

Citation:

Sanders, C., Contributions to the determination of geographical positions on the west coast of Africa.
III. Appendix, in:
KNAW, Proceedings, 11, 1908-1909, Amsterdam, 1909, pp. 107-108

Astronomy. — “Contributions to the determination of geographical positions on the West-coast of Africa. III. Appendix.” By C. SANDERS. (Communicated by E. F. VAN DE SANDE BAKHUYZEN).

6. *Modified computation of the determinations of longitude in 1904.*

For the computation of the corrections of my chronometers to the M. T. of Chiloango during my journey of June 1904 I have supposed that the chronometer of HEWITT had not been influenced by the perturbation on June 3 and that the one of HOHWÜ had advanced 2 secs.

I had adopted the value of 2 secs. chiefly in order not to exaggerate. But the result of the time determination on June 5 at N’Kutu, taking into account the modification of the rate involved in the supposition of a jump of a given amount, as well as the comparisons on June 3 render it more probable that HOHWÜ advanced 3 secs.

I shall therefore give here the results which we obtain on the latter supposition, assuming a daily rate for HOHWÜ of $+0^s.95$. I shall also show to what results we should arrive if we adopted the extreme supposition in the opposite sense, namely that HOHWÜ was not perturbed and that HEWITT had omitted 6 beats = 3 secs, and if we again assumed daily rates of both in accordance with the last supposition. This supposition is not very probable but neither quite impossible, and in this way we may at least form some idea of the still remaining uncertainty. For the rest I still hold the supposition that the rate of HEWITT has varied during the journey owing to the fall of temperature. Here follow the values obtained for the difference of longitude between the 4 stations and Chiloango:

a on the previous supposition;

b adopting for HOHWÜ a jump of 3 secs.;

c adopting a jump of 3 secs. in the opposite sense for HEWITT.

		HOHWÜ	HEWITT	MEAN
Mayili	<i>a</i>	— 1 ^m 21 ^s .56	19 ^s .31	— 1 ^m 20 ^s .44
	<i>b</i>	21.45	19.31	20.38
	<i>c</i>	21.80	19.66	20.73
N’Kutu	<i>a</i>	— 1 ^m 58 ^s .62	59 ^s .24	— 1 ^m 58 ^s .93
	<i>b</i>	59.39	59.24	59.32
	<i>c</i>	57.09	56.94	57.02
Buku Zan	<i>a</i>	— 1 ^m 35 ^s .31	36 ^s .71	— 1 ^m 36 ^s .01
	<i>b</i>	35.73	36.71	36.22
	<i>c</i>	34.51	35.49	35.00

	HOHWU	HEWITT	MEAN
Chimbete <i>a</i> —	1 ^m 53 ^s .27	53 ^s .21	— 1 ^m 53 ^s .24
<i>b</i>	53.41	53.21	53.31
<i>c</i>	53.03	52.83	52.93

We find in the first place that the longitude of N'Kutu on supposition *b* agrees exactly with the result of December 1903 which was 59^s.32, and on supposition *c* differs strongly from it, whence appears clearly that the latter is less probable. It further appears that, with regard to the three other stations, the results on the two extreme suppositions *b* and *c* differ 1^s.2 for Buku Zan and only 0^s.4 for Mayili and Chimbete, while the results on suppositions *a* and *b* differ for Buku Zan 0^s.2 and for Mayili and Chimbete less than 0^s.1. The results from the two chronometers separately accord fairly well inter se, Mayili excepted.

As we reject the result of 1904 for N'Kutu and replace it by that of 1903 and as for Mayili we can take the mean of the results of 1902 and 1904, we find that the uncertainty caused in the final results by the perturbation is less than was to be feared.

Lastly I give here the final results obtained in this way, assuming thereby the most probable supposition *b*:

Difference of longitude with Chiloango

Mayili	— 1 ^m 20 ^s .8
N'Kutu	— 1 59 .3
Buku Zan	— 1 36 .2
Chimbete	— 1 53 .3

The differences with the values adopted before are at the utmost 0^s.2.

Astronomy. — “*Observation of the transit of Mercury on November 14, 1907 at Chiloango in Portuguese West-Africa*”. By C. SANDERS. (Communicated by Dr. E. F. VAN DE SANDE BAKHUYZEN).

(Communicated in the meeting of May 30, 1908).

For a short time I have possessed a telescope of ZEISS of 80 mm. aperture and 120 cm. focal length. With this telescope I intend to observe in the first place occultations of stars in order to determine the longitude of my observing station with greater precision than hitherto has been possible. For the present the telescope has an azimuthal mounting, which however soon will be replaced by an equatorial mounting with slow motions and small divided circles. In the mean time