

Revenue Department

Minutes of Consultations

8th September 1857

Back Number 33 - 34

Order no 896 dated 7th Sept 1857

1157/57

பாடகாப்பு பிரிவு-1

செப்பனிகுபவர் பெயர் பா.வி.வி.கொன்

செப்பனிகுபவர்காக எடுத்தக் 11/06
கொள்ளப்பட்ட நாள்

செப்பனிகு முடித்த நாள் 11/07

சுரிபார்க்கும் சுரிபார்க்கும் சுரிபார்க்கும்
முதல் மு.நி.பா.எ 2ம்.பா.எ. உதவியாளர்
கையொப்பம் கையொப்பம் கையொப்பம்

Fort Saint George, Revenue Consultation of 8th September 1857.

No. 33. Read the following Extract from the Proceedings of the Board of Revenue; dated 15th August 1857, No. 2723.

* In Consultation 7th August 1857. Read letter from Captain Priestley Superintendent Revenue Survey dated 29th July 1857.*

(Here enter No. 86.)

Resolved that the above letter with its enclosures (2 Maps) be submitted to Government, with reference to the Board's Proceedings of the 1st Instant, No. 2585, on the communication from Captain Thuillier Extract Minutes Consultation 25th July 1857, No. 741, R. D.

2. Captain Priestley has been able to try the accuracy of his work by a most satisfactory test, namely the connection of portions of his traverse with some of Colonel Lambton's Trigonometrical points. In one instance the length of the portion tested was about 40,000 feet, or more than $7\frac{1}{2}$ miles, and in the other 84,000 feet or 16 miles. In the first instance the error is nearly 27 feet in a mile, and in the latter only $6\frac{1}{2}$ feet. The Board have since been informed by Captain Priestley that he considers the error in the first mentioned line to have arisen from defective chains made in the country. He has since been supplied with others received direct from a good maker in London.

3. In the N. W. Surveys the errors ranged from $1\frac{1}{2}$ to as much as $33\frac{1}{2}$ feet in the mile, and in "recent operations" only 7 feet. This leads the Board to believe that Captain Priestley's method may be brought to close in on the Trigonometrical points, as correctly as the survey of the N. W. Provinces.

4. The method adopted for making the test is simple and complete. The triangulation points are joined by direct measurement, (or else by calculation from sides of a triangle) to the nearest "station point" of the survey traverse. In the instances before the Board traverse stations were found within 1,000, 5,000 and a few hundred feet of Trigonometrical stations.

5. The recorded traverse lines, with the small junction lines, form a complete traverse, of which the whole computation work excepting the little additional for the junction lines, is already on record. From this perfect traverse, beginning at one Trigonometrical station, and working round to the other, can be obtained the "difference of latitude" and also the "departure" between the two points. These form the two sides of a right angled triangle, of which the distance between the two points is the hypotenuse. This distance is then found by plane Trigonometry from the two other sides, and if the result agrees with the computation of the Trigonometrical triangle, the traverse is correct.

6. For instance, the traverse work, (including the small lines joining the Sillagoody and Purwāee stations to the Survey stations) results in giving a difference of latitude PL=83,094 feet, and a departure LS=11,936 feet. From these data the side PS is calculated, viz. 83,941 feet.

Whereas from the angles of the triangles recorded in Colonel Lambton's operations (which triangles are shewn in the 2d Map) the side PS† is 84,046 feet or a difference of 105 feet in 84,000 or 1 in 800; or $6\frac{1}{2}$ feet in a mile; a difference almost inappreciable in a map two feet square and quite so in a map of a mile to an inch such as Major Thuillier proposes for the Pergunnah maps.

7. Captain Priestley has informed the Board that he has the calculations prepared for other similar tests, which he will submit shortly.

(A true Extract.)

(Signed) J. D. SIM, Acting Secretary.

Fort Saint George, Revenue Consultation of 8th September 1857.

From Captain F. J. B. PRIESTLEY Superintendent Revenue Survey; to the Acting Secretary to the Board of Revenue; dated Palimcottah 29th July 1857, No. 86.

SIR,

Having now been able to apply the test of comparison between the distance of two points as given by the G. T. Survey and as ascertained from the operations of the Revenue Survey, I do myself the honor to send you the results with such explanatory remarks as seemed requisite to divest the affair of all technicalities.

In the Arealore talook there is no complete G. T. S. triangle. There are in all only five stations, viz. Audathoray Pagoda, Purwayi station, Arealore Pagoda, Sillagoody station and Trimulwady Pagoda.

Audathoray is on the Vellar, Trimulwady on the Coleroon, the other stations intermediate. The distance from Audathoray Pagoda to Purwayi station is by the G. T. S. 40,161 feet, by the Revenue survey 39,957 feet which gives a difference of 204 feet 0.5 per cent. or 26.8 feet per mile.

Purwayi is unfortunately unconnected by triangulation with any other G. T. Survey station in the Arealore talook.

The Istimrar or Zemindar's property was not included in the Revenue Survey of the Arealore talook, consequently I did not ascertain the exact position of the Arealore Pagoda which is situated within it.

In order however to obtain a test, I calculated the distance between the Purwayi and Sillagoody stations from sides and angles of different G. T. S. triangles, and found it to be 84,046 feet; by the Revenue Survey it was given 83,941 feet, shewing a difference of 105 feet 0.126 per cent. or 6.6 feet per mile.

The following is the method adopted to apply the test of comparison.

In the accompanying sketch Map A the red lines and dots are the station lines and stations of the grand circuits by which the boundary of the Arealore talook was taken.

The black lines are the sides of some of the G. T. Survey triangles.

The dotted red lines represent the "difference of latitude" and "departure" given by the traverse.

These lines of "latitude" and "departure" furnish two sides containing the right angle of a triangle of which the side of a G. T. Survey triangle is the hypotenuse, and the difference in the distance found by calculation from the two given sides and included right angle and the distance as laid down trigonometrically is the error in the work of the Revenue Survey.

Extract from Revenue Survey Arealore Talook.

Stations.	Distances from the Arealore Pagoda G. T. S.	
	Meridian.	Perpendicular.
From Audathoray Pagoda.		
To station on rock in Vellar.....	N. 910 W.	400
To junction of Purwayi, Cooroomboor and Volecondapoorum Talook.....	S. 33,332 "	9,839
To junction of Purwayi, Nunnay and Veypoor....	" 35,152 E.	273
To Purwayi G. T. S.....	" 39,956 W.	463

Fort Saint George, Revenue Consultation of 8th September 1857.

$$\left. \begin{array}{l} AD = 39,956..... \\ DP = 463..... \end{array} \right\} ADP \ 90^\circ$$

$$(1) DP : Rad :: DA : \text{tang. } P$$

$$10.0000000 \text{ log. of } 90^\circ \text{ or Radius.}$$

$$4.6015820 \text{ log. of } 39956 = DA$$

$$14.6015820$$

$$2.6655810 \text{ log. of } 463 = DP$$

$$11.936010 \text{ tang. of } \angle P \ 89^\circ 20' 10''$$

A Audathoray Pagoda.
P Purwayi Station.
D angle formed by Lot and Dep.

$$(II) Rad : DP :: Sec. P : Hyp. AP.$$

$$2.6655810 \text{ log. of } 463 = DP.$$

$$11.9360109 \text{ log. of Sec. } 89^\circ 20' 10''$$

$$14.6015919$$

$$10.0000000 \text{ log. of } 90^\circ \text{ or Radius.}$$

$$4.6015919 = 39957 \text{ AP.}$$

(See Sketch Map.)

B

(See Map of Triangles B.) The angle at Neddavassel Hill of the triangle Sillagoody, Neddavassel and Irroor is..... } 83° 21' 54"

The angle at Neddavassel in the triangle Irroor, Neddavassel and Worthamalli is..... } 67 44 30

And in the triangle Worthamalli, Neddavassel and Purwayi the Neddavassel angle is..... } 123 54 40

$$\begin{array}{r} 275 \ 1 \ 4 \\ 360 \ 0 \ 0 \end{array}$$

Angle at Neddavassel..... 84 58 56
in triangle Purwayi Neddavassel and Sillagoody.

From Purwayi to Neddavassel 55496 feet... } included angle 84°. 58'. 56"

From Sillagoody to Neddavassel 68165 feet.

$$PN + NS : PN - NS :: \text{tang. } \frac{P+S}{2} : \text{tang. } \frac{P-S}{2}$$

$$4.1027423 = 12669$$

$$10.0380869 = \text{tang. } 47^\circ. 30'. 33'' = \frac{P+S}{2}$$

$$14.1408292$$

$$5.0922327 = 123661$$

$$9.0485975 \text{ tang. } 6^\circ. 22'. 49'' = \frac{P-S}{2}$$

$$53^\circ. 53'. 22'' \text{ Greater angle}$$

$$95^\circ. 1'. 4'' - 53^\circ. 53'. 22'' = 41^\circ. 7'. 42'' \text{ lesser angle}$$

$$\sin 41^\circ. 7'. 42'' : 55496 :: \sin 84^\circ. 58'. 56''$$

$$4.7442617 = 55496$$

$$9.9983328 = \sin 84^\circ. 58'. 56''.$$

$$14.7425945$$

$$9.8180767 \sin 41^\circ. 7'. 42''.$$

$$4.9245178 = 84047. \text{ distance by G. T. Survey between Purwayi and Sillagoody.}$$

Extract from Revenue Survey Arealore Talook.

Stations.	Distances from Purwayi G. T. S.	
	Meridian.	Perpendicular.
From Purwayi Station.		
To junction of Purwayi Nunnay and Veypoor, condapoorum talook, - - - - -	N. 4,789 E.	736
To junction of Sillagoody Cullagun and Volcondapoorum talook, - - - - -	S. 83,320 W.	18,673
To Sillagoody G. T. S., - - - - -	" 83,094 "	11,936

Fort Saint George, Revenue Consultation of 8th September 1857.

P L 83094 } - P L S = 90°
S L 11936 }
S L: rad: P L: tang P
10-0000000 rad
4-9195697 83094

14-9195697
4-0768588 11936

10-8427109 = 81°. 49'. 30".

P. Purwayi Station
S. Sillagoody Do.
L. formed by Lat. and Dep.
rad: S L: Sec. L: P. S
4-0768588
10-8471086

14-9239674
10-0000000

4-9239674 = 83941

(See Sketch Map.)

FREDERICK, J. B. PRIESTLEY, Captain,
Supt. Revenue Survey.

No. 34.

ORDER THEREON, No. 896; dated 7th September 1857.

To be communicated to the Superintendent of Settlement for the General Survey, in continuation of Extract Minutes Consultation 14th Ultimo, No. 815.

(Signed) H. FORBES,
Acting Secretary to Government.

Revenue Department.

N^o 2723

Extract from the Proceedings of the
Board of Revenue, dated 15 August 1857.

Read Letter from Captain
Priestley Superintendent Revenue Survey
aug 1857. dated 29 July 1857.

(Memo. Order N^o 86)

Resolved that the above letter
with its Enclosures (2 Maps) be submitted
to Government with reference to the
Board's Proceedings of the 1st Instant
N^o 2583 on the communication from
Captain Theallier. Extract Minutes
Consultation 25 July 1857 N^o 441 R.C.

2. Captain Priestley has
been able to try the accuracy of his
work by a most satisfactory test, namely
the connection of portions of his Traverse
with some of Colonel Lambton's Trigonometrical
points. In one instance the
length of the portion tested was about
40000 feet or more than 7½ miles, and
in the other 84000 feet or 16 miles. In
the

the first instance the error is nearly 24 feet in a mile, and in the latter only 6 1/2 feet. The Board have since been informed by Captain Priestley that he considers the error in the first mentioned line to have arisen from defective chains made in the country. He has since been supplied with others received direct from a good maker in London.

In the N.W. Surveys the errors ranged from 1 1/2 to as much as 33 1/2 feet in the mile, and in "recent operations" only 7 feet. This leads the Board to believe that Captain Priestley's method may be brought so close in on the trigonometrical points, as correctly as the survey of the N.W. Provinces.

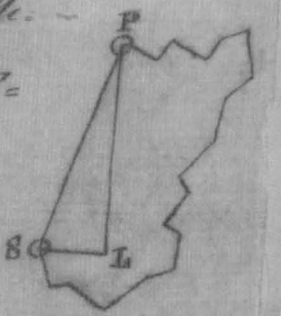
The method adopted for making the Test is simple and complete. The triangulation points are joined by direct measurement, (or else by calculation from sides of a triangle) to the nearest "station point" of the survey traverse. In the instances before the Board Traverse Stations were found within 1000 5000 and a few hundred feet of trigonometrical

page 506 of
"Manual"
New Edition.

Stations.

The recorded Traverse lines, with the small junction lines, form a complete Traverse, of which the whole computation work excepting the little additional for the junction lines, is already on record. From this perfect Traverse, beginning at one trigonometrical station, and working round to the other, can be obtained the "difference of latitude" and also the "departure" between the two points. These form the two sides of a right angled triangle, of which the distance between the two points is the Hypotenuse. This distance is then found by Plane Trigonometry from the 2 other sides, and if the result agrees with the computation of the trigonometrical triangle, the Traverse is correct.

For instance, the Traverse work (including the small lines joining the Sellaigordy and Purraice Stations to the Survey Stations) results in giving a difference of latitude $PL = 8309 1/2$ feet, and a departure $LS = 11936$ feet. From these data the side PS is calculated viz. $8394 1/2$ feet



feet. Whereas from the angles of the triangles recorded in Colonel Lambton's operations (which triangles are shown in the 2^d map) the side PS is 8406 feet, a difference of 103 feet in 84000 or 1 in 800, or 1/2 feet in a mile; a difference almost inappreciable in a map two feet square and quite so in a map of a mile. In an inch such as Major Skidder prepares for the Pergunnah maps.

7. Captain Priestley has informed the Board that he has the calculations prepared for other similar tests, which he will submit shortly.

(Attest Extract)

[Signature]
 As Secretary

To
 H. Forbes Esq.
 as Secretary to Government
 Revenue Department.

(Purwaraj, Kadda
 matted by Skidder
 goodly, in plan
 B.)
 * The side PS is not given in the triangle sheet, because the angle P.N.S. was not measured by Colonel Lambton. But, by deducting the other angles of which N (edavasil) is the centre, which were measured, from 360° leaves P.N.S. = 84° 58' 58" and since the sides NP, NS, are recorded in Lambton's operations, there are data for computing the side PS = 84066 feet.

A 457

62

5

2/9

[Initials]

Memo

The Director Revenue Settlement has the honor to forward the two sketch maps requested in the Memo of the Deputy Secretary to Government dated 19th Dec^r 1857.

Revenue Settlement Office
 On Circuit
 27th August 1858

[Signature]
 Director Revenue Settlement

To
 W. H. Bayley Esq.
 Acting Secretary to Government
 Fort St. George

[Signature]
 Wm.

225 C 147 1229

1033

July 18th 1829

22

to Bont 18th Aug 1829 1829

Revenue 1833 Report
 1833

Redund from the
 Proceeding of the
 Council of Revenue
 1833

3. 1833. Revenue 1833
 1833

the building with the
 Board's revenue, a letter
 (with 2 pages) from the
 Privy Council, the result
 of the application of the
 Act of Confiscation between
 the distance of the funds
 as given by the 1833 survey
 and the distance from
 the operations of the
 Revenue Survey.

80

Lambton's Triangles. B.

Andithoray Pag.

Ranjanggur Droog

Volcondah Pag.

Yellenbellon

Essary H.
 Wotakhamally

Madawane H.

Chattigolam H.
 Tyoor H.

Touray

Terany

Ookatoora Pag.

Pelapashy

Kullagoody

Shillagoody

Atreeloor Pag.

First way

Villapamooray
 Keeyamally

Wongling
 Skeniavannam Pag.

Sialangooray

Medionpollum Pag.

Sketch Map A

Scale $\frac{1}{2}$ an inch to a mile
or
10560 feet to 1 inch



Memorandum 1857 24th
Dec 10 Am. 8th of 1857

1857 896

Change of line of land

25th 11th 1857

communicating to the
light of settlement for
the General Survey, Capt
Priestley's receipt of the
last of comparison be-
tween the distance of land
survey as given by the
survey, and as ascertained
from the operations
of the General Survey

25th Aug.