

# SEISMOLOGICAL BULLETIN 1928.

## BATAVIA OBSERVATORY, JAVA.

Foundation: River Quaternary.

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.

WIECHERT Vertical Pendulum, 1300 kilograms.

### PREFACE.

The astatic seismograph of WIECHERT of 1000 kg is registering regularly since December 6<sup>th</sup> 1908; the vertical seismograph since July 9<sup>th</sup>, 1926.

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

The writing styles 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 impulse dial of the Synchronome Company Ltd., London.

For each month the mean constants for that month are applied.  $T_0$  and  $\epsilon$ , 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 for the horizontal pendulum by direct measurement, giving the pendulum displacement by means of the horizontal adjusting screw, 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 January — March incl., 1928, are given below

1927.	E-W component.			N-S component.			V. component.		
	V.	$T_0$ .	$\epsilon$ .	V.	$T_0$ .	$\epsilon$ .	V.	$T_0$ .	$\epsilon$ .
January . . . . .	208	6.6	4.2	197	7.3	4.7	311	4.8	3.2
February . . . . .	"	6.7	4.2	"	7.4	4.5	307	4.8	3.2
March . . . . .	"	6.6	4.2	"	7.4	4.6	310	4.8	3.7

(1) For the E. Longitude of the Observatory, see: J. BOEREMA, Determination of the Eastern Longitude of Batavia; K. Magn. Met. Observ. Batavia, Verhandelingen No. 12, 1924.

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) = 1<sup>st</sup> preliminary tremors.
- S (secundae) = 2<sup>nd</sup> " " "
- L (longae) = principal phase, long waves.
- M (maximae) = maximum amplitude.
- C (coda) = prominent waves among the after tremors.
- F (finis) = end of perceptible movement.
- PR<sub>1</sub>, PR<sub>2</sub>, ..... SR<sub>1</sub>, SR<sub>2</sub>, ..... = 1<sup>st</sup>, 2<sup>nd</sup> ..... 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<sub>E</sub> = E.-W. component of A.
- A<sub>N</sub> = N.-S. " " "
- i (impetus) = abrupt commencement, clearly defined.
- e (emersio) = gradual commencement, not clearly defined.

MALABAR.

Foundation: Volcanic.

S. Latitude 7° 13'; E. Longitude 107° 37'; Height above sea-level 1550 m.  
WIECHERT Horizontal Pendulum 100 kg, NS and EW component. Since July 1911.  
Time Signals by Malabar Radio.

Possession of MR. K. A. R. BOSSCHA.

MARON.

Foundation: Volcanic.

S. Latitude 7° 34'; E. Longitude 110° 25'; Height above sea-level 960 m. OMORI Tremometer, one component. Since February 1924.

AMBOINA.

Foundation: Quaternary.

S. Latitude 3° 42'; E. Longitude 128° 10'; Height above sea-level 4 m.  
WIECHERT Horizontal Pendulum 1000 kg, NS and EW component. Since October 1924.  
Time Signals by Malabar Radio.

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

Distance.	S-P	P-O	S-O	Distance.	S-P	P-O	S-O
1°	m s	m s	m s	56°	m s	m s	m s
2	0 13	0 16	0 29	57	7 46	9 54	17 40
3	25	31	56	58	52	10 1	53
4	38	46	1 24	59	58	8	18 6
5	50	1 1	51	60	8 4	15	19
6	1 1	17	2 18	61	10	22	32
7	12	32	44	62	15	29	44
8	24	47	3 11	63	21	36	57
9	35	2 2	37	64	26	43	19 9
10	47	16	4 3	65	32	49	21
	57	31	28	66	38	55	33
11	2 8	45	53	67	43	11 2	45
12	19	59	5 18	68	49	8	57
13	30	3 12	42	69	55	14	20 9
14	40	26	6 6	70	9 1	20	21
15	50	39	29	71	6	26	32
16	3 0	52	52	72	11	33	44
17	10	4 4	7 14	73	16	39	55
18	19	17	36	74	21	45	21 6
19	28	29	57	75	27	51	17
20	37	41	8 18	76	32	57	29
21	46	53	39	77	37	12 3	40
22	55	5 4	59	78	42	9	51
23	4 3	16	9 19	79	47	15	22 2
24	11	27	38	80	53	20	13
25	19	38	57	81	58	26	24
26	27	48	10 15	82	10 4	31	35
27	35	58	33	83	9	37	46
28	41	6 9	50	84	14	42	56
29	48	19	11 7	85	19	47	23 6
30	56	28	24	86	24	52	16
31	5 3	37	40	87	28	58	26
32	10	46	56	88	32	13 4	36
33	17	55	12 11	89	37	9	46
34	24	7 4	28	90	41	15	56
35	30	13	45	91	46	20	24 6
36	36	22	58	92	50	25	15
37	43	30	13 13	93	55	30	25
38	50	38	28	94	59	35	34
39	57	46	43	95	11 3	40	43
40	6 5	53	58	96	7	45	52
41	11	8 1	14 12	97	11	50	25 1
42	18	9	27	98	15	55	10
43	25	17	42	99	18	14 0	18
44	32	24	56	100	22	5	27
45	40	31	15 11	101	25	10	35
46	47	39	26	102	27	15	42
47	53	47	40	103	30	20	50
48	7 0	54	54	104	32	25	57
49	6	9 2	16 8	105	34	30	26 4
50	13	9	22	106	37	34	11
51	18	17	35	107	40	39	19
52	24	24	48	108	42	44	26
53	29	32	17 1	109	45	48	33
54	35	39	14	110	47	53	40
55	40	47	27		50	58	46

Koninklijk Magnetisch en Meteorologisch Observatorium, Batavia. (Java.)

We beg to acknowledge, with thanks, the receipt of the following seismological bulletins of the year 1927.

Wanting copies and exchange-bulletins requested.

Barcelona Jan.1 -Nov.8.	New York Jan.1 - Oct.24.
Berkeley and Lick Oct 1, '26- March 31, '27.	Osaka Jan.1-Feb.19.
Budapest Jan.1-Dec.31.	Ottawa Jan.1-Dec.31.
Cambridge Dec.28-31.	Paris Jan.1-Dec.31.
Cartuja Jan.1-Dec.31.	Perth Jan.1-Dec.31.
Chicago Jan.1-Nov.22.	Phu Lien Jan.-July
Cincinnati Nov.4-Dec.31.	Pulkovo Jan.-April.
Denver Jan.1-Dec.31.	Ravensburg Jan.1-Dec.31.
Espana, Serv. Sism. Jan.-Oct.	Riverview 4 special bulletins.
Feldberg July 1-Dec.31.	Saint Louis, C.S. prelim. bulletins.
Firenze Jan.1-Dec.31.	Saint Louis, Univ. Jan.1-Dec.31.
Frankfurt a.M. Jan.1-June 30.	San Fernando Jan.1-Dec.31.
Graz Jan.1-Dec.31.	Spokane Jan.1-Sept.18.
Hamburg Jan.1-Dec.31.	Stonyhurst Jan.1-Nov.26.
Helsingfors Jan.1-July 25.	Strasbourg B.B.T. Jan.-Dec.
Hohenheim Jan.1-Dec.31.	id.- I.Ph.G. Jan.-Dec.
Hongkong Jan.-Dec.	id.- B.C.S.F. Jan.-Dec.
Irkutsk Jan.-April.	id.- U.G.G.I. Jan.-Dec.
Jena Jan.15-June 30; Oct.1-Dec.31.	Sucre Jan.1-Dec.31.
Jinsen Jan.1-Dec.31.	Sverdlovsk Jan.-April.
Kew Jan.-Dec.	Tachkent Jan.-Febr.
Kobe Jan.1-March 6-Dec.31.	Taihoku Jan.1-Dec.31.
Köbenhavn March 3-April 30.	Tiflis Jan.-May.
Kucino Jan.-April.	Uccle Jan.-Dec.
La Paz Jan.-Dec.	Washington Seismol. Desp.
La Plata Jan, Apr, Dec.	id.- U.S.C. & G.S. Prelim. Determ. of Epic.
Lemberg Jan.1-Sept.12.	Wellington January.
Leningrad Jan.-April.	Wien Jan.1-Dec.31.
Makeevka Jan.-April.	Zagreb Jan.1-Dec.31.
Manila Jan.-Dec.	Zi-Ka-Wei Jan.1-Dec.31.
Nagasaki Jan.1-Nov.23.	Zurich Sammelbulletin 66-74.
New Orleans Jan.1-April 14.	

Batavia, 18-6-1928.

JANUARY 1928.

N <sup>o</sup> .	Date 1928.	Station.	Char-acter.	Phase.	Time (G.M.T.).			Period.	Amplitude (half).		Distance of epi-centre km.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
					sec.	μ	μ					
—	Jan. 2	Mal.		P	16	32	5			85		
				iS	16	32	13					
				F	16	44						
1	" 4	Bat.	I	i <sub>1</sub>	21	53	13					
				i <sub>2</sub>	21	54	53					
				L <sub>v</sub>	21	50,6						
				eL	21	53,6						
		Amb.		F	22	8						
				i <sub>N</sub>	21	50	48			2350		
				i	21	50	54					
				iP	21	50	59					
				iS	21	54	46					
				L	21	57,2						
				F	22	7						
2	" 5	Bat.	I <sub>r</sub>	iP <sub>E</sub>	14	2	57			2680		
				iS <sub>N</sub>	14	7	9					
				F	14	15						
3	" 6	Bat.	I <sub>r</sub>	iP <sub>E</sub>	4	12	43			3090		
				iS <sub>N</sub>	4	17	15					
				F	4	27						
4	" 6	Bat.	I	i <sub>v</sub>	19	43	11					
				i <sub>E</sub>	19	45	13					
				i <sub>E</sub>	19	45	58					
				i <sub>N</sub>	19	52	15					
				eL <sub>v</sub>	19	53						
				i	19	54	21					
				L <sub>v</sub>	20	1						
				L	20	5,6						
				F	20	48						
—	" 7	Amb.		P	5	11	8			770		
				i	5	12	26					
				iS	5	12	31					
				F	5	32						
5	" 10	Bat.	I	e <sub>E</sub>	5	22						
				i <sub>N</sub>	5	29	57					
				F	5	40						
6	" 15	Bat.	I <sub>r</sub>	P	2	58	41			1470	Atjeh (N. Sumatra).	
				eS	3	1	13					
				F	3	29,4						
—	" 17	Mal		P	17	40	56			120	No hour-marks Tjikatomas (E. Priangan).	
				iS	17	41	10					
				F	17	43						
7	" 18	Bat.	I	e	0	52,7						
				i	0	54	45					
				F	1	7						
—	" 18	Mal.		P	9	8	8			100	No hour-marks.	
				iS	9	8	20					
				F	9	11						

N <sup>o</sup> .	Date 1928.	Sta-tion.	Char-acter.	Phase.	Time (G. M. T.)			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
					sec.	μ	μ					
8	Jan. 24	Bat	I <sub>v</sub>	iP <sub>v</sub>	10	48	21			180	Probably Krakatau	
				i <sub>v</sub>	10	48	30					
				iS <sub>v</sub>	10	48	42					
				F	10	50						
9	" 25	Bat.	I <sub>v</sub>	iP <sub>v</sub>	8	4	12			180	Probably Krakatau.	
				i <sub>1v</sub>	8	4	16					
				i <sub>2v</sub>	8	4	19					
				i <sub>3v</sub>	8	4	21					
				iS <sub>v</sub>	8	4	32					
				F	8	7						
10	" 25	Bat.	I <sub>v</sub>	iP <sub>v</sub>	10	5	24			170	Probably Krakatau.	
				i <sub>v</sub>	10	5	35					
				iS <sub>v</sub>	10	5	45					
				F	10	8						
—	" 26	Amb.		P	4	2	9			580		
				i	4	2	48					
				iS	4	2	52					
				F	4	7						
11	" 26	Bat.	I <sub>v</sub>	iP <sub>v</sub>	11	4	40			180	Probably Krakatau.	
				i <sub>v</sub>	11	4	44					
				iS <sub>v</sub>	11	5	0					
				F	11	7						
12	" 26	Bat.	II <sub>r</sub>	i <sub>v</sub>	21	54	5			1110	Sumatra's West Kust.	
				P <sub>E</sub>	21	54	7					
				iP	21	54	8					
				i <sub>E</sub>	21	54	46					
				i <sub>N</sub>	21	56	2					
				iS	21	56	5					
				L <sub>v</sub>	21	58	46					
				F	23	5						
		Mal.		P	21	54	22			1220		
				iP	21	54	26					
				i	21	56	18					
				iS	21	56	30					
				L	21	57,4						
				M	21	59	11					
				F	22	12						
13	" 27	Bat.	I <sub>v</sub>	iP <sub>v</sub>	5	50	34			150	Probably Krakatau	
				i <sub>v</sub>	5	50	40					
				iS <sub>v</sub>	5	50	51					
				F	5	52						
—	" 27	Mal.		P	14	19	11			250		
				iS	14	19	39					
				F	14	22						
14	" 30	Bat.	I <sub>u</sub>	iP	5	24	42			5850		
				iS	5	32	9					
				F	5	57						
15	" 30	Bat.	I	P <sub>E</sub>	22	45	38			220		
				i	22	43	44					
				iS	22	44	5					
				F	22	50						
		Mal.		e	22	45,8				(270)		
				S	22	44	18					
				F	22	46						

# FEBRUARY.

No.	Date 1928	Station.	Character.	Phase.	Time (Greenwich).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
					$A_E$	$A_N$	km.					
—	Feb. 2	Mal.		P	8	33	41	sec.	$\mu$	$\mu$	160	
				S	8	34	0					
				F	8	33						
—	" 2	Mal.		P	10	0	8				170	
				iS	10	0	28					
				F	10	2						
16	" 2	Bat.	I <sub>v</sub>	i <sub>v</sub>	14	18	37				520	Vlakken Hoek (Benkoelen).
				e	14	18	38					
				iS	14	19	34					
				M	14	20	26					
				F	14	26						
		Mal		P	14	19.4					(170)	In minute eclipse.
				S <sub>E</sub>	14	19	41					
				F	14	32						
—	" 5	Amb.		iP	10	47	25				110	
				iS	10	47	36					
				F	10	32						
17	" 5	Bat.	I <sub>u</sub>	i <sub>N</sub>	13	39	40					
				i <sub>N</sub>	14	2	35					
				e <sub>E</sub>	14	30		15				
				L <sub>N</sub>	14	39						
				F	14	42						
—	" 4	Amb.		iP	3	28	24					Thrown off.
18	" 4	Bat.	I	i <sub>E</sub>	6	17	35					
				i <sub>v</sub>	6	17	42					Compression.
				i	6	17	44					
				F	6	39						
19	" 5	Bat.	I <sub>v</sub>	iP	20	5	8				260	West-Java.
				i	20	5	18					
				iS	20	5	38					
				M	20	6	13					
				F	20	12						
		Mal.		iP	20	4	32				140	
				i <sub>N</sub>	4	4	34					
				iS	20	5	8					
				F	20	9						
20	" 6	Bat.	II <sub>r</sub>	iP <sub>v</sub>	3	37	28					
				iP	3	37	29					
				i <sub>1</sub>	3	38	3					
				i <sub>2</sub>	4	1	44					
				L <sub>v</sub>	4	9		20				
				F	4	32						
		Mal.		i	3	37	29					
				i <sub>E</sub>	3	37	38					
				i	4	1	31					
				i	4	2	16					
				L	4	7		25				
				F	4	15						
		Amb.		iP	3	34	31				1270	
				i	3	35	15					
				iS	3	37	3					
				L	4	10		15.9				
				F	4	15						

No.	Date 1928.	Station.	Character.	Phase	Time (Greenwich).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
					$A_E$	$A_N$	km.					
—	Feb. 6	Amb.		iP	18	54	37				(150)	
				i	18	54	39					
				S	18	53	2					In minute eclipse.
				F	18	59						
21	" 6	Bat	I <sub>v</sub>	i <sub>v</sub>	19	36	10				290	Priangan (W. Java).
				i <sub>E</sub>	19	36	12					
				i	19	36	19					
				iS	19	36	43					
				M	19	37	38					
				F	19	42						
		Mal.		iP	19	33	33				160	
				iS	19	36	11					
				F	19	39						
—	" 6	Amb.		iP	20	0	25				250	
				i	20	0	27					
				S	20	0	49					
				F	20	4						
22	" 7	Bat.	II <sub>r</sub>	i <sub>v</sub>	0	5	36				2140	Dilatation. Azimuth WNW.
				iP <sub>E<sub>v</sub></sub>	0	5	38					
				i	0	6	0					
				i <sub>N</sub>	0	9	17					
				iS <sub>N</sub>	0	9	26					
				i <sub>v</sub>	0	9	30					
				L <sub>v</sub>	0	20						
				F	1	17						
		Mal.		iP	0	6	8				2220	
				i <sub>N</sub>	0	6	13					
				iS	0	9	43					
				L	0	12	49					
				F	0	43						
		Amb.		i	0	4	38					
				L	0	19						
				F	0	30						
—	" 7	Amb.		i	2	14	4					
				F	2	18						
23	" 7	Bat.	II <sub>d</sub>	i	6	27	25				160	West-Java. Dilatation, azimuth S.
				i <sub>v</sub>	6	27	26					
				iP <sub>N, v</sub>	6	27	27					
				iS <sub>E</sub>	6	27	46					
				M	6	28	20					
				F	6	39						
		Mal.		iP	6	27	12				110	Azimuth SW.
				iS	6	27	25					
				off	6	27	26					
24	" 7	Bat.	I	iP	8	58	23					Dilatation; azimuth NE. Taroena (Sangi I)?
				F	8	31						
—	" 10	Mal.		P	9	28.3					(100)	In minute eclipse.
				iS	9	28	28					
				F	9	36						
25	" 11	Bat	II	iP	11	8	46				350	Compression; azimuth ESE. Central and Eastern Java.
				i <sub>N</sub>	11	9	25					
				iS <sub>v</sub>	11	9	44					
				iS	11	9	46					
				i	11	9	30					
				F	11	25						

No.	Date 1928	Stations	Character.	Phase.	Time (Greenwich).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		sec	$\mu$		
(25)		Mal		iP iS F	11 11 11	8 9 18	42 44			570		
26	Feb. 15	Bat.	I <sub>r</sub>	iP <sub>v</sub> e <sub>E</sub> i <sub>E,v</sub> iS F	5 5 5 5 5	41 41 41 47 57	15 15 16 16			4420		
27	" 15	Bat.	I	e i <sub>v</sub> eL F iP i i F	16 16 17 17 16 16 16 16	39 39 46 4 35 36 40 46	4 9	12			Error in minutes possible.	
	" 14	Amb.		P iS F	1 1 1	41 42 44	29 5			520		
	" 16	Amb.		P iS F	8 8 8	41 42 48	47 5			160		
	" 16	Amb.		iP S F	16 16 16	10 10 14	22 46			210		
28	" 21	Bat.	I <sub>u</sub>	e <sub>E</sub> i eL F	20 20 20 21	5 12 39 7	36 44	22				
29	" 25	Bat.	I	i <sub>E,v</sub> i <sub>N</sub> i <sub>N</sub> i <sub>N</sub> i <sub>E</sub> F i iP S F	19 19 19 19 19 19 19 19 19 19	7 8 12 12 15 22 3 3 5 20	35 3 9 57 5 35 39 1			800	N. Celebes.	
30	" 24	Bat.	I	e L <sub>E</sub> F	15 15 15	28 2 16		19				
31	" 25	Bat.	I	e i <sub>N</sub> i <sub>N</sub> F	10 11 11 11	59 4 3 14	10 4 14					
32	" 26	Bat.	I	i <sub>N</sub> L L F	1 2 2 2	47 29 11 31	30	21.6 19.0				

## MARCH.

No.	Date 1928.	Station	Character.	Phase.	Time (Greenwich).			Period	Amplitude (half)		Distance of epicentre.	Remarks.
					h	m	s		sec.	$\mu$		
	March 1	Mal.		P F	21 21	22 25	32				Felt at Tjimiring (Banjoe-mas).	
33	" 7	Bat.	II <sub>v</sub>	i <sub>E,v</sub> i <sub>NE</sub> i <sub>v</sub> i <sub>NE</sub> iS F	14 14 14 14 14 15	47 47 47 47 47 4	21 22 27 29 46			220	Compression. Felt in Bantam (W. Java).	
	" 7	Mal.		iP i iS F	14 14 14 14	47 47 47 32	28 36 55			240		
34	" 7	Bat.	I	i <sub>v</sub> e <sub>E</sub> i <sub>E</sub> i M L F	22 22 22 22 25 25 25	51 51 38 38 8 2 8 39 27	35 39 8 11	17.5			Dilatation.	
35	" 9	Bat.	I <sub>r</sub>	P <sub>v</sub> P i <sub>v</sub> iS F i <sub>1</sub> i <sub>2</sub> F P S? F	10 10 10 11 11 10 10 10 10 10 11	58 58 58 2 51 58 5 18 7 55 56 13	52 35 37 51 38 15 46			2740	Dilatation, azimuth NE. Tobelo, (Halmaheira).	
36	" 9	Bat.	i <sub>v</sub>	iP <sub>v</sub> P <sub>E</sub> iP <sub>N</sub> iS F iP iS F	15 15 15 15 16 15 15 16	59 59 59 41 5 59 59 42 1	23 24 26 41			160	Compression. Pasir Pangkalan (W. Pri-angan).	
	" 9	Mal.		iP iS F	15 15 16	59 59 5	27 42			130		
37	" 4	Bat.	III <sub>r</sub>	iP i i iS <sub>N</sub> i <sub>N</sub> F iP i i iS <sub>N</sub> F P i i i <sub>E</sub> i F	18 20	9 9 9 15 15 16 9 9 9 15 15 40 15 15 15 21 2	59 45 46 4 16 16 27 48 50 53 28 2 15 25 15 32			2040	Dilatation, azimuth N 77 W iS: Bosch seismograph. Atjeh (N. Sumatra).	
	" 4	Mal.		iP i i iS <sub>N</sub> F	18 18 18 18 20	9 9 9 15 16	48 50 53 28			2260	Azimuth ca NW.	
	" 4	Amb.		P i i i <sub>E</sub> i F	18 18 18 18 18 20	15 15 15 15 21 2	2 15 25 15 32					

N <sup>o</sup> .	Date 1928.	Sta-tion.	Char-acter.	Phase.	Time (G. M. T.).			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
58	March 10	Bat.	I <sub>v</sub>	e <sub>N</sub>	2	59	26	sec.	μ	μ	460	Central Java and E. Pri-angan.
				iS	3	0	18					
		Mal.		iP	2	59	12					
				iS	2	59	54					
59	" 10	Bat.	I	i <sub>v</sub>	3	22	5					Dilatation; azimuth ca E.
				i <sub>E</sub>	3	22	6					
				i	3	22	10					
				i <sub>v</sub>	3	22	41					
				i <sub>E</sub>	3	22	55					
				i	3	25	43					
				i <sub>v</sub>	3	26	7					
				i <sub>N</sub>	3	26	11					
40	" 10	Bat.	I <sub>v</sub>	iP	5	57	58					Compression; azimuth ESE. Central and Eastern Java
				i	5	58	27					
				F	6	20						
41	" 10	Bat.	I <sub>v</sub>	e	6	50,6					350	Troubled by street traffic.
				F	6	56						
		Mal.		P	6	50	12					
				S	6	50	50					
				F	6	52						
—	" 10	Mal.		iP	21	1	24				90	
				iS	21	1	35					
				F	21	5						
42	" 12	Bat.	I	i <sub>E</sub>	17	4	36					
				F	17	15						
43	" 13	Bat.	I	e <sub>E</sub>	1	41	47					
				i	1	42	22					
				i	1	45	6					
				L <sub>v</sub>	1	49						
				F	2	2						
44	" 15	Bat.	I <sub>r</sub>	iP <sub>Ev</sub>	18	40	2	35.6			4990	Dilatation; azimuth ca E.
				i <sub>v</sub>	18	42	0					
				iS <sub>N</sub>	18	46	41					
				i <sub>v</sub>	18	46	48					
				i <sub>v</sub>	18	48	59					
				eL	18	56						
		Mal.		iP	19	7						
				iP	18	40	10					
				iS	18	46	44					
				F	18	55						
				F	18	55						
Amb.		iP	18	57	9							
		S?	18	41	26							
		L	18	45								
		F	19									
45	" 15	Bat.	I <sub>r</sub>	iP	22	44	51	31.7			2550	
				iS	22	48	52					
				F	22	56						
		Amb.		iP	22	41	1					
				iS	22	41	57					
				F	22	55						

No.	Date 1928	Sta-tion.	Char-acter.	Phase.	Time (Greenwich).			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.	
					h	m	s		A <sub>E</sub>	A <sub>N</sub>			
46	March 14	Bat.	I	i <sub>v</sub>	6	49	14					Dilatation; azimuth ca E.	
					6	49	15						
					6	53	16						
					6	53	52						
47	" 14	Bat.	I	i <sub>E</sub>	7	59	1					Dilatation; azimuth ca E.	
					7	59	5						
					7	59	10						
					7	59	11						
					7	43	2						
					7	43	7						
48	" 16	Bat.	III <sub>u</sub>	iP	5	11	18				7120	Dilatation; azimuth ca E.	
					5	11	20						
					5	12	2						
					iS <sub>N</sub>	5	19						50
					L <sub>v</sub>	5	26						19.2
					L <sub>v</sub>	5	53						18
					M	5	55						16
					M	5	56						35
49	" 18	Bat.	I <sub>u</sub>	i <sub>v</sub>	5	40	52	19.2	1118	1620			
					5	40	52						
					5	40	52						
					5	44	41						
					5	44	41						
					5	49,6							
					7	47,6							
					8	2							
					P	5	10						26
					iS	5	19						49
50	" 18	Bat.	I <sub>u</sub>	i <sub>E</sub>	12	9	52						
					12	13	52						
					12	18	6						
					12	18	16						
					12	25	32						
					12	50							
51	" 19	Bat.	I <sub>v</sub>	e	8	17,0					(540)	Lost in micros. Lost in micros. Bintoehan (Benkoelen).	
					8	18,0							
					8	20							
52	" 22	Bat.	II <sub>u</sub>	i <sub>v</sub>	4	36	52					Phases of Horiz. Components troubled by street traffic.	
					4	36	59						
					4	36	46						
					4	37	6						
					4	37	18						
					4	45	15						
					4	45	15						
					4	49	25						

No.	Date 1928.	Station.	Char-acter.	Phase.	Time (G. M. T.)			Period.	Amplitude (half).		Distance of epi-centre.	Remarks.
					h	m	s		sec.	$\mu$		
				L <sub>N</sub>	5	0	28	22.6				
				L	5	4		26.4				
				L	5	16	16	18.5				
				L	5	41	28	22.7				
				L	5	54	28	52.9				
				L	5	56	28	28.8				
				M	6	7	22	20.7	250	111		
				F	6	42						
53	March 26	Bat.	I	i <sub>v</sub>	5	0	27					Probably Maoe Mere (Flo-res).
				i <sub>E</sub>	5	0	38					
				F	5	11						
54	" 26	Bat.	I <sub>r</sub>	i <sub>v</sub>	5	50	26				2140	Menado.
				i <sub>E</sub>	5	50	29					
				i <sub>v</sub>	5	50	34					
				i <sub>Nv</sub>	5	51	26					
				i <sub>v</sub>	5	51	34					
				L <sub>v</sub>	5	50.4		18.7				
				S	5	55	59					
				L	5	48	26	14.7				
		Mal.		F	6	1						
				P	5	50	55					
				L	5	59						
		Amb.		F	5	54					500?	
				P	5	28	50					
				S?	5	29	45					
55	" 26	Bat.	I <sub>r</sub>	e <sub>v</sub>	6	47.4						Troubled by street traffic.
				i <sub>N</sub>	6	49	18					
				i <sub>N</sub>	6	54	8					Menado.
				F	7	8						
		Amb.		iP	6	44	46				460	
				S	6	45	57					
				F	7	4						
56	" 26	Bat.	I <sub>r</sub>	i <sub>E</sub>	8	10	19					Menado.
				i <sub>E</sub>	8	12	0					
				L <sub>v</sub>	8	20						
		Amb.		F	8	55					520	
				P	8	7	42					
				i	8	8	5					
				iS	8	8	59					
				F	8	20						
57	" 26	Bat.	I <sub>r</sub>	i <sub>v</sub>	9	51	49					Menado.
				i <sub>E</sub>	9	51	51					
				i <sub>v</sub>	9	40	54					
				i <sub>E</sub>	9	54	45					
				F	10	8						
		Amb.		P	9	49	10				680	
				S	0	50	25					
				F			in next.					
—	" 26	Amb.		P	10	11	17				480	Menado.
				S	10	12	0					
				F	10	17						
58	" 27	Bat.	II <sub>r</sub>	iP	14	59	19					Dilatation; azimuth SE. Eastern, Java Bali, Lombok. Soembawa.
				i <sub>vE</sub>	14	40	4					
				i <sub>E</sub>	14	40	29					
				i <sub>N</sub>	14	42	29					
				F	15	1						

No.	Date 1928	Sta-tion.	Char-acter.	Phase.	Time (Greenwich).			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s		sec.	$\mu$		
59	March 27	Bat.	I <sub>u</sub>	iP	19	15	55				5900	
				i	19	16	16					
				iS	19	25	4					
				F	19	50						
60	" 28	Bat.	II <sub>v</sub>	iP <sub>v</sub>	0	44	59				300	
				iP	0	44	41					
				i <sub>N</sub>	0	44	57					
				iS <sub>E</sub>	0	45	15					
				i	0	46	28					
				F	0	52						
61	" 29	Bat.	I <sub>v</sub>	iP <sub>v</sub>	5	15	12				4780	Dilatation; azimuth NE.
				iP	5	15	15					
				i <sub>v</sub>	5	14	28					
				iS <sub>v</sub>	5	19	57					
				iS	5	19	58					
				F	5	51						

N. B. Amboina no registrations March 17—23; 27—31.



# SEISMOLOGICAL BULLETIN

## BATAVIA, 1928.

1928.	E-W component.			N-S component.			V. component.		
	V.	T <sub>0</sub> .	ε.	V.	T <sub>0</sub> .	ε.	V.	T <sub>0</sub> .	ε.
April . . . . .	217	6.5	4.0	194	7.4	5.0	310	4.9	3.7
May . . . . .	"	6.5	4.2	"	7.5	4.6	"	"	3.9
June . . . . .	"	6.7	4.2	"	7.5	4.7	"	"	4.1

N. B. Amboina: no registrations April 1—12.

## APRIL.

No.	Date 1928.	Station.	Char-acter.	Phase.	Time (G. M. T.)			Period	Amplitude half.		Distance of epi-centre.	Remarks.	
					h	m	s		A <sub>E</sub>	A <sub>N</sub>			
62	April 3	Bat.	I <sub>v</sub>	eP <sub>E</sub>	1	10	11	sec.	μ	μ	km. 260		
				i <sub>v</sub>	1	10	14						
				iS	1	10	40						
				iS <sub>v</sub>	1	10	41						
				F	1	15							
63	" 3	Bat.	I <sub>v</sub>	i <sub>v</sub>	22	56	11				210		
				eN <sub>E</sub>	22	56	11						
				i <sub>v</sub>	22	56	55						
		Mal.			F	23	1						270
					e	22	56				21		
					i	22	56				52		
64	" 7	Bat.	I <sub>v</sub>	i	7	9	0				310	Central Java.	
				iS <sub>v</sub>	7	9	56						
				i	7	10	18						
				F	7	16							
65	" 7	Bat.	v	iP <sub>E</sub>	11	46	50				340	Central Java.	
				iS <sub>N</sub>	11	47	50						
				M <sub>N</sub>	11	47	46						
				F	11	52							
66	" 8	Bat.	I <sub>v</sub>	e <sub>v</sub>	7	9	57				270		
				i <sub>v</sub>	7	10	3						
				e <sub>E</sub>	7	10	5						
				iS	7	10	28						
				F	7	14							
67	" 9	Bat.	I <sub>u</sub>	e <sub>N</sub>	17	54	55						
				i <sub>E</sub>	17	55	58						
				i <sub>E</sub>	17	55	50						
				i <sub>E</sub>	18	6	46						
				L <sub>N</sub>	18	57							
				F	19	57							

No.	1928.	Station.	Character.	Phase.	(G. M. T.)			Period.	Amplitude (half)		Distance of epicentre.	Remarks.
									A <sub>E</sub>	A <sub>N</sub>		
					h	m	s		sec.	μ		
68	April 10	Bat.	I <sub>v</sub>	i <sub>v</sub>	17	28	39				240	
				iS <sub>v</sub>	17	29	5					
				iS	17	29	6					
				i <sub>v</sub>	17	29	37					
			F	17	32							
69	" 11	Bat.	I	e	9	52	42					Tapanoeli?
				i	9	53	15					
				F	10	8						
70	" 11	Bat.	I <sub>r</sub>	P	21	50	52					Menado
				i	21	53	26					
				F	21	57						
71	" 12	Bat.	I	i <sub>E</sub>	7	49	54					
				i	7	52	44					
				F	7	59						
72	" 12	Bat.	I <sub>v</sub>	P	17	7	20				610?	
				i <sub>E</sub>	17	7	24					
				iS <sub>E</sub> ?	17	8	26					
				F	17	10						
73	" 14	Bat.	I	iP	14	46	4				170	
				iS	14	46	24					
				F	14	49						
74	" 14	Bat.	II <sub>u</sub>	i	21	44	14					
				i	21	45	52					
				i	21	47	28					
				F	21	52						
75	" 14	Bat.	I	P	9	12	59					
				i <sub>E</sub>	9	25	22					
				i	9	25	41					
				i	9	24	5					
				eL	9	52						
76	" 16	Bat.	I <sub>v</sub>	F	10	7					520	
				iP <sub>v</sub>	0	14	43					
				eP	0	14	44					
				iS	0	15	41					
				F	0	20						
77	" 17	Bat.	I	P	0	14	42				560	
				S	0	15	45					
				F	0	19						
				i <sub>v</sub>	5	45	9					
				i	5	45	22					
78	" 18	Bat.	II <sub>u</sub>	F	5	12						
				e <sub>v</sub>	19	35	40					
				i <sub>v</sub>	19	35	45					
				iP	19	35	47					
				i	19	36	28					
				i	19	46	21					
				i	19	46	52					
				i	19	47	24					

No.	Date 1928.	Station.	Character.	Phase.	Time (Greenwich).			Period.	Amplitude (half)		Distance of epicentre.	Remarks.
									A <sub>E</sub>	A <sub>N</sub>		
					h	m	s		sec.	μ		
79	April 21	Bat.	I <sub>v</sub>	eL	20	12					(10000)	Bantam and Periangan.
				M	20	56						
				F	20	57						
				P	19	35	36					
				S	19	46	41					
80	" 24	Bat.	I <sub>v</sub>	i <sub>v</sub>	21	57	39				390?	
				iP	21	57	45					
				i <sub>E</sub>	21	57	44					
				S <sub>N</sub>	21	58	47					
				S <sub>v</sub>	21	58	56					
		Mal.	F	22	9							
			iP	21	57	54						
			i	21	57	56						
			iS	21	58	24						
			F	22	7							
81	May 5	Bat.	I <sub>v</sub>	i <sub>v</sub>	22	28	17				160	Tjibitoe (Central Priangan)
				P	22	28	18					
				iS <sub>v</sub>	22	28	35					
				iS	22	28	36					
				F	22	32						
		Mal.	P	22	28	19						
			iS	22	28	35						
			F	22	50							
			iP	16	26	39						
			i	16	26	40						
82	" 8	Bat.	I <sub>u</sub>	F	16	28					6560	Dilatation. Azimuth WS.
				iP <sub>v</sub>	4	56	2					
				P	4	56	6					
				iS	5	4	10					
				iS <sub>v</sub>	5	4	15					
		Amb.	i <sub>v</sub>	5	4	28						
			F	5	15							
			iP	4	54	27						
			iS	5	1	35						
			i	5	1	38						

MAY.

No.	1928.	Station.	Character.	Phase.	Time (Greenwich).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		$\mu_E$	$\mu_N$		
—	May 11	Amb.			i <sub>1</sub>	1	8	26				
					i <sub>2</sub>	1	16	25				
					i <sub>3</sub>	1	16	53				
					eL	1	33					
					F	1	43					
—	" 11	Amb.			P	15	7	41			190	
					S	15	8	5				
					F	15	10					
85	" 13	Bat.	I <sub>v</sub>		eP <sub>1</sub>	2	29	59			556	Central Java; volcanic phenomena at Batoer (Dieng). MARON ( $\Delta$ 78 <sup>km</sup> ) registered a fore-shock at 2 <sup>h</sup> 26 <sup>m</sup> 52 <sup>s</sup> .
					S <sub>1</sub>	2	30	46				
					P <sub>3</sub>	2	30	50				
					S <sub>2</sub>	2	30	59				
					S <sub>3</sub>	2	31	44				
					i	2	32	40				
					F	2	41					
		Mal.			eP <sub>1</sub>	2	29	40			254	
					P <sub>2</sub>	2	29	59				
					S <sub>1</sub>	2	30	6				
					P <sub>3</sub>	2	30	27				
					S <sub>3</sub>	2	30	54				
					F	2	39					
84	" 14	Bat.	II <sub>u</sub>		i <sub>v</sub>	22	34	53				Dilatation.
					i <sub>v</sub>	22	34	58				Dilatation.
					i <sub>E</sub>	22	35	0				
					i <sub>N</sub>	22	35	14				
					i	22	35	54				
					i	22	40	45				
					i <sub>N</sub>	22	46	57				
					eL	23	8					
					L <sub>E</sub>	23	25		56			
					L	23	43		21			
	" 15				F	0	39					
" 14	Mal.				P	22	55	0				
					i	22	40	1				
					L	22	53					
					M	23	58					
" 15					F	0	8					
" 14	Amb.				P	22	34	15				
					i	22	34	26				
					i	22	47	3				
					L	22	52.9					
					M	23	38					
	" 15				F	0	17					
85	" 15	Bat.	I		i <sub>N</sub>	2	57	4				
					i <sub>E</sub>	3	6	6				
					F	3	15					
—	" 15	Amb.			P	12	(4,1)				220	No time marks.
					S	12	(4,5)					
86	" 17	Bat.	I <sub>r</sub>		iP	11	0	15			2520	Manado.
					i	11	1	5				
					iS <sub>N</sub>	11	4	13				
					L <sub>E</sub>	11	9		19,7			
					F	11	20					
		Amb.			iP	10	57.2					No time marks
					i <sub>S</sub>	10	58.5					
					i <sub>E</sub>	10	58.6					

No.	Date 1928.	Station.	Character.	Phase.	Time (G. M. T.).			Period.	Amplitude (half)		Distance of epicentre.	Remarks.
					h	m	s		$\mu_E$	$\mu_N$		
—	May 18	Amb.			iP	10	10	20				
					i	10	10	23				
					F	10	15					
87	" 19	Bat.	I		e	3	55,7					Disturbed by street traffic.
					F	3	50					
88	" 21	Bat.	I <sub>v</sub>		P <sub>N</sub>	7	43	29			150	Tjibatoe (C. Priangan, W. Java).
					iS <sub>E</sub>	7	45	46				
					F	7	47					
		Mal.			iP	7	45	17			90	No time marks.
					iS	7	45	28				
					F	7	45					
—	" 22	Amb.			iP	3	9	45			90	Not felt.
					iS	3	9	54				Pens thrown off.
89	" 23	Bat.	I <sub>r</sub>		e	21	1					Boela (Ceram, moluccas).
					F	21	14					
		Amb.			P	20	55,4				(360)	In minute mark.
					S	20	56	6				
					F	21	18					
90	" 27	Bat.	II <sub>u</sub>		i <sub>v</sub>	10	0	6			6320	Compression.
					i <sub>v</sub>	10	0	9				Dilatation.
					i	10	0	10				Azimuth ESE.
					i	10	0	42				
					iS	10	7	37				
					L <sub>E</sub>	10	17		24.4			
					F	10	55					
		Amb.			P	9	57	50				
					i	10	4	17				
					i	10	7	40				
					L	10	13		22.4			
					F	10	57					
91	" 27	Bat.	I		e	19	49					
					i	19	50	42				
					F	19	56					
—	" 29	Amb.			iP	23	7	26				Pens thrown off. Felt at Amboina.
—	" 31	Amb.			P	10	41	9			240	In minute eclipse.
					S	10	41	56				
					F	10	46					
—	" 31	Amb.			P <sub>N S</sub>	13	8	2			140	
					P <sub>E W</sub>	13	8	4				
					iS	13	8	18				
					F	13	11					
92	" 31	Bat.	I		e	15	56					
					e <sub>E</sub>	14	6					
					F	14	10					
95	" 31	Bat.	I		i <sub>E</sub>	20	58	45				
					i	20	58	47				
					F	21	12					
		Amb.			i	20	55	9				
					i	20	55	28				
					i	20	56	54				
					F	21	4					

No.	1928.	Station.	Character.	Phase.	Time (G.M.T.).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
94	May 31	Bat.	II	e	25	52						
				i <sub>v</sub>	23	52	3					
				i	23	55	14					
				i <sub>E</sub>	25	44	25					
	June 1			F	0	55						
<b>JUNE.</b>												
95	June 1	Bat.	I <sub>v</sub>	P	5	45	30			160	Compression.	
				i <sub>N</sub> S	5	45	47					
				i <sub>v</sub>	5	46	26					
				F	5	49						
96	" 1	Bat.	I	e <sub>EW</sub>	8	4	54					
				i <sub>w</sub>	8	6	11					
				i <sub>w</sub>	8	9	16					
				i	8	9	24					
				F	8	18						
		Amb.		i	8	1	44					
				i	8	4	7					
				F	8	17						
97	" 1	Bat.	I <sub>u</sub>	i <sub>v</sub>	13	22	1					
				i	13	22	5					
				i	13	29	51					
				L	13	48	12					
				F	14	9						
		Amb.		e	13	20	18					
				i	13	27	2					
				L	13	30						
				F	13	51						
	" 1	Amb.		iP	16	4	51			(30)		
				iS	16	4	54					
				F	16	7						
98	" 2	Bat.	I	i <sub>v</sub>	0	56	10					
				P <sub>w</sub>	0	56	11					
				iP	0	56	12				Azimuth SW; Compression.	
				i	0	57	10					
				F	0	51						
		Mal.		P	0	56	18			270		
				S	0	56	49					
				F	0	41						
99	" 5	Bat.	I	i <sub>v</sub>	8	59	6					
				i	8	59	8					
				i <sub>s</sub>	8	41	24					
				i	8	45	27					
				i <sub>v</sub>	8	46	16					
				eL	8	57		18				
				M	9	2		14.2				
				F	9	22						
100	" 6	Bat.	I <sub>a</sub>	iP <sub>v</sub>	20	47	55			180	Compression. West-Java.	
				P	20	47	56					
				iP	20	47	37					
				iS	20	47	48					
				i	20	48	20					
				F	20	57						

No.	Date 1928.	Station.	Character.	Phase.	Time (G. M. T.)			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
					h	m	s	sec.	$\mu$	$\mu$	km.	
		Mal.		iP	20	47	26				150	
				iS	20	47	35					
				NS off	20	47	40					
				F <sub>EW</sub>	20	51						
101	June 7	Bat.	I	i	6	40	5					Azimuth NNW-SSE.
				F	6	47						
—	" 8	Mal.		P	6	15	24				150	
				S	6	15	41					
				F	6	17						
102	" 10	Bat.	I	i <sub>v</sub>	4	27	52					E. Priangan.
				eP	4	27	54					
				i	4	28	6					
				i	4	29	15					
				F	4	52					90	
		Mal.		P	4	27	35					
				S	4	27	44					
				F	4	51						
105	" 10	Bat.	I	i	22	45	54					
				i <sub>v</sub>	22	47	6					
				F	22	58						
—	" 14	Mal.		P	22	59	40				90	
				iS	22	59	50					
				F	25	1						
104	" 15	Bat.	III <sub>r</sub>	iP <sub>v</sub>	6	17	49				5100	Azimuth NE; Compression.
				iP	6	17	50					
				i	6	18	42					
				iS	6	22	10					MARON: iS-iP=4 <sup>m</sup> 16 <sup>s</sup> .
				L <sub>v</sub>	6	25.7		25.0				$\Delta = 2710.$
				M <sub>v</sub>	6	29.0		14.1				
				F	7	15					2120	
		Mal.		iP	6	17	56					
		Amb.		iS	6	21	24					Azimuth ESE-WNW.
				iP	6	16	52					
				i	6	16	56					
				iL	6	22.5		27				
				F	7	52						
105	" 15	Bat.	II <sub>r</sub>	i <sub>v</sub>	17	21	28				5110	Azimuth NE; Dilatation.
				iP <sub>E</sub>	17	21	33					
				i	17	21	56					
				i <sub>v</sub>	17	21	40					
				S	17	26	14					
				i <sub>v</sub>	17	26	21					
				L <sub>v</sub>	17	51		24.5				
				F	18	4						
		Amb.		i	17	20	42					
				i	17	20	55					
				i	17	20	58					
				eL	17	26		24				
				F	18	2						
—	" 15	Amb.		iP	18	40	54				590	
				iS	18	41	58					
				F	17	47						

No.	Date 1928.	Sta- tions.	Char- acter.	Phase.	Time (Greenwich).			Period. sec.	Amplitude (half).		Distance of epi- centre. km.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
—	June 15	Amb.		i	20	48	15			560		
				iS	20	48	56					
				F	20	51						
106	» 16	Bat.	I	i <sub>v</sub>	4	47,8					Disturbed by street traffic.	
				i	4	48	19					
				F	4	53						
—	» 16	Amb.		iP	13	57	9			240?		
				S?	13	57	58					
				F	14	1						
107	» 16	Bat.	I	i <sub>EW</sub>	18	54	14				Compression.	
				i <sub>v</sub>	18	54	17					
				i	18	54	18					
				S?	18	54	46					
				i	18	54	59					
				F	18	47						
		Amb.		iP	18	51	18			1520		
				iS	18	53	53					
				i	18	54	1					
				F	18	46						
108	» 17	Bat.	II <sub>n</sub>	i <sub>v</sub>	5	59	25				Azimuth ESE, Compres- sion.	
				i <sub>v</sub>	5	59	28					
				i <sub>E</sub>	5	59	54					
				i <sub>v</sub>	5	59	53					
				i <sub>v</sub>	5	49	45					
				L <sub>EW</sub>	4	15		31.0				
				eL	4	20						
				L <sub>NS</sub>	4	24		37.6				
				M <sub>1</sub>	4	37,2		24.5				
				M <sub>2</sub>	4	42,7		22.3				
				M <sub>N</sub>	4	46,5		21.4				
				L <sub>v</sub>	5	43,7						
				F	6							
		Mal.		P	5	59	58					
				i	5	59	53					
		Amb.		i	5	59	4					
				i	5	42	29					
				L	4	15		47				
				M	4	27		20				
				F	5	47						
109	» 17	Bat.	I	i <sub>v</sub>	6	52	25				Azimuth ESE; Compres- sion.	
				i	6	52	26					
				i <sub>v</sub>	6	52	29					
				i	6	52	30					
				i	7	1	2					
				F	7	7						
		Mal.		iP	6	52	20					
				i	6	52	25					
				i	7	0	50					
				i	7	1	21					
—	» 17	Amb.		P	20	38	46			120		
				S	20	59	0					
				F	20	40						
—	» 18	Amb.		P	15	0	47			520		
				i	13	0	52					
				S	15	1	44					
				F	15	15						

No.	Date 1928.	Sta- tion.	Char- acter.	Phase.	Time (Greenwich).			Period. sec.	Amplitude (half)		Distance of epi- centre. km.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
110	June 18	Bat.	I	i <sub>v</sub>	22	1	57			2750	Tobelo (Halmaheira. N. Moluccas).?	
				i <sub>w</sub>	22	1	59					
				S	22	6	14					
				F	22	18						
		Amb.		P	21	59	7					
				i	22	0	8					
				i	22	0	50					
				L	22	1	42					
				F	22	9						
111	» 19	Bat.	I	i <sub>EW</sub>	4	15	46					
				F	4	25						
112	» 21	Bat.	I <sub>n</sub>	i <sub>w</sub>	10	51	46					
				i <sub>v</sub>	10	51	47					
				L <sub>v</sub>	11	8		25.6				
				L	11	18						
				M	11	20,4		19.6				
				L <sub>v</sub>	11	21		19.4				
				F	11	57						
		Amb.		i	10	50	0					
				i	10	57	27					
				L	11	3						
				M	11	12		18				
				F	11	55						
113	» 21	Bat.	I <sub>n</sub>	i <sub>v</sub>	16	47	8					
				i	16	51	9					
				i	16	59	57					
				eL <sub>E</sub>	17	21		25.6				
				L	17	51		14.8				
				F	17	56						
		Amb.		i	16	51,4						
				eL	17	6						
				F	17	47						
—	» 22	Amb.		iP	11	49	19					
				F	11	51						
114	» 24	Bat.	I	e	4	44						
				i	5	2						
				F	5	5						
115	» 25	Bat.	I	i	15	1	25				Vlakkens Hoek (S. Su- matra).	
				i <sub>v</sub>	15	1	56					
				i	15	1	57					
				i	15	1	57					
				S?	15	2	52					
				F	15	8						
		Mal.		e	15	1	46					
				eS	15	2	16					
—	» 27	Mal.		P	18	59	11					
				S	18	59	24					
116	» 29	Bat	I	i <sub>v</sub>	19	44	56					
				i	19	44	58					
				i <sub>v</sub>	19	44	59					
				i	19	45	20					
				i	19	46	11					
				F	19	49	2					
				F	20	0						

No.	1928.	Station	Character	Phase	Time (Greenwich)			Period	Amplitude (half)		Distance of epicentre	Remarks
					h	m	s		sec.	$\mu_E$		
117	June 29	Bat.	II <sub>u</sub>	i	19	41	15	45.7 20.5	18	10	7170	Azimuth WNW; dilatation.
				i	19	41	47					
				i	19	41	52					
				F	19	55						
		i <sub>v</sub>	25	0	15							
		i <sub>P</sub>	25	0	17							
	" 30 " 29	Bat.	II <sub>u</sub>	i <sub>N</sub>	25	0	50					
				i <sub>N</sub>	25	0	2					
				i <sub>S</sub>	25	8	52					
				L	25	18						
		Mal.	II <sub>u</sub>	L	25	36						
				i <sub>v</sub>	25	59	29					
				F	0	17						
				i	25	0	11					
" 30	Mal.	II <sub>u</sub>	i	25	8	28						
			F	25	17							
			i	22	57	24						
	Amb.	II <sub>u</sub>	i	22	59	56						
			i	25	0	43						
			i <sub>S<sub>EW</sub></sub>	25	7	17						
" 30	Amb.	II <sub>u</sub>	i <sub>S<sub>NS</sub></sub>	25	7	21						
			L	25	15,7							
			i	25	37	16						
			F	0	17							

# SEISMOLOGICAL BULLETIN

## BATAVIA OBSERVATORY.

1928.	E-W component.			N-S component.			V component.		
	V.	T <sub>o</sub> .	ε.	V.	T <sub>o</sub> .	ε.	V.	T <sub>o</sub> .	ε.
	July . . . . .	217	7.5	3.4	194	7.5	4.0	310	4.9
August . . . . .	"	7.4	3.4	"	7.7	3.9	"	4.8	3.6
September . . . . .	"	7.3	3.2	"	7.6	3.7	"	4.8	3.2

  

	With lifted pin						With writing pin					
	e <sub>o</sub>			r			e <sub>o</sub>			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
July . . . . .	1.11	1.13	—	-0.02	-0.01	—	1.10	1.15	1.17	0.81	0.54	0.65
August . . . . .	"	"	—	"	"	—	1.12	1.12	1.17	0.54	0.48	0.92
September . . . . .	1.12	1.12	1.13	-0.02	-0.02	0.02	1.10	1.14	1.18	0.54	0.48	0.68

### JULY.

No.	Date 1928.	Sta-tion.	Char-acter.	Phase.	Time (G. C. T.)			Period	Amplitude half.		Distance of epi-centre.	Remarks.		
					h	m	s		A <sub>E</sub>	A <sub>N</sub>				
118	July 1	Bat.	I <sub>v</sub>	iP	0	54	3	sec.	μ	μ	km.	Dilatation. W. Priangan (Java).		
				i <sub>v</sub>	0	54	4							
				iS <sub>v</sub>	0	54	18							
				iS	0	54	19							
				i <sub>w</sub>	0	54	50							
				i <sub>s</sub>	0	54	55							
		F		0	59									
		Mal.		iP	0	53	56							110
				i <sub>NS</sub>	0	54	3							
				iS	0	54	9							
F	0		56											
—	• 1	Amb.		P	10	11	58			380				
				S	10	11	41							
				F	10	19								
—	• 1	Amb.		P	12	26	14			440				
				S	12	27	3							
				F	12	29								
119	• 2	Bat.	I <sub>v</sub>	i <sub>v</sub>	7	37	58				300	ESE; dilatation. C. And E. Java.		
				i	7	37	40							
				i <sub>v</sub>	7	38	13							
				i <sub>N</sub>	7	38	21							
				i	7	38	37							
				F	7	49								
		Mal.		P <sub>EW</sub>	7	37	14							
				i	7	37	24							
				iS <sub>NS</sub>	7	37	48							
				F	7	44								

No.	Date 1928.	Stations.	Char-acter.	Phase.	Time (G. C. T.).			Amplitude (half).		Distance of epi-centre.	Remarks.
					h	m	s	sec.	$\mu$		
—	July 7	Amb.		P	17	32	47			60	
				iS	17	32	54				
				F	17	37					
—	8	Amb.		iP	1	27	15			80	E W pen off.
				iS	1	27	24				
				F	1	30					
120	8	Bat.	I <sub>v</sub>	i <sub>v</sub>	13	17	5				Dilatation.
				i	13	17	6				
				F	15	20					
		Mal.		e <sub>EW</sub>	13	17	9			500	
				iS	13	17	45				
				F	13	18					
121	9	Bat.	II <sub>u</sub>	i <sub>v</sub>	21	52	49			5950	E; Compression.
				i <sub>v</sub>	21	52	50				
				iP <sub>E</sub>	21	52	51				
				iS <sub>NS</sub>	21	40	22				
				L <sub>EW</sub>	21	55		27.6			
				F	22	25					
		Amb.		iP	21	29	20				SSW-NNE.
				i	21	30	24				
				L	21	40		29.5			
				L	21	45		19.2			
				F	22	17					
—	12	Amb.		P	18	2	49			(620)	In minute eclipse.
				S	18	2	(56)				
				F	18	6					
122	15	Bat.	I <sub>v</sub>	iP <sub>v</sub>	18	18	12			160	Dilatation. W. Priangan.
				P	18	18	15				
				iS	18	18	50				
				F	18	22					
		Mal.		i	18	18	28				
				F	18	19					
125	15	Bat.	I	i	23	21	5				
				F	23	25					
124	17	Bat.	I <sub>v</sub>	i <sub>v</sub>	20	31	42				Tandjong Sakti (Benkoelen, S Sumatra).
				i	20	32	50				
				F	20	58					
125	18	Bat.	I <sub>u</sub>	i <sub>v</sub>	19	25	12				WNW; Compression.
				i <sub>v</sub>	19	25	18				
				i <sub>E</sub>	19	25	20				
				i	19	25	24				
				i <sub>S</sub>	19	25	58				
				i <sub>w</sub>	19	26	36				
				i	19	36	17				
				L <sub>EW</sub>	19	59		33.6			
				L	20	27		24.5			
				M	20	40	16	14.1	45	28	
				M	20	47		16.5			
				F	21	16					
126	20	Bat.	I	i <sub>v</sub>	6	2	55			740?	W; Compression.
				P <sub>w</sub>	6	2	54				
				i <sub>v</sub>	6	2	58				
				i <sub>w</sub>	6	2	59				
				i	6	5	22				

No.	Date 1928.	Station.	Char-acter.	Phase.	Time (G. C. T.).			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s		sec.	$\mu$		
—				i	6	5	50					
				iS <sub>NS</sub> ?	6	3	54					
				F	6	9						
127	July 21	Bat.	II <sub>r</sub>	i <sub>v</sub>	1	45	12			1480	E. Dilatation. S. Celebes.	
				P	1	45	15					
				iS <sub>NS</sub>	1	45	46					
				i <sub>v</sub>	1	46	41					
				i	1	46	58					
				i	1	47	43					
				F	2	4						
—	24	Mal.		P	6	35	56			170		
				S	6	36	16					
				F	6	37						
—	24	Amb.		P	9	14	27			70		
				iS	9	14	55					
				F	9	16						
—	24	Mal.		P	22	27	9			80		
				iS	22	27	19					
				F	22	28						
—	25	Mal.		P	8	22	58					
				i	8	25	7					
				F	8	24						
128	25	Bat.	II <sub>v</sub>	iP <sub>v</sub>	8	27	56			160?	WNW; Compression. Probably two shocks.	
				iP	8	27	59					
				i <sub>v</sub>	8	27	41					
				i	8	27	42					
				i <sub>v</sub>	8	27	54					
				i <sub>v</sub>	8	27	56					
				iS <sub>NS</sub> ?	8	27	58					
				i <sub>N</sub>	8	28	55					
				F	8	42						
		Mal.		P	8	27	55					
				i	8	28	2					
				F	8	50						
129	26	Bat.	I	iP	12	18	25				Soemba (?).	
				i	12	20	51					
				i	12	21	38					
				L	12	55						
				F	12	41						
		Mal.		eP	12	18	5					
				i	12	20	0					
				F	12	22						
130	27	Bat.	I <sub>r</sub>	e <sub>v</sub>	15	26.8				2440	WNW-ESE. Atjeh (N. Sumatra).	
				i <sub>v</sub>	15	27	46					
				P	15	28	7					
				i	15	30	6					
				S <sub>v</sub>	15	51	58					
				iS	15	52	1					
				F	15	44						
131	30	Bat.	I <sub>v</sub>	iP <sub>v</sub>	0	10	55			170	Dilatation. E. Priangan.	
				P <sub>NS</sub>	0	10	34					
				iP <sub>NS</sub>	0	10	35					
				iS	0	10	54					
				F	0	16						



No.	Date 1928.	Station.	Character.	Phase.	Time (G. C. T.)			Period.	Amplitude (half)		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
132	July 31	Bat.	I <sub>r</sub>	iP <sub>EW</sub>	0	10	24				120	
				iS	0	10	58					
				F	0	15						
				P <sub>w</sub>	0	52	54					
133	Aug. 3	Bat.	I <sub>v</sub>	iP <sub>v</sub>	8	16	55				610	Compression.
				iP	8	16	56					
				i	8	16	59					
				iS <sub>E</sub>	8	17	51					
134	" 3	Bat.	I	i <sub>E</sub>	18	45	48					
				i	18	47	58					
				F	19	1						
				e	21	2,8						
135	" 3	Bat.	I	F	21	15						
				i <sub>E</sub>	18	45	16					
				i <sub>S</sub>	18	45	58					
				i <sub>w</sub>	18	56	54					
136	" 4	Bat.	II <sub>u</sub>	L	19	15	48	22.4				
				L	19	56						
				L	19	56	25.8					
				L	20	5	55.0					
				M	20	14	20.8					
				M	20	18	21.2					
				M	20	28	15.9					
				M	20	38						
				F	20	38						
				F	20	38						
137	" 5	Bat.	II <sub>r</sub>	iP	14	46	20				2840	
				i	14	46	22					
				iS	14	50	45					
				F	15	4						
138	" 11	Bat.	I	e	8	58						
				i	8	58	56					
				i <sub>w</sub>	8	59	54					
				F	8	48						
139	" 12	Bat.	III <sub>r</sub>	iP <sub>v</sub>	8	15	35	17.7			2190	Dilatation; Azimuth NE. Menado, Sangi I and Ternate.
				iP	8	15	35					
				i <sub>v</sub>	8	15	37					
				i	8	15	40					
				i <sub>v</sub>	8	16	37					
				S <sub>EW</sub>	8	17	9					
				i <sub>v</sub>	8	17	54					
				i <sub>S</sub>	8	17	56					
				L <sub>v</sub>	8	22						
				F	8	45						
				P	8	15	35					
				S	8	17	27					
				i	8	17	58					
				i	8	24	59					
F	8	51										
140	Aug. 12	Bat.	I	P <sub>E</sub>	15	22	56				1910	
				i	15	24	11					
141	" 12	Bat.	I	iP	14	10	11					
				F	14	15						
142	" 13	Mal.		P	14	10	16					
				F	14	10	16					
143	" 15	Bat.	I	P	5	2	37				1890	
				iS	5	5	47					
144	" 16	Bat.	I <sub>v</sub>	F	5	6						
				iP <sub>v</sub>	17	55	25					
145	" 19	Bat.	I <sub>v</sub>	P	17	55	24					
				F	17	40						
146	" 20	Bat.	I <sub>v</sub>	P	22	52	3				200	Dilatation.
				iP <sub>v</sub>	22	52	4					
				S	22	52	26					
				F	22	36						
				iP	22	52	10					
				iS	22	52	22					
147	" 24	Bat.	I <sub>v</sub>	F	22	54					100	
				iP	22	19	4					
				iS <sub>v</sub>	22	19	28					
				iS	22	19	29					
				F	22	25						
				P	22	19	12					
148	" 24	Bat.	I <sub>v</sub>	P	22	19	15				220	Dilatation; ESE.
				i	22	19	15					
				F	22	25						
				e	17	56	20					
				i	17	56	48					
				F	17	40						
149	" 24	Bat.	II <sub>u</sub>	iP	17	56	8				120	
				iS	17	56	22					
				F	17	38						
				P <sub>E</sub>	21	55	7					
				iP <sub>v</sub>	21	55	8					
				iP	21	55	9					
150	" 24	Bat.	Mal.	iS	22	1	1				6370	Compression, WNW.
				i <sub>v</sub>	22	1	20					
				F	22	26						
				iP	21	55	19					
				i	21	57	6					
				iS	22	1	12					
				i	22	1	17					
				F	22	10						
				F	22	10						
				F	22	10						

AUGUST.

No.	Date 1928.	Station.	Character.	Phase.	Time (G. C. T.)			Period.	Amplitude (half)		Distance of epicentre.	Remarks.
					h	m	s		$\mu$	$\mu$		
140	Aug. 12	Bat.	I	iP	8	11	54				490?	
				S?	8	12	28					
				F	8	38						
141	" 12	Bat.	I	P <sub>E</sub>	15	22	56					
				i	15	24	11					
				F	15	28						
142	" 13	Mal.		iP	14	10	11					
				F	14	15						
				P	14	10	16					
143	" 15	Bat.	I	P	5	2	37				1890	
				iS	5	5	47					
				F	5	6						
144	" 16	Bat.	I <sub>v</sub>	iP <sub>v</sub>	17	55	25					
				P	17	55	24					
				F	17	40						
145	" 19	Bat.	I <sub>v</sub>	P <sub>v</sub>	25	51	7				200	Dilatation.
				P <sub>EW</sub>	25	51	9					
				i	25	51	55					
				i	25	52	12					
				F	25	59						
				P	22	52	3					
146	" 20	Bat.	I <sub>v</sub>	iP <sub>v</sub>	22	52	4				100	
				S	22	52	26					
				F	22	36						
				iP	22	52	10					
				iS	22	52	22					
				F	22	54						
147	" 24	Bat.	I <sub>v</sub>	iP	22	19	4				220	Dilatation; ESE.
				iS <sub>v</sub>	22	19	28					
				iS	22	19	29					
				F	22	25						
				P	22	19	12					
				i	22	19	15					
148	" 24	Bat.	I <sub>v</sub>	e	17	56	20				120	E. Priangan.
				i	17	56	48					
				F	17	40						
				iP	17	56	8					
				iS	17	56	22					
				F	17	38						
149	" 24	Bat.	II <sub>u</sub>	P <sub>E</sub>	21	55	7				6370	Compression, WNW.
				iP <sub>v</sub>	21	55	8					
				iP	21	55	9					
				iS	22	1	1					
				i <sub>v</sub>	22	1	20					
				F	22	26						
				iP	21	55	19					
				i	21	57	6					
				iS	22	1	12					
				i	22	1	17					
150	" 24	Bat.	Mal.	F	22	10					6550	
				F	22	10						

No.	Date 1928.	Station.	Character.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epicentre	Remarks.
					h	m	s		sec.	$\mu$		
148	Aug. 26	Bat.	I <sub>v</sub>	P <sub>NS</sub>	5	12	44	sec.	$\mu$	$\mu$	180	
		Mal.		F	5	16			100			
149	" 26	Bat.	I <sub>v</sub>	e	21	50	0				90	Disturbed by street traffic. Tjimiring (Banjoemas, C. Java).
		Mal.		iP	21	50	36					
—	" 28	Amb.		iP	3	11	47				2440	
		Mal.		F	3	21						

SEPTEMBER.

150	Sept. 1	Bat.	I	e	6	20	29				200?	
—	" 2	Mal.		P	14	28	38					
		F		14	30							
151	" 5	Bat.	II <sub>v</sub>	P <sub>v</sub>	1	6	37				290	Dilatation; Central Java. MARON $\Delta$ = 150 km.
		Mal.		iP	1	6	41					
152	" 5	Bat.	II <sub>v</sub>	iS	1	7	14				180	Dilatation, azimuth W. Lang Eiland (Krakatau I.).
		Mal.		F	1	17						
—	" 7	Bat.	I <sub>r</sub>	iP	1	6	21				180	
		Mal.		F	1	17						
153	" 7	Bat.	I <sub>r</sub>	P <sub>v</sub>	18	44	35				160	Dilatation, azimuth W. Lang Eiland (Krakatau I.).
		Mal.		P	18	44	34					
—	" 7	Mal.		iP	18	44	36				450	
		F		18	44	34						
155	" 7	Bat.	I <sub>r</sub>	iS <sub>s</sub>	18	44	54				4420	
		Mal.		iS <sub>E</sub>	18	44	56					
—	" 7	Mal.		i <sub>w</sub>	18	44	59				4420	
		F		19	0							
155	" 7	Bat.	I <sub>r</sub>	iP	18	44	53				450	
		Mal.		S	18	45	41					
—	" 7	Mal.		F	18	50					4420	
		F		18	50							
155	" 7	Bat.	I <sub>r</sub>	i <sub>E</sub>	2	56	55				4420	
		Mal.		i	2	57	59					
—	" 7	Mal.		L	5	12,5					4420	
		F		5	18							
155	" 7	Bat.	I <sub>r</sub>	P	2	56	45				4420	
		Mal.		i	2	56	51					
—	" 7	Mal.		iS	5	2	48				4420	
		F		5	10							

No.	Date 1928.	Station.	Character.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		sec.	$\mu$		
154	Sept. 10	Bat.	I <sub>v</sub>	P	25	54	4				750	Dilatation; azimuth E.
		Mal.		iP	25	54	5					
—	" 10	Mal.		iS	25	55	25				690	
		F		24	5							
155	" 11	Bat.	I	iP	25	54	20				690	
		Mal.		iS	25	55	34					
156	" 11	Bat.	I <sub>v</sub>	F	25	58					180	
		Mal.		P	15	55	3					
—	" 11	Mal.		S	15	55	25				170	
		F		15	55	52						
157	" 11	Bat.	I <sub>v</sub>	P	15	55	3				450?	Central Java. MARON $\Delta$ = 140 km.
		Mal.		S	15	55	25					
158	" 12	Bat.	I	F	15	55	52				450?	
		Mal.		P	15	55	52					
159	" 12	Bat.	I	eP	19	54	48				450?	
		Mal.		S?	19	55	38					
160	" 15	Bat.	II <sub>r</sub>	F	20	1					2450	Menado, Sangi I, Halmaheira.
		Mal.		P <sub>v</sub>	1	29	55					
—	" 15	Mal.		i	1	29	35				2580	
		F		1	58	19						
161	" 15	Bat.	I <sub>v</sub>	i <sub>N</sub>	1	58	19				2450	
		Mal.		F	1	55						
—	" 15	Mal.		i <sub>v</sub>	3	31	8				2580	
		F		3	31	10						
162	" 18	Bat.	I <sub>u</sub>	iS <sub>NS</sub>	3	35	5				700	
		Mal.		L <sub>v</sub>	3	59						
—	" 15	Mal.		L	3	46					700	
		F		4	1							
161	" 15	Bat.	I <sub>v</sub>	P	3	31	13				700	
		Mal.		i	3	31	47					
—	" 15	Mal.		iS	3	35	5				700	
		F		3	48							
161	" 15	Bat.	I <sub>v</sub>	iP	3	29	57				700	
		Mal.		iS	3	31	12					
—	" 15	Mal.		F	3	57					700	
		F		3	57							
161	" 15	Bat.	I <sub>v</sub>	iP	8	42	59				700	
		Mal.		i	8	42	41					
—	" 15	Mal.		F	8	44					700	
		F		8	44							
161	" 15	Bat.	I <sub>v</sub>	e	4	59,4					120	E. Priangan and Banjoemas (W. Java).
		Mal.		F	5	2						
—	" 15	Mal.		P	4	59	17				120	
		F		4	59	51						
161	" 15	Bat.	I <sub>v</sub>	iS	4	59	51				120	
		Mal.		F	5	2						
—	" 16	Mal.		P	9	27	47				80	
		F		9	27	56						
162	" 18	Bat.	I <sub>u</sub>	iS	9	27	56				80	
		Mal.		F	9	29						
—	" 18	Mal.		P <sub>v</sub>	20	2	34				6470	
		F		20	10	35						
162	" 18	Bat.	I <sub>u</sub>	e	20	11	19				6470	
		Mal.		F	20	21						



# SEISMOLOGICAL BULLETIN

## BATAVIA OBSERVATORY.

1928.	E-W component.			N-S component.			V component.		
	V.	T <sub>0</sub> .	ε.	V.	T <sub>0</sub> .	ε.	V.	T <sub>0</sub> .	ε.
	October . . . . .	214	7.3	4.2	196	7.6	5.0	305	4.7
November . . . . .	"	7.4	4.4	"	7.6	4.4	"	4.7	3.3
December . . . . .	"	7.0	4.4	"	7.6	4.3	"	4.6	3.3

  

	With lifted pin						With writing pin					
	e <sub>0</sub>			r			e <sub>0</sub>			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
October . . . . .	1.12	1.12	1.13	0.02	0.02	0.02	1.09	1.11	1.16	0.57	0.42	0.61
November . . . . .	"	"	"	"	"	"	1.10	1.12	1.14	0.44	0.48	0.64
December . . . . .	"	"	"	"	"	"	1.07	1.13	1.14	0.41	0.52	0.60

### OCTOBER.

No.	Date 1928.	Sta-tion.	Char-acter.	Phase.	Time (G. C. T.)			Period	Amplitude half.		Distance of epi-centre.	Remarks.							
					h	m	s		A <sub>E</sub>	A <sub>N</sub>									
167	Oct. 2	Bat.	I <sub>v</sub>	iP	22	53	38	sec.	μ	μ	km.	Priangan and Banjoemas.							
				i <sub>sw</sub>	22	53	58												
				i <sub>SE</sub>	22	54	14												
		Mal.		i <sub>N</sub>	22	55	15												
				F	25	4													
				iP	22	55.5													
		—		•	2	Amb.	iS						22	55.5				(100)	NS pen off 22 55.6. No minute marks.
							F						22	58					
							iP						25	40	58			400	
							iS						25	41	45				
—	•	5	Amb.	F	25	44													
				P	9	48	19			(40)									
				iS	9	48	25												
—	•	5	Amb.	F	9	49													
				iP	25	15	58			150	Azimuth NE — SW.								
				iS	25	16	15												
—	•	5	Amb.	F	25	21													
				iP	1	23	51			(50)									
				iS	1	23	56												
—	•	6	Mal.	F	1	28													
				P	21	37	4			80									
				S	21	37	14												
168	•	9	Bat.	I <sub>u</sub>	F	21	58												
					i <sub>v</sub>	5	21	2				Compression.							
					i <sub>w</sub>	5	21	8				Dilatation							
					i <sub>v</sub>	5	21	11											

No.	Date 1928.	Station.	Character.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
							sec.	μ	μ	km.		
				i <sub>v</sub>	5	21	22					
				i <sub>N</sub>	5	21	55					
				L <sub>v</sub>	5	22	8					
				L	5	45		22.9				
				L	5	51		27.2				
				L	4	22		24.2				
				M	4	28		22.6				
				M	4	36		33.5				
				L	4	56		19.6				
		Mal.		F	5	24						
				i	5	21	5					
				L	3	44						
				L	4	26						
				F	5	19						
		Amb.		i <sub>Ns</sub>	5	20	55					
				i <sub>EW</sub>	5	20	44					
				i	5	52	54					
				i	5	53	46					
				eL	5	45		24.0				
				L	4	6		18				
				M	4	15						
				F	5	19						
169	Oct. 10	Bat.	I <sub>v</sub>	iP	16	28	42			160	Bantam and W. Priangan.	
				iS	16	29	1					
				F	16	36						
		Mal.		P	16	28	35					
				i	16	51	50					
				F	16	35						
170	" 12	Bat.	I	i <sub>w</sub>	7	39	30					
				F	7	46						
171	" 15	Bat.	I	e	15	20	59				Minahasa?	
				i	15	22	0					
				F	15	50						
		Amb.		P	15	18	25			670		
				iS	15	19	37					
				F	15	42						
172	" 15	Bat.	I	e	8	38	9					
				F	9	9						
		Amb.		P	8	53	57			3140		
				S	8	40	10					
				F	8	55						
		Amb.		P	12	59	41			130?		
				S?	12	59	56					
				F	13	2						
173	" 15	Bat.	I	e	14	28	39					
				i <sub>w</sub>	14	35	2					
				i <sub>N</sub>	14	35	28					
				L	14	46	2	25.6				
				F	15	18						
		Mal.		P	7	27	15			110		
				S	7	27	28					
				F	7	28						
174	" 19	Bat.	I	i <sub>v</sub>	10	30	54				Dilatation.	
				i	10	40	15					
				L	11	3		19.8				
				F	11	32						

No.	Date 1928.	Station.	Character.	Phase.	Time (Greenwich).			Periode.	Amplitude (half).		Distance of epicentre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
175	Oct. 20	Bat.	I	i <sub>w</sub>	12	54	56	sec.	μ	μ	km.	
				i <sub>w</sub>	13	0	50					
				F	13	6						
—	" 21	Amb.		P	1	22	56				(40)	
				iS	1	22	40					
				F	1	24						
—	" 21	Amb.		P	17	20					(890)	No minute marks.
				S	17	21,6						
				L	17	24,5						
				F	17	42						
—	" 24	Mal.		i	17	28	51					
				F	17	30						
176	" 25	Bat.	I	i	19	51	41					
				i	19	58	59					
				L	21	22						
				F	21	40						
177	" 25	Bat.	I <sub>v</sub>	i <sub>v</sub>	19	19	0					Compression
				iP <sub>w</sub>	19	19	1					Vlakken Hoek (Benkoelen,
				i <sub>w</sub>	19	19	15					S. Sumatra).
				i <sub>v</sub>	19	19	22					
				i <sub>s</sub>	19	19	56					
				i <sub>s</sub>	19	20	25					
				i <sub>E</sub>	19	20	51					
				F	19	33						
178	" 31	Bat.	I	e	17	36						
				i	17	37	22					
				F	17	41						
<b>NOVEMBER.</b>												
—	Nov. 1	Amb.		P	14	49	40				450	Boelabai (Ceram).
				S	14	50	30					
				F	14	58						
179	" 1	Bat.	I	e	16	41						
				F	16	47						
180	" 3	Bat.	I	i <sub>v</sub>	11	21	37					
				i <sub>E</sub>	11	21	58					
				i <sub>N</sub>	11	21	57					
				F	11	30						
—	" 5	Amb.		P	5	11	56				560	
				iS	5	12	37					
				F	5	15						
181	" 6	Bat.	I <sub>v</sub>	P <sub>v</sub>	4	7	27				220	Dilatation; Bantam (W. Java).
				P	4	7	29					
				iS	4	8	52					
				i	4	8	49					
				F	in next.							
182	" 6	Bat.	II	i <sub>v</sub>	4	15	22					Compression; azim WNW.
				i <sub>v</sub>	4	15	27					
				i	4	15	27					
				i <sub>s</sub>	4	25	57					
				eL	4	36						
				F	5	25						

No	Date 1928.	Station.	Char-acter.	Phase.	Time (G. C. T.).			Period.	Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
		Amb.		i	4	13	18					
				eL	4	29		25				
				M	4	52		22.5				
				F	4	55						
183	Nov. 9	Bat.	I	i <sub>w</sub>	11	11	42					
				i	11	18	26					
				F	11	22						
184	" 10	Bat.	I	e	12	38	43					
				i	12	46	22					
				F	12	55						
185	" 10	Bat.	I <sub>v</sub>	iP	21	58	24			250		
				iS	21	58	52					
				F	21	45						
186	" 11	Bat.		i <sub>v</sub>	22	50	14					
				i	22	50	18					
				i <sub>v</sub>	22	50	24					
				i	22	57	46					
				F	22	4						
187	" 15	Bat.	I <sub>r</sub>	i <sub>v</sub>	2	58	7			3340		Compression.
				i <sub>E</sub>	2	58	18					
				i <sub>N</sub>	2	59	50					
				S	2	45	1					
				F	2	55						
		Amb.		P	2	54,1						
				i	2	57	26					
				F	3	1						
188	" 1	Bat.	I	i <sub>v</sub>	7	42	57					
				i <sub>w</sub>	7	45	13					
				i <sub>w</sub>	7	47	56					
				i <sub>v</sub>	7	48	1					
				F	7	59						
189	" 16	Bat.	I	i	11	10	54					
				i	11	17	9					
				F	11	25						
	" 18	Amb.		iP	15	24	49			170		
				S	15	25	9					
				F	15	28						
190	" 19	Bat.	I <sub>v</sub>	P	1	9	3			170		
				iS	1	9	25					
				F	1	15						
191	" 19	Bat.	I	P	7	50	17					
				i	7	51	45					
				F	8	1						
	" 19	Mal.		P	22	9	32					
				iS	22	9	44					
				F	22	12						
192	" 20	Bat.	I <sub>v</sub>	iP <sub>NV</sub>	6	18	49			190		W. Java.
				iS <sub>E</sub>	6	19	11					
				i	6	20	12					
				F	6	51						
		Mal.		iP	6	18	35					
				off	6	18	46					

No.	Date 1928.	Sta-tions.	Char-acter.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epi-centre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
193	Nov. 20	Bat.	I	P	20	55	5					
				i	20	57	10					
				eL	21	25						
				L	21	51		28.5				
				F	22	41						
		Amb.		P	20	54	58					
				i	20	55	12					
				F	21	2						
	" 21	Amb.		P	13	59,1					(180)	
				S	15	59	27					
				F	14	6						
194	" 21	Bat.	I	e	16	55	26					
				i	17	1	16					
				F	17	12						
195	" 22	Bat.	I	i <sub>N</sub>	8	49	19					
				i <sub>w</sub>	8	55	23					
				i <sub>w</sub>	8	56	38					
				L	9	16,0		18.7				
				eL	9	54		17.8				
				F	9	41						
	" 22	Amb.		iP	22	37	22				210	
				iS	22	37	56					
				F	22	45						
196	" 25	Bat.	I	e	8	19						Boelabaai (Ceram, Moluc-cas.
				F	8	28						
		Amb.		iP	8	14	19				550	
				iS	8	14	57					
				F	8	24						
197	" 24	Bat.	I	P	11	55	27					Benkoelen (S. Sumatra).
				i	11	54	24					
				i	11	55	17					
				F	12	12						
	" 24	Mal.		eP	20	56	13				120	Tjimiring (Banjoemas).
				iS	20	56	27					
				F	20	58						
	" 27	Mal.		P	17	58	2				150	
				iS	17	58	17					
				F	18	0						
198	" 28	Bat.	II <sub>r</sub>	iP	10	46	41					Azimuth E S E.
				i <sub>v</sub>	10	46	55					Dilatation.
				i <sub>v</sub>	10	48	17					Dilatation.
				i	10	52	52					S. Celebes?
				L <sub>v</sub>	10	53						
				M	10	54	52					
				F	12	6						
		Mal.		i	10	46	30					
				i	10	46	51					
				L	10	49		33				
				M	10	55		16				
				F	11	30						
		Amb.		iP	10	45	25					
				i	10	45	59				940	
				iS	10	47	5					
				F	11	55						

No.	Date 1928.	Station.	Char-acter.	Phase.	Time (Greenwich).				Amplitude (half).		Distance of epi-centre.	Remarks.
					h	m	s	sec.	A <sub>E</sub>	A <sub>N</sub>		
199	Nov. 20	Bat.	I	e i L F	18	12,0	21	34				
					18	42		27.8				
200	" 50	Bat.	I	i F	8	45	27					
					8	53						
<b>DECEMBER.</b>												
201	Dec. 1	Bat.	III <sub>u</sub>	i <sub>v</sub> i i <sub>N</sub> i <sub>v</sub> eL M M M F eP i L F	4	25	37					Dilatation. Azimuth ENE?
					4	25	40					
					4	28	7					
					4	28	45					
					4	47	2					
					5	3		46				
					5	6,0		49	190	74.8		
					5	12	44	55	57.4	44.3		
					5	19	57	18	56.9	186.6		
		Mal.		eP i L F	6	46						
					2	25	58					
					4	28	52					
					5	14						
					6	26						
202	" 2	Bat.	I	e i eL M F	4	42						
					4	43	46					
					5	31		22				
					5	44						
					6	21						
203	" 2	Bat.	I	e i F	10	54						
					10	55	27					
					10	59						
—	" 2	Mal.		P S F	11	59	26				150	
					11	59	45					
					11	42						
—	" 2	Amb.		iP iS F	21	30	54				350	
					21	51	52					
					21	54						
204	" 7	Bat.	I	iP <sub>w</sub> iP <sub>v</sub> i F	7	18	48					Compression. In minute eclipse.
					7	18	49					
					7	20,0						
					7	29						
205	" 7	Bat.	II <sub>r</sub>	iP <sub>v</sub> iP <sub>w</sub> S <sub>N</sub> i <sub>N</sub> L <sub>v</sub> L F iP iS L F	9	19	45				5210	Dilatation.
					9	19	46					
					9	24	50					
					9	26	10					
					9	28	45	20.4				
					9	50		29.8				
		Mal.			10	15					2900	
					9	19	40					
					9	24	8					
					9	50						
					9	41						

No.	Date 1928.	Station.	Char-acter.	Phase.	Time (Greenwich).				Amplitude (half)		Distance of epi-centre.	Remarks.
					h	m	s	sec.	A <sub>E</sub>	A <sub>N</sub>		
206	Dec. 8	Bat.	I <sub>v</sub>	P iS i <sub>v</sub> F	9	1	21				260	Compression.
					9	1	50					
					9	2	46					
					9	20						
		Mal.		eP eS F	9	1	42				260	
					9	2	11					
					9	4						
207	" 9	Bat.	I <sub>u</sub>	i <sub>E</sub> i <sub>w</sub> iS F	0	6	42				5480	
					0	7	40					
					0	15	50					
					0	28						
208	" 9	Bat.	I	i <sub>v</sub> i <sub>w</sub> F	5	14	52					Dilatation.
					5	14	55					
					6	0						
209	" 9	Bat.	I	e i F	18	20						
					18	25	52					
					18	46						
210	" 10	Bat.	I <sub>r</sub>	P <sub>s</sub> i S F	4	56	45				1640	Tapanoeli (N. Sumatra).
					4	57	24					
					4	59	52					
					5	0						
211	" 10	Bat.	I <sub>v</sub>	i <sub>v</sub> P <sub>w</sub> S i <sub>w</sub> F	11	46	20				600?	Dilatation.
					11	46	56					
					11	47	25					
					11	48	18					
					11	46						
212	" 11	Bat.	II <sub>v</sub>	iP <sub>w</sub> iS <sub>s</sub> F	22	19	22				160	Compression.
					22	19	41					
					22	53						
		Mal.		P S F	22	19	40				410	
					22	20	26					
					22	25						
—	" 15	Amb.		i L M M F	20	29	41					
					20	37		25.4				
					20	55,4						
					20	57		15.5				
					21	40						
213	" 14	Bat.	I	e i F	2	4,0						
					2	7	19					
					2	18						
214	" 14	Bat.	I <sub>v</sub>	P S F	15	5	55				240	
					15	6	20					
					15	16						
		Mal.		i i i i F	15	6	20					
					15	6	54					
					15	7	5					
					15	8						
215	" 14	Bat.	III <sub>u</sub>	iP P <sub>v</sub> i S L <sub>v</sub> F	11	42	6				5080	NE; Compression.
					11	42	8					
					11	42	48					
					11	48	51					
					11	51		22.0				
					15	26						

No.	Date 1928.	Sta- tion.	Char- acter.	Phase.	Time (G. C. T.)			Period.	Amplitude (half).		Distance of epi- centre.	Remarks.
					h	m	s		A <sub>E</sub>	A <sub>N</sub>		
					h	m	s	sec.	μ	μ	km.	
		Mal.		iP	11	42	14					
				i	11	46	37					
				F	12	20						
—	Dec. 19	Amb.		iP	11	59	48				2450	Azimuth WNW-ESE.
				S	11	45	42					
				i	11	45	54					
				iL	11	50.5		16				
				F	12	6						
216	» 19	Bat.	I	iP <sub>v</sub>	15	25	54					Compression.
				P	15	25	56					
				i	15	30	20					
				F	15	38						
—	» 20	Amb.		P	5	38	27				(80)	
				S	5	38	56					
				F	5	40						
217	» 20	Bat.	I <sub>v</sub>	i	5	29	22					
				i	5	29	56					
				F	5	46						
		Mal.		e	5	29	18				300?	
				S?	5	29	52					
				F	5	36						
218	» 28	Bat.	II <sub>v</sub>	P <sub>v</sub>	12	19	49				220	Dilatation.
				iP <sub>E</sub>	12	19	51					
				i <sub>E</sub>	12	19	53					
				i <sub>v</sub>	12	19	56					Dilatation.
				iS	12	20	14					
				F	12	37						
		Mal.		P	12	20	12				350	
				S	12	20	52					
				F	12	26						
		Amb.	i	P	(12	17	27)					No time eclipses.
				i	(12	21	1)					
				iL	(12	22	4)	22				
				F	(12	35)						
219	» 28	Bat.	I <sub>r</sub>	iP <sub>v</sub>	14	24	30				2670	NE; Compression.
				iP	14	24	31					
				iS	14	28	41					
				i	14	28	50					
				L <sub>v</sub>	15	32		22.3				
				F	15	40						
		Mal.		P	14	24	37				2640	
				i	14	24	45					
				iS	14	28	46					
				F	14	55						
		Amb.		iP	(14	25	43)				360	No time eclipses.
				iS	(14	24	24)					
				F	(14	32)						
220	» 28	Bat.	I	i	17	46	55					
				F	17	54						
221	» 28	Bat.	I <sub>r</sub>	e	18	49.2					(2810)	
				S	18	53	45					
				F	19	4						