

SEISMOLOGICAL BULLETIN.

JANUARY 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.	
									A _E .	A _N .		
1	1	January.	I	Beginning.	h	m	s	20	14.5	16.9		
					10	29						
						49						
						53						
2	1	»	I		11	21						
					15	17						
3	2	»	I		15	53						
					11	5						
4	2	»	I _u	P	11	till						
					11	15						
4	2	»	I _u	S	22	59	17	6	6.4	3.9	P and S uncertain.	
					23	7	53					
					23	9						
					23	26						
5	3	»	III _v	M ₁	23	26		18	8.6	7.6		
					24	0						
					23	1	18					
						1	42					
6	3	»	III _u	M		2	20	6	> 570	> 750	Felt in Friesland, Goenoeng Walet, Patjet and Malabar, Preanger Regencies. Landslide at Tjipatat.	
						29						
						25	55					25
						57	56					
6	3	»	III _u	P R ₁		39	23	22	1590	800	Earthquake in Turkestan. The long waves are relatively strong.	
						40	23					
						43	0					
						44	25					
7	4	»	I	S		44	25	22	1590	800		
						55						
						2	0					
						0						
7	4	»	I		9	1						
					9	32						

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
					h	m	s		μ	μ	
8	4	January.	I	L	10	11					
					till						
					10	25					
9	7	"	I _r	P	2	22	8				In Ambon P-S ± 5 ^m 18 ^s .
				S		27	51				
				M ₁		28		7	22.7	56.5	
				M ₂		38		12	14.7	15.3	
				F	3	23					
10	8	"	I	Begin- ning. e L	9	52		20			
				F	10	3					
					10	9					
11	9	"	I		14	45					
					till						
					14	55					
12	10	"	I	P	16	56	9				
				M		45					
				F	17	38					
15	11	"	I _u	P	21	25	7				
				S, M	21	33	42	5.5	10.4	12.8	
				F		48					
14	14	"	I		18	12					
					till						
					18	48					
15	16	"	II _r	P	8	55	47				Weakly felt in Ambon.
				S		59	25				In Ambon P-S ± 26 sec.
				M		59	59	7	87.7	113.2	
				F	9	51					
16	16	"	I _r	P	23	1	10				
				S		5	36				
				M		6	8	6	8.8	12.5	
				F		18					
17	18	"	I		15	38					
					till						
					13	58					
18	18	"	I		17	57					
					till						
					18	8					
19	19	"	I		0	15					
					till						
					0	28					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
					h	m	s		μ	μ	
20	19	January.	I	P	5	49	58				
				M		55		6.5	14.2	14.4	
				F	6	15					
21	26	"	I	P	20	57	8				P uncertain.
				M	21	4		7	7.8	6.7	
				F	21	15					
22	28	"	I		5	23					
					5	27					
23	28	"	I _r	P	7	56	38				P uncertain, very small.
				i S		58	18	6	26.5	18.9	S strong.
				M		58	42				
				F	8	12					
24	28	"	I		12	47					
					till						
					12	52					

SEISMOLOGICAL BULLETIN.

FEBRUARY 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.	Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
								A _E .	A _N .	
25	2 February.	I _v	P	h	m	s		μ	μ	P uncertain.
			S	17	32	52				
			M		55	11	3	6.5	5.0	
			F		59					
26	4 "	I _v	P	7	8	56				Felt in Goenoeng Walet, Mangoenredja and Mala- bar, Preanger Regencies, Java.
			M		10		3	15.1	22.4	
			F		15					
27	6 "	I _v	P	5	50	22				Very short waves.
			S, M		50	45	1	10.2	5.9	
			F		55					
28	7 "	I _v	P	6	54	58				Very short waves.
			S, M		54	59	1	6.8	6.4	
			F		58					
29	8 "	I		4	0					
					till					
30	9 "	I _v	P	6	55	29				Felt in Goenoeng Walet, Preanger Regencies, Java.
			S		55	47				
			M		54	26	4.5	8.6	15.9	
			F		58					
31	9 "	I _v	P	18	40	8				
			S		41	52				
			M		42	55	7	46.4	55.7	
			F	19	2					
32	10 "	I _v	P	17	25	50				
			S, M		26	12	1	50.5	27.2	
			F		52					
33	10 "	I _v	P	18	52	52				P very small, uncertain.
			i S, M		52	54	1	5.9	8.0	
			F		55					

N ^o .	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
34	11	February.	I	P M F	0 54 58 0 56 1 6		5.0	11.9	13.5	P uncertain. Felt in Tandjong Sakti, Benkoelen, Sumatra.	
35	11	"	I.	P S, M F	1 51 59 52 37 57		6	10.3	5.3		
36	11	"	I		6 4 till 6 15						
37	15	"	II.	P S M F	1 28 56 1 29 15 1 31 1 55		6	77.0	104.0	Felt in Pageralam, Palembang, Sumatra.	
38	17	"	I		10 17 till 10 52						
39	18	"	I.	P S M F	5 19 46 20 5 20 46 28		6	8.4	8.4		
40	18	"	II	P M _E M _N F	18 51 2 19 15 19 17 20 25		17 17	142.7 89.7		The separate phases cannot be distinguished. Earthquake at Lahore (British India).	
41	18	"	I		21 59 till 22 5						
42	20	"	I		20 15 till 20 29						
43	20	"	I		22 16 till 22 21						
44	25	"	I.	P S M _N M _E M _L F	11 21 47 27 27 27 49 29 1 47 12 21		5.5 5.5 11	28.6 55.7 7.6	9.1		
45	25	"	I	P M F	1 0 11 1 7 1 21		6	4.7	4.4	P uncertain. The diagram is disturbed by changing paper.	

N ^o .	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
46	25	February.	I	P M F	h m s 15 20 15 22 28		2.5	5.3	5.2		
47	25	"	I	P M F	15 31 53 44		6.5	9.7	8.2	P very uncertain.	
48	26	"	I		6 24 till 6 51 6 26		6	5.4	5.5		
49	26	"	I	e L F	13 50 14 2		20			Very small.	
50	27	"	I		7 56 till 7 40						

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MARCH 1911.

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WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
51	2	March.			h	m	s		μ	μ	
					19	20					
						till					
					19	26					
52	4	"		P	9	59	58				P very small, uncertain.
				S		41	57				
				M		42	5	6	6.5	12.5	
				F		50					
53	4	"		P	20	14	25				
				S		15	15				
				M		17		6	24.0	17.6	
				F		52					
54	6	"		P	9	57	8				
				M	11	1		6	9.9	6.5	
				F	11	11					
55	6	"		P	17	55	59				
				S		59	1				
				M		42		6	65.5	111.8	
				F	18	17					
56	9	"		P	5	8	5				
				M		15		6	16.8	21.9	
				F	5	34					
57	11	"		P	3	24	45				No separate phases to be distinguished with certainty. Registered in Ambon.
				M		40		35	64.4	83.4	
				F	4	18					
58	11	"		P	5	19	54				Felt in Kota Agoeng, in S.-Sumatra.
				S		20	20				
				M		22		6	9.2	9.0	
				F		26					
59	13	"		P	14	40	55				P very uncertain.
				M ₁		49		6	5.5	2.6	
				M _L	15	1		26	17.8	13.7	
				F	15	15					

N ^o .	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
60	15	March.		P S M F	h	m	s	6	65.8	69.7	
					8	58	57				
					9	0	30				
					9	5	25				
61	15	"			20	14					
					20	till	20				
62	19	"		P S M F	0	59	43	6	151.0	150.5	Felt in Moeara Bliti in Palembang, Sumatra. Registered in Padang, P-S ± 50 sec.
					1	0	35				
					1	5					
					1	25					
63	21	"			15	22					
					15	till	50				
64	22	"		P S M F	9	50	58				Felt in Malabar, Tjikorai and Tjipetir, in the Preanger Regencies, Java.
						51	17				
						53					
						55					
65	24	"		P M F	1	59	31	5	5.6	7.1	
					2	1					
					2	8					
66	27	"		P M F	9	43	44	12	25.0	15.9	P very uncertain. Registered in Ambon, P-S ± 40 sec.
						54					
					10	18					
67	28	"		P S, M F	5	27	10	1	16.1	16.0	
						27	44				
					5	31					
68	29	"		P M F	12	20	28	5	5.3	4.9	Felt in Bandjarhordjo, Bantarkawoeng, Pangebatan and Boemiajoe in Pekalongan and Adjibarang in Banjoemas, Java.
						25					
					12	27					
69	30	"		P M F	22	4	56	11.5	16.9	10.7	P very uncertain. Registered in Ambon.
						19					
						45					

Dr. W. VAN BEMMELEN.

SEISMOLOGICAL BULLETIN.

APRIL 1911.

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 E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.	
									A _E .	A _N .		
70	1	April.	I	P	h	m	s	6	28.1	46.1	Uncertain, time marks are failing. S? sudden strengthening which decreases rapidly, no long waves.	
					2	13						
					S?	2	22					
					M	2	25					
				F	2	40						
71	3	"	I		1	6						
						till						
					1	15						
72	3	"	I		3	40						
						till						
					3	56						
73	4	"	I		16	6						
						till						
					16	14						
74	6	"	I _v	P	5	50	0	6	18.8	12.6	Felt in Malabar, Preanger Regentships, Java.	
					S	5	50					15
					M	5	51					20
					F	5	55					
75	7	"	I _n	P	6	56		7	14.8	5.5	P very uncertain. From 7 ^h 26—7 ^h 34 no perceptible movement, afterwards long waves of small amplitude.	
					S	7	6					17
					M	7	8					
					F	7	57					
76	10	"	I	P	19	4		6	12.9	18.3	P uncertain.	
					M	19	16					
					F	19	51					
77	11	"	I		13	41		20	10.4	7.6		
						till						
						14	27					
					e L	14	8					
				M	14	17						
78	11	"	I _v		13	47					Short tremors on n ^o . 77. Felt in Pangebatan, Pekalongan, Java.	

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
79	11	April.	I.		h	m	s		μ	μ	Short waves.
					14	57					
					till						
				M	14	41		4	6.4	3.9	
					14	58					
80	12	"	I.	P	17	54	21	1	6.9	3.9	
				S, M	17	54	45				
				F	17	59					
81	15	"	I		5	4					
					till						
				M _E	5	36		6	3.7		
				e L	5	14					
				M _N	5	26		21	1.3		
					5	50					
82	15	"	I		12	6					
					till						
				M	12	28		12	3.9	8.8	
					12	13					
83	16	"	I		17	0					
					till						
					17	7					
84	18	"	II _a	P	18	24	39				e L begins with a period of 26 seconds, which afterwards becomes 19 and then 15 seconds.
				S	18	52	49				
				e L	18	41	27				
				M	18	52		19	74.8	52.9	
				F	19	30					
85	21	"	I		2	27					
					till						
				M	2	39		6	4.1	2.9	
					2	54					
86	22	"	I.	P	6	1	52				
				S	6	2	54				
				M	6	3	26	6	3.7	4.2	
				F	6	11					
87	22	"	I.	P	7	20	44				
				S	7	21	29				
				M	7	25		6	7.8	9.2	
				F	7	31					
88	25	"	II.	P	1	25	21				Felt in Cheribon, Koeningan and Pendjaloe, Cheribon, in Tjikorai, Preanger Regentships and Kranggan, Banjoemas, Java.
				S	1	26					
				M	1	28		6.5	77.4	96.6	
				F	1	42					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
89	24	April.	I.	P	h	m	s		μ	μ	Felt in Cheribon and Pendjaloe, Cheribon, Java.
				S	20	5	21				
				M	20	5	50				
				F	20	6	33				
					20	15					
90	25	"	I.	P	18	26	29				
				S	18	28	5				
				M	18	30		6	34.5	43.2	
				F	18	39					
91	26	"	I		10	0					
					till						
					10	5					
92	28	"	I	P	10	11	17				P not certain.
				M	10	23		6	8.1	10.5	
				F	10	55					
93	28	"	I	P	18	46	5				No long waves are to be seen. Still it is improbable that S? is part of a new disturbance.
				S?	18	54	28				
				M	18	56		6	14.8	17.2	
				F	19	6					
94	29	"	I		8	22					
					till						
					8	27					
95	30	"	I.	P	7	20	29				
				S	7	20	48				
				M	7	21		6	14.4	18.5	
				F	7	29					

SEISMOLOGICAL BULLETIN.

MAY 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.	Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
								A _E .	A _N .	
96	1	I _v	P	h	m	s	6	19.9	24.4	
				19	8	4				
				19	8	29				
				19	9	57				
97	3	I	M	17	12		6	5.9	1.5	
				till						
				17	15					
98	4	III _d	P	13	28	51				Strong earthquake, the pendulum is put out of order, no record from 13 ^h 29—14 ^h 5.
			F	14	15	58				
99	4	I	P	15	22					Felt as weak shock at Batavia. The earthquake was felt also in Palembang and Soekadana (Lamong districts), Sumatra, in Pandeglang, Menes, Lebak Parai, Serang, Tangerang, Rengkas Bitoeng, Anjer, all in Bantam, in Tjipetir, Kertasarie, Pasekan, Goenoeng Walet, Malabar, Tjikorai in the Preanger Regentships and in Buitenzorg. Recorded at Padang as a weak earthquake, P—S 1 ^m 25 ^s .
				till						
100	4	II _a	P	25	48	10	6	75.8	120.7	Very small amplitude.
			S	25	57	25				
			F	1	50					

No.	Date 1911.	Character.	Phase.	Time (Greenwich).	Period in seconds.	Amplitude (half)		Remarks.
						A _E .	A _N .	
101	5 May.	I		16 55 till 17 8				
102	6 "	I		16 54 7 14 till 7 21	6	5.7	3.1	
105	7 "	I	P S M F	21 20 47 21 21 27 21 22 29 21 35	6.5	8.9	8.5	
104	9 "	I	P M F	19 56 30 20 0 6 20 28	6	3.7	3.5	
105	10 "	I	P S, M F	8 50 46 8 51 14 8 54	1	6.0	4.8	
106	11 "	I	P e L M F	4 6 44 4 17 51 4 20 5 15	11	15.1	16.4	
107	15 "	I	P S M F	5 26 39 5 51 45 5 54 5 58	6	20.5	22.2	Earthquake in the Philippines.
108	15 "	I	P S, M F	7 59 46 8 0 17 8 5	1	16.2	10.1	P very small. S rather strong.
109	15 "	I	P M F	25 28 58 25 51 0 1	6.5	10.0	4.8	P uncertain.
110	14 "	I		21 47 till 21 51				Small and short waves.
111	15 "	I	P S M F	10 10 58 10 11 26 10 12 23 10 16	5	2.2	5.0	P uncertain.
112	21 "	I	P S M F	1 40 56 1 41 32 1 41 59 1 47	6	1.9	0.9	P very small, uncertain.
115	24 "	I	P S M F	2 0 6 2 2 25 2 2 54 2 15	6	6.6	5.2	

No.	Date 1911.	Character.	Phase.	Time (Greenwich).	Period in seconds.	Amplitude (half)		Remarks.
						A _E .	A _N .	
114	30 May.	III _a	P S M F	15 17 37 15 17 50 15 19 15 36	5	>580	>590	The pendulum is swinging in touch with the adjusting screws. Felt as very weak shock at Batavia, also in the Preanger Regentships: Pasekan, Tjampaka, Malabar, Goenoeng Walet, Friesland, Ardjoena, Tjipetir, Tjiboengoer and Soreang; in Bantam: Pandeglang, and Lebak Parai, and in Buitenzorg.
115	31 "	I		15 55 till 14 10				

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JUNE 1911.

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 E. Longitude $7^{\text{h}} 7^{\text{m}} 19''$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
116	2	June.	I	M	h	m	s	4.5	7.5	5.2	
					4	38					
117	3	»	I	P M e L M _L F	20	31	31	6 21	12.5	15.2	
					20	44					
					20	56					
					20	58					
					18	27					
118	7	»	II	P M _L e L M _L C F	11	22	35	6 14 16 16	19.7	15.2	Earthquake in Mexico.
					11	50					
					11	46.5					
					12	52					
					13	44					
119	8	»	I	M	0	19		6	7.2	4.8	
					0	37					
120	14	»	I _v	P S M F	8	26	45	1	34.7	55.2	
					8	27	9				
					8	27	16				
					8	36					
121	15	»	III _v	P S M e L F	14	35	24	6	>50.7	>591.9	The E-W component is disturbed, the pendulum resting against the adjusting screws. This causes friction of the N-S component. Therefore F cannot be given. Earthquake in Japan.
					14	59	50				
					14	41					
					14	42	3				
						?					
122	17	»	I	P M F	5	17	36	6	8.5	11.8	
					5	24					
					6	0					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
					h	m	s		μ	μ	
123	22	June.	I _v	P S, M F	18	5	25	1	12.0	13.3	
124	23	"	I _v	P S M F	14	33	38				Time very uncertain, no time marks.
					14	34	45				
					14	36	34	5.5	63.2	87.0	
					14	36					
125	28	"	I		7	24	till				
					7	48					
				M	7	25		6	9.5	10.5	

Dr. W. VAN BEMMELEN.

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JULY 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19''$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

N ^o .	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.	
									A _E .	A _N .		
126	1	July.	I	P	h	m	s	6	μ	μ	P uncertain.	
					14	35	9					
					M	14	36					
				F	14	42						
127	3	"	I _r	P	21	48	44	6	68.5	107.9		
					S	21	51					21
					M	21	52					
					F	22	20					
128	4	"	I _u	P	13	42	32	6.5 15	68.6	54.1		
					S	15	49					57
					M	15	54					
					e L	15	56					
					F	14	54					
129	6	"	I _r	P	2	59	57	6	74.2	115.1	Felt in Waroe, Ceram: Wendesi, N.-Guinea; is- les of Geser and Groot Kei.	
					S	2	43					45
					M	2	44					8
					F	5	10					
130	5	"	II _r	P	18	42	37	6		297.3	The pendulum touches the adjusting screws in E-W direction. Felt in Java in the residencies of Preanger, Banjoemas, Kedoe, Madioen, Kediri. Pasoeroean and Besocki. Further in the isles of Bali, Lombok, Soembawa and Soemba.	
					S	18	44					46
					M	18	45					8
					F	19	16					
131	8	"	I		1	46		6	9.5	5.5		
					till	2	6					
				M	1	57						
132	8	"	I _r	P	5	56	16	1	10.2	22.4	P-S ist smaller than 1 mi- nute, P too small to be read exactly. S begins with a sudden asyetric displacement.	
					i S, M	6	5					
					F	6	5					
133	10	"	I	P	3	4	26	6	13.6	8.1		
					M	3	7					
					F	5	16					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
154	10	July.	II,	P	h	m	s	6	131.0	104.9	
				S	3	56	35				
				M	5	57	28				
				F	5	58	7				
155	10	"	I		10	24		6	5.5	6.0	
						till					
				M	10	28					
					10	26					
156	11	"	I	P	21	52	11	6	26.5	30.2	
				M	21	42					
				F	22	13					
157	12	"	III,	P	4	12	57	6	>540.7	>527.0	Both components are swaying touching the adjusting screws. Felt in Liroeng, isle of Salibaboe (res. Menado) and Tobela, isle of Halmabeira. Registered in Ambon, P-S 2 ^m 9 ^a .
				S	4	17	27				
				M	4	25					
				F	6	18					
138	12	"	I	P	8	6	35	6.5	13.8	15.9	
				M	8	12					
				F	8	36					
139	15	"	I	P	17	30	0	6	6.1	4.2	
				M	17	32					
				F	17	38					
140	14	"	I	P	1	49	31	6.5	11.9	22.7	P a little uncertain.
				M	1	56					
				F	2	23					
141	14	"	I		22	12		5	2.6	3.0	
						till					
				M	22	19					
					22	25	6				
142	15	"	I,	P	11	24	27	5	14.4	18.5	
				S	11	24	48				
				M	11	27					
				F	11	41					
143	18	"	II,	P	6	41	15	6	157.5	138.0	
				S	6	41	34				
				M	6	45	6				
				F	6	58					
144	19	"	I	P	10	12	11	7	43.2	31.1	
				M	10	24					
				F	11	5					
145	19	"	I	P	20	26	0	5.5	47.9	77.5	
				M	20	32					
				F	21	8					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N	
146	19	July.	I		h	m	s		μ	μ	
					21	27					
					till						
				M	21	46		5.5	7.7	10.5	
					21	55					
147	20	"	I _r	P	2	18	22				Felt in Kota Agoeng, Lam- pong districts, Sumatra.
				S	2	20	0				
				M	2	21		6	48.8	58.7	
				F	2	55					
148	21	"	I _r	P	10	55	22				
				S	10	55	56				
				M	10	58		6	65.9	40.7	
				F	10	55					
149	21	"	I		11	2					
					till						
				M	11	18		6	8.0	5.0	
					11	10					
150	21	"	I		20	45					Very small.
					till						
					20	48					
151	22	"	I		5	16					
					till						
				M	5	31		6	8.0	6.7	
					5	21					
152	22	"	I		6	22					
					till						
				M	6	43		6	15.1	10.1	
					6	26					
155	23	"	I	P	16	40	28				P uncertain.
				M	16	46		5.5	8.1	8.5	
				F	17	26					
154	25	"	I		4	12					
					till						
				M	4	31		6	7.2	4.6	
					4	17					
155	30	"	I _r	P	5	14	5				
				S, M	5	14	27	1	20.8	16.0	
				F	5	19					
156	31	"	I	P	0	10	42				P uncertain.
				M	0	15		5.5	9.2	6.5	
				F	0	19					

Dr. W. VAN BEMMELEN.

SEISMOLOGICAL BULLETIN.

AUGUST 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
157	2	August	I		h	m	s		μ	μ	Felt in the residencies of Madioen and Kediri.
					10	7					
						till					
					10	14					
158	3	"	I		6	46					
						till					
					6	50					
159	4	"	I,	P	1	18	26				P and S uncertain.
				S	1	25	1				
				M	1	25		6	35.9	20.3	
				F	1	51					
160	6	"	I,	P	7	58	10				
				S	7	58	34				
				M	7	59	55	5	85.0	73.6	
				F	8	17					
161	8	"	I	P	19	22	54	10	85.2	73.9	Felt on the isle of Flores.
				e L	19	27					
				M	19	30					
				F	20	17					
162	11	"	I		12	12					
						till					
					12	20					
163	12	"	I,	P	8	3	57				In Malabar P-S = 7 sec. Felt in Tjipoetri and Patjet, Preanger Regentships.
				S	8	4	5				
				M	8	5	15	6	15.1	12.8	
				F	8	7					
164	13	"	I		6	1					Earthquake in the N.-E. of Mindanao, Philippines.
						till					
					6	17					
				M	6	8		6	4.5	5.8	
165	14	"	I,	P	20	57	35				Earthquake in the Agusan Valley, E.-Mindanao.
				S	21	2	5				
				M	21	4		6	12.0	13.3	
				F	21	15					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N	
166	16	August	I.	P	h	m	s	2	64.1	89.3	In Malabar P-S = 50 sec. Felt in Tjibadak in the Preanger Regentships, Sadjira and Rangkas Bitoeng in Bantam.
				S	12	27	5				
				M	12	27	27				
				F	12	27	42				
167	16	"	II.	P	22	47	49	6.5	161.0	183.9	Increased amplitude of long waves, 1 ^b 19—1 ^b 56, period 20 seconds Felt on the isle of Yap, western Carolines
				S	22	53	23				
				M	22	58					
				e L	22	59					
	17		F	1	56						
168	18	"	I.	P	2	59	40	5.5	50.6	65.4	Earthquake north of the Agusan Valley, Philippines.
				S	3	4	32				
				M	3	6					
				F	3	31					
169	19	"	I		0	49		6	8.3	5.0	Felt on the isle of Soemba and Soembawa.
					1	9					
			M	0	54						
170	21	"	II _a	P	16	40	10	6	135.7	277.4	Very strong S.
				S	16	50	18				
				M	16	50	30				
				F	17	57					
171	22	"	I		6	30		6.5	5.4	8.2	Earthquake in Camarines, S.-E. of Luzon, Philippines.
					6	56					
				M	6	58					
172	25	"	I		3	52		6	4.9	5.8	
					4	14					
				M	4	0					
173	30	"	I		18	57		6	7.4	4.1	
					19	19					
				M	19	3					

In the last days of July an astatic WIECHERT pendulum of 100 K G., which is the possession of Mr. K. A. R. BOSSCHA, chief administrator of the tea estate Malabar in the Preanger Regentships (E. Long. 107° 57', S. Lat. 7° 13') has been erected and is since working regularly.

Particulars about the registrations have been put under the remarks.

Dr. W. VAN BEMMELEN.

SEISMOLOGICAL BULLETIN. SEPTEMBER 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
174	1	Sept.	II.	P	h	m	s	6	84.1	110.3	In Malabar P = $11^{\text{h}}55^{\text{m}}8^{\text{s}}$. S = $11^{\text{h}}55^{\text{m}}49^{\text{s}}$. M = $11^{\text{h}}55^{\text{m}}55^{\text{s}}$. F = $12^{\text{h}}2^{\text{m}}$. Felt in Goenoeng Walet, Preanger; Menes and Lebak, Bantam.
				S	11	56	19				
				M	11	57	44				
				F	12	13					
175	1	"	I		18	21		6	5.1	4.2	
						till					
				M	18	24					
176	2	"	I		0	2		6	9.4	18.0	Felt on the isle of Halmaheira; in Tondano and Menado, N.-E. Celebes.
						till					
				M	0	7					
177	2	"	I		8	58		5	5.7	5.8	
						till					
				M	8	43					
178	5	"	I		9	27		6	5.4	5.9	
						till					
				M	9	34					
179	6	"	I	P	1	4	8	6	16.2	27.3	The amplitude has a smaller maximum at $1^{\text{h}}6^{\text{m}}$.
				M	1	12					
				F	1	27					
180	6	"	I		2	17		6	4.4	8.0	
						till					
				M	2	22					
181	6	"	I	P	7	31	14	6	37.0	20.6	
				M	7	32	59				
				F	7	44					
182	12	"	I	P	15	3	57	6.5	13.6	11.6	P uncertain.
				M	15	8					
				F	15	36					

No.	Date 1911.		Character.	Phase	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N	
183	15	Sept.	I	P M ₁ M _L F	h 13 13 14 14	m 30 32 31 17	s 14	6 27	μ 9.1 28.7	μ 11.7 38.7	From 14 ^h 26 ^m —14 ^h 38 ^m strengthening of long waves, period in the beginning 30 seconds, at the end 20 seconds.
184	16	"	I		1	3 till 9					
185	16	"	I	P S M F	16 16 16 16	45 43 44 52	1 22 25	6	33.3	41.1	In Malabar P-S = 10 sec., the pendulum is swinging touching the adjusting screws Felt in many places of the Preanger Regentships and in Pandjaloe, Cheribon.
186	17	"	I	P M ₁ M _L	3 3 4	39 55 20		6.5 20	15.4 17.9	24.0 10.1	P very uncertain. Dissolves into next one.
187	17	"	I	P M ₁ M _L F	4 4 5 6	43 45 44 19	46	6 25	10.8 18.1	16.4 28.6	P uncertain.
188	17	"	I		10 10 10	37 till 56 42		5.5	10.0	13.8	
189	18	"	I		13 14	40 till 2					
190	20	"	I		17 17	33 till 43					
191	21	"	I		7 7	25 till 47					
192	22	"	I	P M ₁ M _L F	5 5 6 6	18 28 12 22	28	6 17	3.4 4.2	6.3 5.2	P very uncertain.
193	22	"	I		7 7 7	40 till 53 43		6	4.7	5.5	
194	24	"	I	P M F	3 4 4	58 3 27	8	6	15.5	28.9	
195	26	"	I	P M F	13 14 14	51 26 50	14	7	26.6	27.0	P uncertain.

Dr. W. VAN BEMMELEN.

SEISMOLOGICAL BULLETIN. OCTOBER 1911.

BATAVIA OBSERVATORY, JAVA.

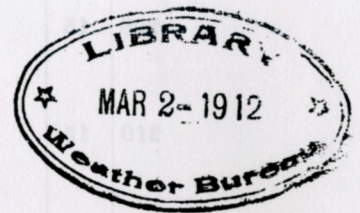
Mean Greenwich time. S. Latitude 6° 11' 0".

E. Longitude 7^h 7^m 19^s.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.						
									A _E .	A _N .							
196	5	October.	I		h	m	s		μ	μ							
					2	9											
					till												
					2	45											
				M	2	35		6.5	4.9	6.8							
197	5	"	I		P	6	51	24									
					M	6	45										
					F	6	53										
198	6	"	I		10	39											
					till												
					10	59											
				M	10	50	6.0		4.1	5.6							
199	6	"	I		11	50											
					till												
					12	7											
				M _L			20		5.9	9.3							
200	7	"	I		4	50											
					till												
					5	17											
201	10	"	I.		P	5	5	6			In Malabar P = 5 ^h 5 ^m 12 ^s .						
					S	5	5					24	4	78.4	91.9	S = 5 5 29.	
					M	5	5										F = 5 5 31.
					F	5	16										
202	13	"	I _u		P	2	44	38			P uncertain.						
					S	2	53					49	6	14.4	12.0		
					M	2	54										
					F	3	5										
203	13	"	I.		P	16	40	58			P uncertain.						
					S	16	44					29	6.5	11.2	10.6		
					M	16	45										
					F	17	5										
204	14	"	I		P	12	37	38									
					M ₁	12	47					6	14.4	12.5			
					M _L	13	16								19	10.7	14.3
					F	13	27										



No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
205	14	October.	I		h	m	s		μ	μ	
					16	48					
						till					
					17	8					
206	14	"	I	P	25	32	27				
				M	25	58		14	33.9	27.6	
				F	0	24					
207	15	"	I	P	7	35	11				
				M	7	40		6	21.4	18.9	
				F	8	9					
208	15	"	I		12	1					
						till					
					12	15					
209	15	"	I		17	17					
						till					
					17	32					
210	15	"	I.	P	19	39	10				In Malabar P = 19 ^h 38 ^m 58 ^s .
				S	19	39	56				S = 19 39 10.
				M	19	40	41	6	7.8	5.2	M = 19 38 18.
				F	19	44					F = 19 43.
211	16	"	I		5	31					
						till					
					5	44					
212	16	"	I		14	23					Felt in the residences of
						till					Pasoeroean, Madioen and
				M	14	32		6	3.0	6.5	Kediri.
					14	26					
213	17	"	I		3	10					
					3	23					
214	17	"	I	P	9	27	35				P uncertain.
				M _I	9	32		6	8.9	19.4	
				M _L	9	47		17	14.7	9.4	
				F	9	57					
215	17	"	I		12	4					
						till					
					12	22					
				M	12	15		6.5	9.0	8.1	
216	18	"	I		2	46					
						till					
					2	53					
				M	2	48		5	6.8	7.1	
217	18	"	I		7	54					Felt in the residences of
						till					Pasoeroean and Kediri.
					8	2					

No.	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
218	20	October.	I _u	P	h	m	s	7	23.8	22.1	
					17	55	48				
					18	1	46				
					18	4					
219	22	»	I	M	20	6		6	4.4	3.9	
						till					
					20	14					
					20	7					
220	23	»	I _v	P S, M F	19	36	5	1	7.4	8.0	In Malabar P = 19 ^h 36 ^m 14 ^s . S = 19 36 29. M = 19 36 35. F = 19 39.
					19	41	24				
					19	36					
221	24	»	I	P M F	0	19	28	6	14.8	23.2	P uncertain.
					0	28					
					0	59					
222	26	»	I	P M F	11	55	24	6	21.4	11.6	P uncertain. Earthquake in Mindanao, Philippines.
					12	3					
					12	15					
225	26	»	I _v	P S M F	21	34	46	7	29.5	24.2	Earthquake in Mindanao, Philippines.
					21	38	54				
					21	39	10				
					21	50					
224	27	»	I _v	P S M F	8	5	45	1	39.5	37.5	In Malabar P = 8 ^h 3 ^m 45 ^s . S = 8 4 7. M = 8 4 14. F = 8 11.
					8	4	4				
					8	4	15				
					8	12					
225	27	»	I _v	P S M F	8	28	16	1	27.5	33.5	In Malabar P = 8 ^h 28 ^m 15 ^s . S = 8 28 33. M = 8 28 48. F = 8 34.
					8	28	38				
					8	29	1				
					8	36					

Dr. W. VAN BEMMELEN.

SEISMOLOGICAL BULLETIN.

NOVEMBER 1911.

BATAVIA OBSERVATORY, JAVA.

Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

N ^o .	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
226	1	November.	I		h	m	s		μ	μ	
					9	47					
					till						
					10	1					
227	1	"	I		23	1					
					till						
					23	10					
228	4	"	II,	P	21	0	37	1.5	112.2	90.0	In Malabar P = 21 ^h 0 ^m 29 ^s . S = 21 0 47. M = 21 1 4. F = 21 8.
			S	21	1	5					
			M	21	1	11					
			F	21	18						
229	4	"	I,	P	21	32	52	1	4.6	2.7	P very small.
			S	21	33	13					
			M	21	33	28					
			F	21	36						
230	4	"	I,	P	21	47	17	1	2.3	3.7	P very small.
			S	21	47	39					
			M	21	47	56					
			F								
251	6	"	I		11	31					
					till						
					11	36					
252	6	"	I		15	35					
					till						
					15	45					
253	7	"	I,	P	18	57	55	1	6.0	7.5	
			S, M	18	38	20					
			F	18	41						
254	8	"	I		14	28					At 14 ^h 50 ^m very flat long waves.
					till						
					15	1					

No.	Date 1911.	Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
								A _E .	A _N .	
235	9 November.	I	P	h	m	s	6	μ	μ	P uncertain.
			M	4	30	34		9.8	10.6	
			F	4	37	43				
236	13 "	I _v	P	5	45	47	1	71.2	42.6	In Malabar P-S = 19 seconds.
			S	5	46	9				
			M	5	46	20				
			F	5	57					
237	13 "	I _u	P	16	25	23	6	12.5	9.7	P uncertain.
			S	16	35	38				
			M	16	38					
			M _{L1}	16	55					
			M _{L2}	17	13					
			F	17	36					
238	16 "	I		11	48					
				11	till	56				
239	17 "	I _v	P	11	16	28	1	25.9	21.3	Felt in Goenoeng Walet, Preanger Regentships.
			S, M	11	16	50				
			F	11	24					
240	18 "	I _v	P	6	0	41	5	84.7	78.6	Felt in Mahakan Ilir in Pa- lembang, Sumatra.
			S	6	1	18				
			M	6	2	18				
			F	6	16					
241	19 "	I _v	P	2	15	48	6	64.4	42.3	
			S	2	17	56				
			M	2	18	13				
			F	2	41					
242	21 "	I	P?	7	49	59	5.5	15.3	10.8	
			M	7	50	12				
			F	7	57					
243	21 "	I	P	19	28	26	6	7.2	3.5	P uncertain.
			M	19	35					
			F	19	45					
244	22 "	I _v	P	9	9	50	5.5	65.1	71.8	
			S	9	10	27				
			M	9	12	19				
			F	9	32					
245	22 "	II	P	23	15	18	6.5	84.8	45.0	No long waves to be seen.
			S?	23	23	16				
			M	23	24					
			F	0	7					

No.	Date 1911.		Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
					h	m	s		μ	μ	
246	28	November.	I	P	15	52	50	6	21.2	15.0	
				M	15	54					
				F	16	20					
247	29	"	I	P	4	52	58	6	5.3	2.7	P uncertain.
				M	4	54					
				F	5	9					
248	30	"	I	P	10	57		6	3.4	3.5	P very uncertain.
				M	10	49					
				F	11	27					

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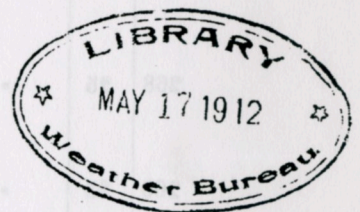
Mean Greenwich time. S. Latitude $6^{\circ} 11' 0''$.

E. Longitude $7^{\text{h}} 7^{\text{m}} 19^{\text{s}}$.

WIECHERT Horizontal Pendulum, 1000 kilograms.

The symbols are according to WIECHERT.

No.	Date 1911.	Character.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
								A _E .	A _N .	
249	2	I	M	h	m	s	6	μ	μ	
				4	50					
250	2	I,	P S, M				1	12.0	3.7	
				16	49	55				
				16	50	13				
251	5	I	M	11	56		6	4.2	4.9	
				12	17					
252	4	I		15	59		16			Long waves of very small amplitude.
				15	50					
253	6	I	M	8	40		5	7.5	7.4	
				8	55					
254	7	I		15	47					
				15	51					
255	8	I,	P S, M _E M _N F	0	14	30	1	37.0	13.5	
				0	14	47				
				0	15	47	7			
				0	22					
256	10	I	M	5	12		18	12.2	5.7	
				5	52					
257	10	I		10	14					
				10	21					



No.	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N	
258	11	December.	I.	P	h	m	s	9	66.2	74.9	P and S uncertain. The earthquake dissolves into next one. Felt in Oelee Lheue and Padang Tidji, North-Sumatra.
					11	5	11				
					11	10	11				
259	11	»	II	M	11	28	8	137.4	167.6	Felt in Oelee Lheue, Pa- dang Tidji, Sabang and Tjalang, North-Sumatra.	
					12	57					
260	11	»	I		18	12 till 18 22					
261	13	»	I	P	8	58	16	53.6	35.0	P uncertain.	
					9	6					
					9	57					
262	13	»	I	P	22	38	6.5	17.5	6.6	P uncertain.	
					22	41					
					23	7					
263	14	»	I		25	48 till 23 56	5	5.4	4.6		
					23	56					
264	20	»	I		6	5 till 7 2	19	5.5	6.3		
					6	44					
265	23	»	I		18	23 till 18 44					
					18	44					
266	23	»	I		21	25 till 21 50				After some time are follo- wing long waves of small amplitude (22 ^b 31—23 ^b 5)	
					21	50					
267	25	»	I		1	25 till 1 55					
					1	55					
268	25	»	I	P	8	19	6	8.0	4.9		
					8	20					
					8	27					
269	25	»	I	P	23	45	5	5.8	5.2		
					23	47					
					23	52					
270	25	»	I	P	23	56	6	5.3	4.9		
					23	58					
					0	5					

No.	Date 1911.		Cha- racter.	Phase.	Time (Greenwich).			Period in seconds.	Amplitude (half)		Remarks.
									A _E .	A _N .	
271	28	December.	I	P M F	h 9 9 10	m 51 55 17	s 37	6.5	μ 15.2	μ 15.7	
272	29	"	I	P M F	3 3 3	51 38 52	7	6.0	15.3	15.7	Felt in Passi, Malibago, Gorontalo and Bintaoena, Menado, Celebes and in Banda Neira, Moluccas.
273	30	"	I	M	9 9	15 till 59		6	4.9	4.9	
274	31	"	I	P M ₁ M _L F	6 6 6 7	15 17 24 16	49	6 12	29.1 25.0	15.7 22.9	P uncertain.

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