dec. = +24.1$$

$$d' - d = +657.2$$

$$\log K = +6.4312$$

$$\log \frac{1}{30} = +1.5229$$

$$\log \sec \delta_0 = +0.1041$$

$$\log g = +2.9474$$

$$\log \tan^2 \gamma = +0.9012$$

$$\log \sin 2\gamma = +9.9907$$

$$+0.02 = +2.6927 \checkmark$$

$$\log \cos \varphi = +9.4644$$

$$\log \sin t = +9.9954$$

$$\log \sec = +9.2642$$

$$\log \sin \zeta = +9.9743$$

$$\log \sin \gamma = +9.8299$$

$$\log K = +6.4312$$

$$\log g = +2.9474$$

$$\log \tan^2 \gamma = +0.9012$$

$$\log \sin^2 \gamma = +9.7792$$

$$+1.15 + \frac{+0.0602 \checkmark}{+0.0602 \checkmark}$$

$$\log K = +6.4312$$

$$\log (d' - d) = +2.4177$$

$$\log \tan^2 \gamma = +0.9012$$

$$\log \cos 2\gamma = -9.3107$$

$$-0.29 = -9.4620 \checkmark$$

$$+1.15$$

$$+0.06$$

$$\gamma = 50.9$$

$$2\gamma = 101.8$$

Const Ror Larue.
2^d Obs. of July 18, 1893.

$$L = 23.1^\circ$$

No ref. in R. A.

$$K.A. = 2^h 2.7^m$$

$$Dec. = +32.1$$

$$d'-d = +133.3$$

$$\log K = +6.345$$

$$u (d'-d) = +2.12 K$$

$$u \sin 2L = +1.23 KK$$

$$u \cos 2L = +9.2565$$

$$+0.37 \quad \underline{+9.5642}$$

$$u \cos \varphi = +9.26 KK$$

$$u \sin \varphi = +9.9342$$

$$\text{Sum} = +9.4026$$

$$u \sin L = +9.9962$$

$$u \sin \varphi = +9.4052$$

$$39.4$$

$$79.6 = 2L$$

Comet Rordame.
1st Obs. of July 13, 1893.

$$\zeta = 70.2^\circ$$

$$H.A. = +6^\circ 44'$$

$$Dec. = +40.7^\circ$$

$$\sum \cos \varphi = +9.2644 \checkmark$$

$$\text{" sin } t = +9.9919 \checkmark$$

$$\text{Sum.} = +9.2603 \checkmark$$

$$\text{" sin } \zeta = +9.9751 \checkmark$$

$$+50.1 \text{ " sin } \gamma = +9.2452 \checkmark$$

$$+100.2 = 2\gamma$$

$$\sum K = +6.4314 \checkmark$$

$$\text{" } \frac{1}{30} = +1.5229 \checkmark$$

$$\text{" sec } \delta = +0.1203$$

$$\text{" } -\gamma = -2.9474$$

$$\text{" tan }^2 \gamma = +0.9162$$

$$\text{" sin } 2\gamma = +9.9931$$

$$\text{Cor. vit} = -0.09 \checkmark = -2.9313 \checkmark$$

$$\sum K = +6.4314$$

$$\text{" } -\gamma = -2.9474$$

$$\text{" tan }^2 \gamma = +0.9162$$

$$\text{" sin }^2 \gamma = +9.7692$$

$$-1.16 = -0.0642 \checkmark$$

$$\text{" } K = +6.4314$$

$$\text{" } (d' - d) = -2.7234$$

$$\text{" tan }^2 \gamma = +0.9162$$

$$\text{" cos } 2\gamma = -9.2422$$

$$-0.24 = -9.3792 \checkmark$$

$$-1.16$$

$$-1.40 \text{ Cor. vit } \delta$$

Comet Roddame.
Obs. of July 19. 1893.

$$\zeta = 72.9^\circ$$

$$\begin{aligned} N. A. &= +6^\circ 25' \\ Dec. &= +22.1 \end{aligned}$$

$$\begin{aligned} \log \cos \gamma &= +9.2624^\circ \\ \text{" sin } t &= +9.9997^\circ \\ \text{Sum.} &= +9.2621^\circ \\ \text{" sin } \zeta &= +9.9204^\circ \\ \text{" sin } \gamma &= +9.2277^\circ \end{aligned}$$

$$\begin{aligned} \gamma &= 50.6^\circ \\ 2\gamma &= 101.2^\circ \end{aligned}$$

$$\begin{aligned} \log K &= +6.4273^\circ \\ \text{" } \frac{1}{30} &= +2.5229^\circ \\ \text{" sec } \delta_0 &= +0.0545^\circ \\ \text{" } +\gamma &= +2.9474^\circ \\ \text{" } \tan 2\gamma &= +1.0240^\circ \\ \text{" sin } 2\gamma &= +9.9916^\circ \\ +0.09 &= +2.9677^\circ \end{aligned}$$

$$\begin{aligned} \log K &= +6.4273^\circ \\ \text{" } +\gamma &= +2.9474^\circ \\ \text{" } \tan 2\gamma &= +1.0240^\circ \\ \text{" sin } 2\gamma &= +9.7760^\circ \\ +1.50 &= +0.1747^\circ \end{aligned}$$

$$\begin{aligned} \text{" } K &= +6.4273^\circ \\ (+239.2) \text{" } (d'-d) &= +2.3722^\circ \\ \text{" } \tan 2\gamma &= +1.0240^\circ \\ \text{" } \cos 2\gamma &= -9.2443^\circ \\ -0.13 &= -9.1124^\circ \\ +1.50 &= \\ +1.37 &= \delta' - \gamma \end{aligned}$$

Comet Pordane,
July 20. 1893.

$$\gamma = 64.9^\circ$$

$$H.A. = +5^h 17^m$$

$$\text{Dec} = +26.7^\circ$$

$$\text{Log cos } \varphi = +9.2622$$

$$\text{" sin } t = +9.9923$$

$$\text{Sum.} = +9.2607$$

$$\text{" sin } \gamma = +9.9569$$

$$\sqrt{3.2} = \text{" sin } \gamma = +9.9032$$

$$106.4 = 2\gamma.$$

$$\text{Log } K = +6.4377$$

$$\text{" } \frac{1}{30} = +4.5229$$

$$\text{" sec } \delta_0 = +0.0490$$

$$- \gamma = -2.9474$$

$$\text{" tan } 2\gamma = +0.6522$$

$$\text{" sin } 2\gamma = +9.9220$$

$$-0.04 = -2.5972$$

$$\text{Log } K = +6.4377$$

$$\text{" } -\gamma = -2.9474$$

$$\text{" tan } 2\gamma = +0.6522$$

$$\text{" sin } 2\gamma = +9.9220$$

$$-0.71 = -9.2509$$

$$\text{" } K = +6.4377$$

$$(-310.8) \text{" } d' - d = -2.8919$$

$$\text{" tan } 2\gamma = +0.6522$$

$$\text{" cos } 2\gamma = -9.4500$$

$$+0.11 = +9.0392$$

$$-0.71$$

$$-0.60$$

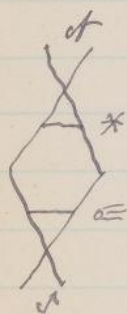
new Comet Brooks.
Discovered Oct. 16. 1893.

Obs. of Oct. 17. 1893.

$$H.A. = -5^{\circ} 32'$$

$$\text{Dec.} = +13.6$$

$$\zeta = 75.2^{\circ}$$



$$\text{Log cos } \varphi = +9.2624$$

$$\text{" sin } t = \underline{+9.9962}$$

$$\text{Sum} = +9.2652$$

$$\text{" sin } \zeta = \underline{+9.9265}$$

$$-49.1^{\circ} \text{ " sin } \varphi = \underline{+9.2727}$$

$$-92.2^{\circ} = 2\varphi$$

$$\text{Log } K = +6.4195$$

$$\text{" } -\varphi = -2.9474$$

$$\text{" tan } 2\varphi = +1.1936$$

$$\text{" sin } 2\varphi = \underline{+9.7562}$$

$$-2.02 = \underline{+0.3173}$$

$$\text{Log } K = +6.4195$$

$$\text{" } \frac{1}{30} = +2.5229$$

$$\text{" sec } d_0 = +0.0124$$

$$\text{" } -\varphi = -2.9474$$

$$\text{" tan } 2\varphi = +1.1936$$

$$\text{" sin } 2\varphi = \underline{+9.9955}$$

$$+0.123 = \underline{+9.0913}$$

$$\text{" } K = +6.4195$$

$$(-394.6) \text{ " } (d' - d) = -2.5962$$

$$\text{" tan } 2\varphi = +1.1936$$

$$\text{" cos } 2\varphi = \underline{+9.1542}$$

$$+0.23 = \underline{+9.3635}$$

$$-2.02 =$$

$$-1.25 \text{ Cor. in } d$$

Jan. 31. 1894.
See Connet Red. Book 13. p. 164.



Brt. x
 H. x

$$\varphi = 24.5^\circ$$

$$\log \cos \varphi = +9.2624$$

$$\log \sin \varphi = +9.9552$$

$$\text{Sum} = +9.2242$$

$$\log \sin \varphi = +9.9920$$

$$\log \varphi = +9.2262$$

$$\varphi = 242.1$$

$$2\varphi = 244.2$$

$$\begin{array}{r} 3 \quad 2d \quad 25.25. \\ 19 \quad 46 \quad 44. = R.A. \\ +7 \quad 41 \quad 41 = H.A. \end{array}$$

$$+32.6 = \text{Dec.}$$

$$\begin{array}{rcl} \log K & = & +6.3052^\circ \\ -129.2 \quad \log (d' - d) & = & -2.2769^\circ \\ \log \tan^2 \varphi & = & +2.0322^\circ \\ \log \cos 2\varphi & = & +9.0046^\circ \\ -0.42 & = & -9.6195^\circ \end{array}$$

to ref. in R.A.

Oct. 27. 1498.
Nebula near C. D. M. -27° 13' 15".

$$\zeta = 85^{\circ}.4$$

$$Y = 22 \quad 7 \quad 24$$

$$R. S. = 18 \quad 36 \quad 56$$

$$K. A. = 3 \quad 30 \quad 28$$

$$\log \cos \phi = +9.8684 \checkmark$$

$$\text{" sin } t = +9.8995 \checkmark$$

$$\text{Sum} = +9.7679 \checkmark$$

$$\log \sin \zeta = +9.9986 \checkmark$$

$$q = +36^{\circ}.0 \checkmark \quad \text{" } -q = +9.7693 \checkmark$$

$$2q = +72^{\circ}.0 \checkmark$$

$$\log K. = +6.2643 \checkmark$$

$$+97.9 = (d' - d) = +1.9908 \checkmark$$

$$\text{" tan } \zeta = +2.1889 \checkmark$$

$$\text{" cos } 2q = +9.4900 \checkmark$$

$$+0.086 = +9.9340$$

$$+0.086 \checkmark$$

