

SEISMOLOGICAL BULLETIN 1924.

BATAVIA OBSERVATORY, JAVA.

Foundation: River Quartair.

Greenwich Mean Time. — S. Latitude $6^{\circ} 11' 0''$. Height above sealevel 8 m.

E. Longitude $7^{\text{h}} 7^{\text{m}} 20.3^{\text{s}}$. (1)

WIECHERT Horizontal Pendulum, 1000 kilograms.

PREFACE.

The astatic seismograph of WIECHERT of 1000 kg. is registering regularly since December 6th 1908.

The instrument is mounted on a heavy brick pillar in a room with thick walls (about 70 centimeters), that is protected against the sun's heat by open galleries around it. The components are placed in E-W and N-S direction respectively.

The pins are lifted electrically every hour for a period of 10 seconds by the Javanese observer on duty. A lifting of two seconds every minute is given by an electrical clock of PEYER FAVARGER by means of the second-dial passing through a drop of mercury.

For each month the mean constants for that month are applied. T_0 and ϵ , the oscillation period and the coefficient of damping, are determined every week. V , the magnification for very short waves, is determined occasionally only. It is found by direct measurement, giving the pendulum a displacement by means of the horizontal adjusting screws, the value of which can be determined easily from the pitch (a), the angle of displacement of the screws and the height of the screws (b) and of the centre of gravity (c) above the Cardanic suspension apparatus.

It was found

$$(a) = 1.407 \text{ mm}; (b) = 1225 \text{ mm}; (c) = 895 \text{ mm}.$$

The constants used from July 1923 to June 1924 are given below

1923.	E-W component.			N-S component.		
	V.	T_0 .	ϵ .	V.	T_0 .	ϵ .
July.	190	8.0	5.4	188	8.0	4.6
August	"	8.0	4.4	"	8.0	4.5
September	"	8.0	4.1	"	8.0	4.2
October.	"	8.0	4.0	"	8.0	4.2
November	"	8.0	3.6	"	8.0	4.5
December.	"	8.0	3.6	"	8.0	4.8
1924.						
January	"	7.9	4.2	"	8.0	4.7
February	"	8.0	4.1	"	8.0	4.7
March.	"	7.8	4.1	"	8.0	4.9
April.	"	7.6	4.2	"	8.0	4.7
May.	"	7.6	3.9	"	8.0	4.4
June.	"	7.6	3.9	"	8.0	4.4

(1) For the E. Longitude of the Observatory, see: J. BOEREM Longitude of Batavia; K. Magn. Met. Observ. Batavia, Verhandelingen D



The notation used is that of the Göttingen Geophysical Institute.
The following abbreviations are employed:

CHARACTER OF THE EARTHQUAKE.

- I = perceptible; II = moderately strong; III = strong.
- d (terrae motus domesticus) = local.
- v (vicinus) = near (less than 1000 km).
- r (remotus) = distant (1000 to 5000 km).
- u (ultimus) = very distant (over 5000 km).

PHASES.

- P (undae primae) = 1st preliminary tremors.
- S (secundae) = 2nd " " "
- L (longae) = principal phase, long waves.
- M (maximae) = maximum amplitude.
- C (coda) = prominent waves among the after tremors.
- F (finis) = end of perceptible movement.
- PR₁, PR₂, SR₁, SR₂, = 1st, 2nd reflected waves of P and S.
- PS = waves changed by reflection from longitudinal to transversal oscillation.

WAVE-ELEMENTS, UNITS.

- T = complete period in seconds.
- A = amplitude, measured from median position in microns.
- A_E — E.-W. component of A.
- A_N = N.-S. " " " " "
- i (impetus) = abrupt commencement, clearly defined.
- e (emersio) = gradual " " , not clearly defined.

MALABAR.

July 1911 an astatic WIECHERT pendulum of 100 kg. which is the possession of Mr. K. A. R. BOSSCHA, chief manager of the tea estate Malabar (Preanger, Java; E. Long. 107° 37'; S. Lat. 7° 13') has been erected. Time is controlled since August 12, 1923, by means of the daily time signal of Malabar Radio.

Particulars about the registrations will be found in the tables.

MARON.

February 1924 an OMORI tromometer has been established on the western slopes of the volcano Merapi (Central Java) at Maron (Kedoe, 109° 25' E; 7° 34' S). Particulars about the registrations will be found in the tables.

The distances given in the Bulletin Batavia are calculated with the time tables of Dr. S. W. Visser. See Verhandelingen Batavia No. 7, 1921. The postponed table is an extract of these tables.

Distance.	S-P	P-O	S-O	Distance.	S-P	P-O	S-O
	m s	m s	m s		m s	m s	m s
1°	0 13	0 16	0 29	56°	7 46	9 54	17 40
2	25	31	56	57	52	10 1	53
3	38	46	1 24	58	58	8	18 6
4	50	1 1	51	59	8 4	15	19
5	1 1	17	2 18	60	10	22	32
6	12	32	44	61	15	29	44
7	24	47	3 11	62	21	36	57
8	35	2 2	37	63	26	43	19 9
9	47	16	4 3	64	32	49	21
10	57	31	28	65	38	55	33
11	2 8	45	53	66	43	11 2	45
12	19	59	5 18	67	49	8	57
13	30	3 12	42	68	55	14	20 9
14	40	26	6 6	69	9 1	20	21
15	50	39	29	70	6	26	32
16	3 0	52	52	71	11	33	44
17	10	4 4	7 14	72	16	39	55
18	19	17	36	73	21	45	21 6
19	28	29	57	74	26	51	17
20	37	41	8 18	75	32	57	29
21	46	53	39	76	37	12 3	40
22	55	5 4	59	77	42	9	51
23	4 3	16	9 19	78	47	15	22 2
24	11	27	38	79	53	20	13
25	19	38	57	80	58	26	24
26	27	48	10 15	81	10 4	31	35
27	35	58	33	82	9	37	46
28	41	6 9	50	83	14	42	56
29	48	19	11 7	84	19	47	23 6
30	56	28	24	85	24	52	16
31	5 3	37	40	86	28	58	26
32	10	46	56	87	32	13 4	36
33	17	55	12 11	88	37	9	46
34	24	7 4	28	89	41	15	56
35	30	15	45	90	46	20	24 6
36	36	22	58	91	50	25	15
37	43	30	13 13	92	55	30	25
38	50	38	28	93	59	35	34
39	57	46	43	94	11 3	40	43
40	6 5	55	58	95	7	45	52
41	11	8 1	14 12	96	11	50	25 1
42	18	9	27	97	15	55	10
43	25	17	42	98	18	14 0	18
44	32	24	56	99	22	5	27
45	40	31	15 11	100	25	10	35
46	47	39	26	101	27	15	42
47	55	47	40	102	30	20	50
48	7 0	54	54	103	32	25	57
49	6	9 2	16 8	104	34	30	26 4
50	13	9	22	105	37	34	11
51	18	17	35	106	40	39	19
52	24	24	48	107	42	44	26
53	29	32	17 1	108	45	48	33
54	35	39	14	109	47	53	40
55	40	47	27				



JANUARY 1924.

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).	Period in seconds.	Amplitude (half).		Distance of epi-centrum.	Remarks.
						A _E	A _N		
1	Jan. 10	I _v	e i F	h m s 4 6 29 4 7 14 4 10		μ	μ	km.	Tjimiring (Banjoemas) and Maloja (Preanger). W. Java.
			iP iS	4 6 8 4 6 50				210	Malabar.
2	" 11	I _v	i _N iS _E F	13 21 22 13 21 42 13 24				170	Preanger (West Java). Malabar.
			P	13 20 59					
3	" 11	I	e i F	20 5 58 20 11 58 20 21					
4	" 11	I	i F	20 51 52 20 55					
5	" 13	I _v	eP iS F	9 58 49 9 59 28 10 4				340	
6	" 14	I _v	e F	3 57 20 6 1					
7	" 14	I _u	iP i _N eL F	20 59 17 21 6 52 21 15 49 21 50				(5610)	
8	" 15	I	e F	5 5 5 19					
9	" 16	I _u	iP iS F	21 49 4 21 58 11 22 10				7800	
			P iS	21 49 2 21 58 1				7640	Malabar.
10	" 17	I	i ₁ i ₂ F	13 18 17 13 19 22 13 24					
11	" 21	I _u	iP iS F	2 3 56 2 12 58 2 28				7700	other phases disturbed by street traffic.
			P S	2 3 59 2 15 4				7770	Malabar.
12	" 21	I	i ₁ i ₂ F e i	20 19 51 20 20 51 20 24 20 18 52 20 19 22					Malabar.

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).	Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
						A _E	A _N		
13	Jan. 24	I _v	iP S F	h m s 11 34 14 11 34 54 11 39		μ	μ	km	350
14	" 24	I _v	eP i eS F	18 39 13 18 40 29 18 42 26 18 58				1930	Dobo, Aroe I, (Moluccas) ?
			e eS _N	18 39 17 18 42 37				2020	Malabar.
15	" 25	I _u	iP _E iS _N F	6 33 7 6 41 53 6 53				7010	Malabar.
			P	6 32 21 6 41 25				6550	Malabar.
16	" 26	I _u	i _E i _N F	3 30 50 3 40 15 3 45					
17	" 27	I	i F	4 28 16 4 43					
18	" 28	I	i _E F	5 20 3 5 39					Dojo Baroe, N. New Guinea ?
19	" 29	I _u	i L _N L F	2 14 55 3 5 0 3 11 52 3 37					Malabar.
			i ₁ i ₂ eL L	2 14 28 2 35 22 3 7 3 13					
20	" 30	I _u	eP i _N F	0 11 57 0 24 1 0 37					
21	" 30	I _v	iP iS F	4 55 52 5 1 31 5 15				4570	
22	Febr. 4	I _v	iP iS _N F	19 18 39 19 19 0 19 20				180	Moendjoel (Bantam W. Java)
			P iS _N	19 18 52 19 19 14				190	Malabar.
23	" 5	I	P S? F	4 51 18 4 52 14 4 53				510?	Central and East Java.

FEBRUARY.



No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s		μ	μ		
				Malabar.							
			P	4	50	58			350		
			S	4	51	56					
24	Febr. 10	I	i	5	57	55					
			F	6	0						
			Malabar.						80	S in minute eclipse.	
			P	5	57	18					
			S	5	57,5						
25	" 11	I,	i _N	6	4	25			4740		
			i _N	6	6	5					
			i _S	6	10	47					
			L _N	6	16	37					
			F	6	27						
			Malabar.						1450	S. Celebes.	
26	" 13	II	P	22	53	52					
			S _N	22	56	22					
			i	22	58	34					
			M ₁	22	59	1	6.4	146	195		
			M ₂	23	0	34	6.4	255	283		
			F	23	38						
			Malabar.						1670?		
			P _E	22	53	47					
			S _N ?	22	56	37					
27	" 14	I	i	19	11	51					
			F	19	19						
28	" 16	I	e	0	31	31					
			i	0	38	25					
			F	0	48						
29	" 25	I	i	2	44	55					
			F	2	48						
30	" 26	I,	P	11	7	47				Benkoelen (S. Sumatra).	
			i	11	9	17					
			F	11	17						
31	" 29	I,	P	8	50	14			380		
			S	8	50	57					
			F	8	56						
			Malabar.								
			i	8	50	13					

MARCH.

32	March 1	I	e	8	28,7					Phases disturbed by street traffic.
			F	8	54					
			Malabar.							
			i ₁	8	28	15				
			i ₂	8	29	47				
33	" 3	I,	i	16	32	25				Manna (Benkoelen, S. Sumatra).
			F	16	36	18				
34	" 4	I _a	e	10	28	45				
			L _E	10	54	8				
			L _E	11	34	45				
			M	11	48	45				
			F	12	9					

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s		μ	μ		
35	March 5	I,	iP _E	4	29	44				Moluccas.	
			i	4	33	48					
			F	4	59						
36	" 6	I,	i	6	29	17				Titiardja (Preanger W. Java).	
			F	6	32						
37	" 7	I	P	21	4	0					
			i	21	7	24					
			F	21	15						
38	" 8	I,	i _E	14	37	25				Manna (Benkoelen S, Sumatra).	
			F	14	42						
39	" 12	I,	iP _N	1	26	43			240		
			iS _E	1	27	10					
			F	1	36						
			Malabar.						150		
			iP	1	26	31					
			S	1	26	48					
40	" 13	I,	P _E	15	8	7			1630	Flores (Minor Soenda I).	
			iS	15	10	53					
			F	15	16						
41	" 15	I	P	2	52,0					disturbed by street traffic.	
			F	3	1						
42	" 15	I _a	iP	10	41	52			7160	NE — SW.	
			i	10	42	49					
			eS	10	50	26					
			eL	11	0	11					
			F	11	33						
43	" 18	II _a	iP	2	20	33			210	W. Java.	
			iS	2	20	57					
			F	2	35						
			Malabar.						280		
			P	2	20	46					
			S	2	21	18					
44	" 18	III _a	iP	19	55	51			170	W. Java and Lampongs (S. Su- matra).	
			S?	19	55	51					
			out	19	55	55					
			Malabar.						250		
			P	19	55	44					
			iS	19	56	12					
45	" 19	I	e	5	24	2				Benkoelen (S. Sumatra) ?	
				5	29	2					
46	" 23	II,	iP	22	13	19			160	EW.	
			iS	22	13	58					
			F	22	30						
			Malabar.								
			i ₁	22	13	54					
			i ₂	22	13	57					
			i ₃	22	14	25					
47	" 30	I,	i	16	35	47					
			F	16	39						
			Malabar.								
			i	16	35	45					

APRIL 1294.

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s		A _E	A _N		
48	April 3	I	i _E F	1	27	25		μ	μ	km.	
49	" 4	I _r	iP i F	21	57	36					Flores?
				22	0	17					
				22	8						
				Malabar.							
			iP	21	57	22				1460	
			S	21	59	55					
50	" 8	I	iP _E M F	21	6	20					
				21	7	34					
				21	12						
51	" 10	I _v	P i ₁ i ₂ F	5	27,8						disturbed bij street traffic. Benkoelen (S Sumatra).
				5	28	16					
				5	29	24					
				5	32						
52	" 10	I _v	P iS M F	13	4	45				170	Preanger (W. Java).
				13	5	3					
				13	6	41					
				13	11	26					
				Malabar.							
			iP	13	4	24					
			iS	13	4	29					
				Malabar.							
			eP	6	26	12					Banjoemas and E. Preanger.
			iS	6	26	36					
53	" 12	I _v	e F	14	49,8						Semarang and Pekalongan (C. Java)
				14	55						
54	" 13	III _r	P i _N i ₁ M ₁ i ₂ M ₂ F	13	51	1					Azimuth SW. NE Borneo.
				13	53	56					
				13	54	5					
				13	54	28					
				13	55	1					
				13	55	17					
				Malabar.							
			P	13	51	13					
			i ₁	13	53	57					
			i ₂	13	54	57					
			i ₃	13	55	7					
55	" 14	III _r	P i ₁ i ₂ i ₃ F	16	25	34					other phases lost bij violence of schocks. Sangi I; destructive at Davao (Mindanao P. I.).
				16	25	56					
				16	25	43					
				16	25	50					
				18	47						
				Bosch registra-tions.							
			e _E	16	25	43				2720	
			i	16	25	50					
			iS	16	29	58					
			L	16	34	20					

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance op epi-centrum.	Remarks.
				h	m	s		A _E	A _N		
				Malabar.							
			i ₁	16	25	40				(5000)	
			i ₂	16	25	46					
			i ₃	16	25	52					
			i ₄	16	25	59					
			iS	16	50,5						No minute marks.
56	April 14	I _r	iP S F	17	52	11				(2260)	56 and 57 disturbed by 55.
				17	55	51					
				in next.							
57	" 14	I	S M ₁ M ₂	18	8	41					
				18	9	20					
				18	13	26					
58	" 15	I _v	P i F	21	5	9					
				21	9	23					
				21	22						
59	" 17	I _v	P _E iS _N F	7	4	8				(220)	disturbed by street traffic.
				7	5	14					
				7	16						
				Malabar.							
			P _E	7	5	2				280	
			S	7	5	34					
60	" 20	I _u	i iS F	14	56	58				6490	Azimuth NW. Azimuth SW.
				14	44	58					
				15	4						
61	" 21	I	i ₁ i ₂ F	20	20	46					
				20	21	46					
				20	29						
62	" 22	I _v	e _E iS? F	15	24	2				(530)	Central Java.
				15	24	40					
				13	50						
				Malabar.							
			P	13	23	42				250	
			S	13	24	8					
63	" 23	I _v	e i _N F	12	14	59					W. Preanger.
				12	15	20					
				12	21						
				Malabar.							
			P	12	15	9					
			i	12	15	44					
64	" 26	I	i _E F	20	17	12					
				20	28						
65	" 29	I _v	P F	8	10	50					disturbed by street traffic. Daradjat (E. Preanger).
				8	13						
				Malabar.							
			P	8	10	24				90	MARON; e - i = 0,7 ^m ; Δ = 370.
			S	8	10	35					
66	" 31	I	e eL _N F	4	15,3						disturbed by street traffic.
				4	43,4						
				4	54						
67	" 31	I	e L F	5	21	23					
				5	48,4						
				6	0						



MAY.

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Amplitude (half)		Distance of epi-centrum. km.	Remarks.
				h	m	s	A _E	A _N		
68	May 1	I	i _E F	20	14	57				
69	" 3	I	e _E i _N L F i	11	24	14 28 7 34 1 47 24 18			MARON: i _P - S = 3 ^m 7 ^s . i _P - L = 5,1 ^m . Δ = 2230.	
70	" 4	II _u	i _P i _N i _S eL F i _P i _S	17	2	29 3 13 11 10 19,5 28 2 22 10 59		7300	Azimuth NW. MARON: i _P - i _S = 8 ^m 42 ^s . Δ = 7320.	
71	" 5	II _r	P _E i _N i _E i _S F P S	16	14	59 16 22 17 58 19 42 2 15 8 19 58		3140		
72	" 13	I _v	e F i _P i _S	9	1	4 5 0 35 0 50		150	E. Preanger. MARON: i ₁ - i ₂ = 26 ^s . Δ = 230.	
73	" 14	I _v	e i F	8	23	46 24 29 52			Lais (Benkoelen, S. Sumatra).	
74	" 15	I _r	i _E i _N F	4	27	45 31 52 39			Halmabeira.	
75	" 17	II _u	i _E i _N F	5	22	8 23 2 29 15 47,9			MARON: i ₁ - i ₂ = 4 ^m 38 ^s . i ₁ - i ₃ = 7 ^m 18 ^s .	
76	" 24	I	e eL F	2	25,4				disturbed by street traffic.	
77	" 25	I	i i _E F	13	57	22 6 4 12			Azimuth NW.	
78	" 25	I	i F e	17	59	16 in next Malabar. 18 0 23				

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Amplitude (half)		Distance of epi-centrum. km.	Remarks.
				h	m	s	A _E	A _N		
79	May 25	I _v	i _S i _P F i _P i _S	18	0	46 1 8 8 0 52 1 16			Malabar. 210	
80	" 25	I	i F	19	0	32 5				
81	" 25	I _v	i _N F	20	53	15 57				
82	" 28	I _u	i ₁ i ₂ i _S F	10	1	51 3 34 9 57 20		6250		
83	" 28	I _v	P S F	23	15	40 16 1 23		180		
84	" 29	I	e F	17	42	58 47				
85	" 29	I	e i F	20	55	8 57 2 44				
86	" 31	I _v	i i _S F P i _S	25	21	49 22 19 27 21 53 21 45		260	E. Preanger. MARON: i ₁ - i ₂ = 29 ^s . i ₁ - i ₂ = 32 ^s .	
JUNE.										
87	June 1	I _r	P eS F i	1	44	18 48 6 2 44 17		2560	Langowan (E. Menado).	
88	" 1	II _v	i _P i _N M F i _N	5	51	30 31 49 52 53 42 51 52	5.9	194	174 Azimuth W. a little to N.	
89	" 2	I _v	P _E i _S F i _E S	6	25	50 26 15 31 26 11 26 36		220	disturbed by street traffic. Parengkoedjang (Bantam, W. Java). 170	



No.	Date 1924.	Char- acter.	Phase.	Time (Greenwich).			Periode in seconds.	Amplitude (half).		Distance of epi- centrum	Remarks.	
				h	m	s		A _E	A _N			
90	June 2	II	iP _N	19	40	5	6.3	598	214	370	Azimuth SSE. MARON: $i_1 - i_2 = 53^\circ$. $\Delta = 480?$	
			iS	19	40	47						
			i _E	19	41	14						
			M	19	41	50						
			F	20	3							
			Malabar.									
			P _N	19	39	50						270
i	19	40	14									
S	19	40	21									
91	" 2	I	e	20	41	11				270	overlapped by 90.	
			i	20	41	59						
			F	21	2							
			Malabar.									
P _N	20	41	7									
S _E	20	41	23									
92	" 5	I	e	3	16	45				270		
			i	3	21	54						
			F	3	27							
93	" 5	I	P	12	34	15				270		
			F	12	44							
94	" 8	I _v	e	15	26	32				390	Central and Eastern Java. MARON: $iP - iS = 26^\circ$. $\Delta = 250$.	
			F	15	51							
			Malabar.									
			P _E	15	25	44						
iS	15	26	28									
95	" 9	I _v	iP	19	48	57				2750		
			iS	19	55	12						
			F	20	3							
96	" 19	I _v	P	12	37	5				260		
			S	12	37	35						
			F	12	42							
97	" 22	III _v	iP	16	37	10				160	Azimuth NW. West and Central Java. MARON: $iP - iS = 31^\circ$. $\Delta = 270$.	
			iS	16	37	29						
			E out.	16	57	50						
			N out.	16	59,3							
			Bosch registrations.									
			iP	16	37	14						160
			iS	16	37	53						
			F	16	57							
			Malabar.									
			iP	16	37	7						
i	16	37	11									
out.	16	37	26									
98	" 24	I	i _E	21	12	29				160		
			F	21	23							
99	" 26	III _v	iP	1	48	8				7350	Azimuth ESE. MARON: $P - iS = 8^m 45^\circ$. $\Delta = 7380$.	
			i _E	1	49	20						
			i _E	1	49	49						
			iS	1	57	2						
			L _N	2	7	44						
			M	2	9	44						
			L _N	4	15	15						
F	4	35										
					24.0	796	214					

SEISMOLOGICAL BULLETIN, 1924.

BATAVIA OBSERVATORY, JAVA.

JUNE.

No.	Date 1924.	Char- acter.	Phase	Time (Greenwich).	Period in seconds.	Amplitude (half)		Distance of epi- centrum	Remarks.								
						A _E	A _N										
				h m s		μ	μ	km.									
99	June 26	I	P	1 48 0													
			iN	1 49 18													
			iS?	1 56 45													
			L	2 3 49													
			M _N	2 8 31													
				Malabar.													
100	" 28	I	i ₁	4 55 40													
			i ₂	4 56 55													
			L	4 51,8													
			F	5 7													
										Malabar.							
101	" 30	II _u	iP	15 54 38													
			i	15 56 8													
			iS	16 2 56													
			eL	16 12													
			F	16 47													
				Malabar.													
102	" 30	I	i	15 54 39													
			i ₁	18 38 14													
			i _E	18 42 19													
			i ₂	18 44 20													
			F	19 2													
				Malabar.													
JULY.																	
103	July 2	III _v	iP	18 45 39				160	W. Java. MARON: iS—iP = 58 sec. Δ = 530.								
			iS	18 45 58													
			F	18 58													
				Malabar.													
" 2	" 2		iP	18 45 27				80									
			iS	18 45 36													
										Malabar.							
104	" 3	II _u	i _N	4 48 48													
			i ₁	4 50 49													
			eL _E	5 4													
			i ₂	5 12 8													
			F	5 57													
				Malabar.													
" 3	" 3		eL	5 5													
										Malabar.							
105	" 4	I _v	P	11 59 25					Preanger (W. Java).								
			F	12 2													
				Malabar.													
" 4	" 4		P	11 58 42				90									
			iS	11 58 55													
106	" 7 _e	I _v	e	4 18 52				160	Preanger (W. Java).								
			iS _E	4 19 11													
			F	4 21													
										Malabar.							
			iP	4 18 42													
iS	4 18 55																

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in sec nds.	Amplitude half.		Distance of epi-centrum.	Remarks.
				h	m	s		μ	μ		
107	July 8	I _v	i F	9	41	55				Bodjong Asih (W. Preanger).	
				Malabar.							
			P iS	4	41	51			70		
				4	41	59					
108	" 9	I	i _E i F	1	42	50				MARON: i - P = 42 sec.	
				1	44	22					
				1	58						
109	" 11	II	i ₁ i ₂ i ₃ i ₄ M _E M _N F	19	53	50	6.0	11.6	59.6		
				19	55	25	6.8	29.1	118		
				20	1	18	7.0	69.3	114		
				20	2	43	12.8	556	52.4		
				20	15	26	11.5	59.1	517		
				21	18						
				Malabar.							
			e	19	53	46					
			eL	20	7	46					
			M	20	14	28					
110	" 11	I _v	iP F	21	30	58					
				21	36						
				Malabar.							
			e _N ?	21	28	58					
			i _E	21	30	10					
111	" 12	I _v	iP _N iS _E F	0	34	56			140	W. Preanger (Java).	
				0	34	52					
				0	39						
				Malabar.							
			P	0	34	28			800		
			iS	0	34	58					
112	" 12	I _v	eP iS F	10	2	8			190	Bodjong Asih (W. Preanger).	
				10	2	30					
				10	5						
				Malabar.							
			eP	10	2	15			150		
			iS	10	2	50					
113	" 12	I _v	e F	12	3	52				Banjoemas and Preanger (W. Java).	
				12	7						
				Malabar.							
			P _E	12	3	11			160		
			iS	12	3	29					
114	" 12	I	e L F	15	22	26					
				15	44	26					
				16	3						
115	" 17	I	F	0	37					beginning during changing of papers.	
116	" 21	II _v	iP i ₁ i ₂ M F	0	59	15	6.8	90.1	54.9	Azimuth WNW. Tapanoeli (N. Sumatra).	
				0	41	53					
				0	42	48					
				0	43	16					
				1	2						
				Malabar.							
			P	0	39	26					
			F	0	50						

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s		μ	μ		
117	July 22	I _v	i F	1	41	15				Tapanoeli.	
				1	48						
118	" 22	I	e ₁ e ₂ F	4	29	59					
				4	37	59					
				4	44						
119	" 22	I	i F	14	50	54					
				14	42						
120	" 23	I	i F	8	7	15					
				8	12						
121	" 24	III _v	iP iS M eL L M F	5	5	35				6850	
				5	13	52					
				5	14	52	6.4	125	114		
				5	23	22					
				5	25	17					
				5	30	20	20.0	224	700		
				6	27						
122	" 25	I _v	P i _N F	15	4	25					
				15	6	45					
				15	12						
				Malabar.							
			P	15	3,8						
123	" 26	I _v	P iS F	5	5	53				2820	
				5	9	55					
				5	17						
124	" 29	III _v	iP S _N ? M F	5	22	7				1850?	
				5	25	13					
				5	27	47	6.1	280	450		
				6	11						
				Malabar.							
			P	5	21	56					
			i ₁	5	24	48					
			i ₂	5	26	50					
			L	5	27	58					
125	" 29	I _v	e F	12	50	50				Central Celebes	
				12	55						
126	" 29	I _v	e F	15	36					Amboina (Moluccas).	
				15	42						
127	" 29	I	i _E i F	17	30	0					
				17	30	31					
				17	34						
128	" 30	I _v	iP iS F	0	6	16				220	
				0	6	41					
				0	16						
				Malabar.							
			P	0	6	29				(250)	
			i ₁	0	6	57					
			i ₂	0	7	9					
129	" 31	I	i ₁ i ₂ F	12	48,8						
				12	50	31					
				12	56						
				in minute eclipse.							

AUGUST 1294.

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.		Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s			μ	μ		
30	Aug. 9	I	i _E i F	23	12	47						
				23	17	47						
				23	27							
31	" 10	I _v	i ₁ i ₂ i _E eL M _N M _E M _E F	6	23	35					Azimuth SE.	
				6	28	38						
				6	32	54						
				6	47	12						
				6	51	12						
				6	52	42	24.0					
				6	56	12	20.0					
				7	18							
32	" 11	I	i _E i F	3	1	10					in minute eclipse.	
				3	1,9							
				3	12							
33	" 14	II _v	iP iS eL _E M F	18	12	0				5810		
				18	19	25						
				18	25	43						
				18	32	43					MARON: iS — iP = 7 ^m 28 ^s . Δ = 5880.	
				19	10							
34	" 14	I _v	i iS F	23	36	48				5860		
				23	44	15						
				0	2							
35	" 16	I _v	P S F e	12	44	39				5850		
				12	45	8						
				12	50	57						
				12	44	50					Malabar.	
36	" 17	I _v	e i F	1	55	5						
				2	2	42						
				2	10							
37	" 17	I _v	i iS F	2	19	52				7010	Azimuth NE. Azimuth SE.	
				2	27	58						
				2	38							
38	" 19	I _v	eP iS F P S	0	51	41				160		
				0	52	0						
				0	55	45						
				0	51	45				200		
				0	52,1						in minute eclipse.	
39	" 19	I	i F P	8	2	1						
				8	13							
				8	2	25					Malabar.	
40	" 21	I _v	iP iS F	15	11	1				120	Azimuth ESE. W. Java.	
				15	11	15						
				15	17							
41	" 23	I _v	P iS F	14	40	20				300		
				14	47	54						
				14	57							

N ^o .	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.		Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s			μ	μ		
142	Aug. 25	I	i ₁ i ₂ F	23	18	48						
				23	28	25						
				23	35							
143	" 28	I	P F	8	2,5						disturbed by street traffic.	
				8	18							
144	" 30	III _v	iP iS F	3	10	20				2910	Azimuth NE. Beo (Talaud Isles). MARON: S — P = 4 ^m 29 ^s . Δ = 2920.	
				3	14	48						
				4	31						Malabar.	
				3	10	24				2970		
				3	14	56						
				3	18	20						
SEPTEMBER.												
145	Sept. 1	I	i _E i _N F	5	34	44						
				5	34	46						
				5	37							
146	" 2	I	i ₁ i ₂ F	22	2	10						
				22	6	53						
				22	15							
147	" 3	II _v	iP S? M F	22	25	31				160?		
				22	24	9						
				22	26	48	5.8					
				22	40				456	534		
				22	24	11					Malabar.	
148	" 4	II _v	iP iS M F	1	14	26				150	W t N.	
				1	14	45						
				1	16	12	5.8					
				1	25				218	24.1		
				1	14	44					370.	
				1	13	26						
149	" 4	I _v	e F	9	56	24					Kisar (Timor).	
				10	15							
150	" 5	I _v	i _E i _N F	5	44	27						
				5	45	14						
				5	54						Malabar.	
				5	44	31				260		
				5	45	1						
151	" 5	I	i ₁ i ₃ i ₃ F	14	55	24						
				14	58	7						
				14	59	11						
				15	7							
152	" 7	I	i ₁ i ₂ i ₃ F	1	52	23					Azimuth SW.	
				1	57	11						
				1	58	17						
				2	11							
153	" 7	I _v	P _N iS F	21	51	12				160	Buitenzorg and Preanger (W. Java).	
				21	51	30						
				22	5	80						
				21	51	9					Malabar.	
				21	51	21						



No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Periode in seconds.	Amplitude (half).		Distance of epi-centrum km.	Remarks.
								A _E	A _N		
				h	m	s		μ	μ		
154	Sept. 8	I	i _E i ₁ i ₂ F	5	17	58					
155	" 10	I	i ₁ i ₂ F	4	48	54					
156	" 10	II, Δ	iP i ₁ eS _N ? i ₂ F Malabar. iP S	5	58,1	59 10				1650	Azimuth ± W. disturbed by street traffic. Soemba and Flores (Minor Soenda I). MARON: S? - P = 2 ^m 29 ^s . Δ = 1440.
157	" 11	I	i i _N F Malabar. e _E	5	50	51				1670	Beo (Talaud I.).
158	" 12	I _v	i _N iS F	4	48	29				290	
159	" 15	II	i i _E L M F	14	46	0	19.6	120	56.6		Azimuth SE.
160	" 15	I	i ₁ i ₂ F	19	18	6					
161	" 14	I	i ₁ i ₂ i _N F Malabar. i ₁ i ₂	14	13	50					Azimuth SW. Azimuth NE.
162	" 22	I	e i F	2	6,6	10,9					e and i disturbed by street traffic.
163	" 28	I	i _E F	4	1	14					
OCTOBER.											
164	Oct. 3	I _v	P _E S _N F Malabar. eP S?	2	10	51				500	
				2	11	5					
				2	28						
				2	10	42				320?	
				2	11	18					

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Distance of epi-centrum km.	Remarks.
								A _E	A _N		
				h	m	s		μ	μ		
165	Oct. 5	I	i F	15	14	29					
166	" 6	I _r	i ₁ i ₂ eL F Malabar. iP _N iS	6	25	52				1170	MARON: i -- P = 1 ^m 30 ^s .
167	" 8	I	e _N L ₁ L ₂ F	20	40	52	30.4				
168	" 13	I	e i ₁ i ₂ i ₃ F	16	27	21					
169	" 14	I _v	e F Malabar. P S	5	42	54				380	Central Java. MARON: S - P = 22 ^s . Δ = 190.
170	" 20	I	i F	8	57	57					Azimuth NNE.
171	" 20	I _u	i _E i ₁ i ₂ i ₃ eL F	20	4	46					
172	" 26	I	i _E i _N i F	18	25	51					
173	" 27	II _r	iP iS eL F Malabar. P iS eL	20	2	5				2650	Azimuth S 57.0 E. MARON: iS - P = 3 ^m 46 ^s . Δ = 2340. AMBOINA: S? - P = 1 ^m 58 ^s . L - P = 2 ^m 40 ^s . Δ = 1140.
174	" 27	I	i ₁ i ₂ F	20	55	55					
175	" 31	I _r	i i _N ? eL F	3	5	15				2550	AMBOINA: S - P _E = 40 ^s . Δ = 350. Wonreli (Kisar, Timor).
				3	7	2					
				3	15						
				3	22						



NOVEMBER.

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.		Amplitude (half)		Distance of epi-centrum.	Remarks.
				h	m	s			μ	μ		
176	Nov. 3	I	e_N i_1 i_2 F	3	25	37						
177	" 3	I	i_E i F	8	45	0						
178	" 9	I _v	eP_E S_N M F P S_N	10	19	0	3.0	14.8	9.5		Wonosobo (Central Java.) MARON: iS — iP = 10.0°.	
179	" 12	I _v	P S F in next. Malabar. eP S	6	22	56					Wonosobo. MARON: iS — iP = 9.7°.	
180	" 12	II _v	P S M ₁ M ₂ M ₃ F P S	6	25	5	6.0 6.2 5.8	218 357 357	282 251 347		P disturbed by No. 179. destructive near Wonosobo. MARON: iS — iP = 9.9°.	
181	" 15	I _v	i_1 i_N i_E eL F	8	44	47						
182	" 15	I _v	P F Malabar. eP i_E S	8	57	52					in No. 181. Wonosobo. MARON: S — iP 9.7°.	
183	" 14	I _v	e F	10	7.8						Wonosobo.	
184	" 14	I _v	P F	10	11.6						in No. 183. Wonosobo. MARON: iP — iS = 10.0°.	
185	" 16	I _v	P S F Malabar. eP iS	1	57	44	5.8	24.1	16.1		Wonosobo. 300	
186	" 18	I	i F	10	50	44						

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).			Period in seconds.		Amplitude (half)		Distance op epi-centrum.	Remarks.
				h	m	s			μ	μ		
187	Nov. 18	I	i F	11	45	6						
188	" 20	I	i F	12	15	58						
189	" 22	I	i F	23	50.8						disturbed by street traffic. MARON: iS — iP = 55°. $\Delta = 500.$	
190	" 24	I _v	iP iS F P iS	7	53	54				160	Azimuth N. Bodjong Asih (W. Preanger).	
191	" 24	III _a	iP F iP iS iP S? P iS	7	59	51				150	Azimuth E. disturbed by street traffic. N to W; pens thrown out 8 ^h 0 ^m 10 ^s ; starting anew 8 ^h 4 ^m . West Java. MARON: i — eP = 24°. S? — eP = 1 ^m 35 ^s . pens thrown out 8 ^h 6 ^m 16 ^s . Djampang Koelon (W. Preanger).	
192	" 30	I	i i_N F	19	3	45						
AMBOINA, NOVEMBER.												
	" 1		iP iS	17	28.5						320	
	" 6		iP iS	22	27.8						910	
	" 17		P S	18	17.8						470	Tobelo (Halmahera).
	" 18		i F	11	35.7							
	" 18		P S	20	47.5						80	
	" 20		P S	1	9.9						80	
	" 20		eP iS	21	49.3						70	
	" 25		iP S	7	34.6							

DECEMBER.

No.	Date 1924.	Char-acter.	Phase.	Time (Greenwich).	Period in seconds.	Amplitude (half)		Distance of epi-centrum.	Remarks.
						A _E	A _N		
193	Dec. 1	I	i _E F	h m s 5 48 19 5 53 7		μ	μ	km.	
194	" 1	I	i _E F	6 7 59 6 22					
195	" 1	I.	eP i F	14 45 38 14 45 55 14 48				90	Tjikentjreng (E. Preanger).
			iP S	14 45 14 14 45 25					Malabar.
196	" 1	I	e ₁ i ₁ e ₂ i ₂ F	23 4 17 23 8 41 23 18 18 23 18 22 23 24					
197	" 2	II.	P _E iP S F	1 2 10 1 2 21 1 3 10 1 31					destructive near Wonosobo (C. Java). MARON: iS — iP = 8.4 ^s .
			iP iS	1 1 57 1 2 50					Malabar.
198	" 5	II.	iP _E iS _E i F	6 41 2 6 44 35 9 44 59 10 0				2180	Minahasa and Taroena (N. Celebes). MARON: S — P = 3 ^m 32 ^s . Δ = 2150.
			iP iS	9 41 0 9 44 45				2270	
		II.	P S	9 56.8 9 57.7				460	
199	" 6	I	e i L _N F	4 48 51 4 53 42 5 1 42 5 2					
200	" 9	I.	P iS F	1 26 36 1 27 16 1 37				350	Central Java (not from Wonosobo). MARON: S — iP = 19 ^s . Δ = 160.
			iP iS	1 26 15 1 26 36				180	Malabar.
201	" 9	I	e i ₁ i ₂ M _E F	12 0 26 12 2 45 12 3 26 12 3 53 12 14	7.0		25.1		
202	" 9	I	i F	16 30 51 16 38					

No.	Date 1924.	Char-acter.	Phase	Time (Greenwich).	Period in seconds	Amplitude (half)		Distance of epi-centrum	Remarks.
						A _E	A _N		
203	Dec. 11	I _u	i ₁ i ₂ i ₃ i ₄ i ₅ i ₆ F	h m s 17 56 37 17 58 45 17 41 59 17 42 57 17 43 56 17 44 53 18 56	5.8	27.2	18.1		
204	" 12	II _v	iP i iS M F	25 46 27 25 47 19 25 47 45 25 50 14 1 46				700	Central and East Java. MARON: S? — iP = 15 ^s . Δ = 130?
	" 15		iP iS	25 46 9 25 47 4	6.1	225	299	500	Malabar.
205	" 15	I _u	i ₁ i ₂ F	20 59 15 21 7 14 21 15					
206	" 16	I.	eP iS F	12 48 47 12 49 4 12 52				150	
			P iS	12 48 56 12 48 51				130	Malabar.
207	" 16	I _v	iP _E iS F	16 19 29 16 19 46 16 24				150	
			P _E S	16 19 44 16 20 11				240	Malabar.
208	" 24	I _u	i ₁ i _N i ₂ i ₃ i ₄ F	22 15 8 22 15 49 22 16 51 22 24 28 22 26 16 22 29					Azimuth WNW.
209	" 26	I _u	i ₁ i ₂ i ₃ M F	25 42 37 25 44 26 25 51 5 25 51 13 0 6	6.4	68.8	58.7		
	" 27		i ₁ i ₂	25 42 31 25 50 54					Malabar.
210	" 27		i ₁ i ₂ i ₃ i ₄ F	11 32.1 11 32.7 11 36.0 11 38.1 11 52					No minute eclipses.
211	" 28	I _u	i ₁ i ₂ L M F	25 5 15 25 13 27 25 24 27 25 27 27 25 58				26.0	
212	" 28	I	i F	23 55 20 23 41					



N ^o .	Date 1924	Char- acter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half).		Distance of epi- centrum.	Remarks.
				h	m	s		A _E	A _N		
213	Dec. 30	I	e	14	44	0					
			i	14	51	29					
			F	14	53						
214	" 30	I	e	15	37.4						
			i	15	46	50					
			F	15	51						
215	" 30	I _v	P _N	19	6	45			250		
			iS _N	19	7	11					
			i	19	8	16					
			F	19	11						
			Malabar.								
			iP	19	6	29			110		
			iS	19	6	42					
216	" 31	I _v	iP	18	24	26			170		
			iS _N	18	24	46					
			F	18	35						
			Malabar.								
			iP	18	24	17			150		
			iS	18	24	32					
217	" 31	I	i	19	8						
			F	19	16	45					
			AMBOINA, DECEMBER.								
	" 9	I _r	P	12	54.2				2050		
			S	12	57.6						
	" 14	I _v	P	14	59.7				140		
			S	15	0.0						
	" 41	I _v	P	15	5.2				160		
			S	15	5.5						

Azimuth NNE.
Preanger.
MARON: S — P = 58^s.
Δ = 350.
pen of N. component thrown
out at 18^h 24^m 52^s.

CONSTANTS BATAVIA 1924 JULY — DECEMBER.

1924.	E-W component.			N-S component.		
	V.	T _o .	ε.	V.	T _o .	ε.
July	190	7.6	3.5	188	7.8	3.4
August	"	7.6	3.4	"	8.0	3.4
September	"	7.6	3.8	"	8.0	3.5
October	"	7.6	4.5	"	8.0	4.3
November	"	7.6	4.1	"	8.0	4.5
December	"	7.6	4.2	"	7.4	3.4

MARON.

N.B. Eastern Longitude is 110° 25'.

AMBOINA.

October 1924 an astatic Wiechert Pendulum of 1000 kg. has been established at Amboina (Moluccas; 128° 10' E; 3° 42' S). The factory time is given in 1/10 minutes.

