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SEISMOLOGICAL BULLETIN 1931.

BATAVIA OBSERVATORY, JAVA.

Foundation: River Quaternary.
Greenwich Civil Time. S. Latitude 6° 11′ 0″. Height above sealevel 8 m.
E. Longitude 7h 7m 20.3s. (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 6th 1908; the vertical seismograph since July 9th, 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 galeries 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 ε, the oscillation period and the coefficient of damping, are determined every week. V, the magnification for very short waves, is determined occasionally only. It is found for the horizontal pendulum by direct measurement, giving the pendulum a 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

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

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

CHARACTER OF THE EARTHQUAKE.

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

(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.

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IASES.

P (undae primae) = 1st preliminary tremors.
S („ secundae) = 2nd „ „
L („ longae) = principal phase, long waves.
M („ maximae) = maximum amplitude.
C (coda) = prominent waves among the after tremors.
F (finis) = end of perceptible movement.
PR_1, PR_2, ... SR_1, SR_2, ... = 1st, 2nd ..... reflected waves of P and S.
PS = waves changed by reflection from longitudinal to transversal oscillation.

WAVE-ELEMENTS, UNITS.

T = complete period in seconds.
A = amplitude, measured from median position in microns.
A_E = E.-W. component of A.
A_N = N.-S. „ „ „
i (impetus) = abrupt commencement, cleary 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. R. A. KERKHOVEN.

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.

MEDAN.

Foundation: Quaternary.

N. Latitude 3° 35′; E. Longitude 98° 41′; Height above sea-level 25 m.
WIECHERT Horizontal Pendulum 1000 kg, NS and EW component. Since July 24th, 1929.
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. 22, 1930. The following table is an extract of these tables.

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

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STANTS.

1931.	E-W component.			N-S component.			V component.		
	V.	T_o.	ε.	V.	T_o.	ε.	V.	T_o.	ε.
January	220	6.7	3.1	200	6.8	3.7	318	4.6	2.3
February	220	6.6	3.3	200	6.8	3.6	318	4.6	2.2
March	220	6.5	3.3	200	6.8	3.7	318	4.8	2.2

	With lifted pen						With writing pen					
	e_o			r			e_o			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
January	1.12	1.12	1.13	0.0	0.0	0.0	1.12	1.13	1.16	0.88	0.51	0.47
February	"	"	"	"	"	"	1.11	1.12	1.15	0.87	0.39	0.53
March	"	"	"	"	"	"	1.11	1.14	1.16	0.91	0.44	0.71

MEDAN: no time marks, January 1-22; no reliable time marks, March 8-31.

JANUARY.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
—	Jan. 1	Amb.	I_v	P_N	16 14 29				270	
				S	16 15 0					
				F	16 22					
—	» 1	Amb.	I_v	P	19 26 31				170	
				S	19 26 51					
				F	19 29					
—	» 2	Bat.	I	eP	23 58 56					
				i	0 3 5					
				i	0 3 39					
				F	0 7					
2	» 2	Bat.	I	iP_v	10 8 10					Dilatation.
				i	10 8 14					
				i	10 29 25					
				i	10 17 38					
				F	10 25					
		Med.	I	P	10 10,1					
				i	10 11,6					
				L	11 0	30				
				L	11 21	24				
				L	11 26,8	22				
				L	11 32,9	20				
				F	11 53					
—	» 4	Med.	I	e?	4 54,8					
				i	4 57,9					
				iS	4 59,4					
				i	5 1,1					
				F	5 9					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
—	Jan. 4	Amb.	I_v	P	16 31 23				590	
				S	16 32 27					
				F	16 35					
—	» 4	Amb.	II_v	P	18 0,9				400	In minute mark.
				iS_N	18 1 38					
				F	18 12					
—	» 4	Med.	I	i	23 54,2					
				i	23 54,4					
				F	23 59					
—	» 7	Med.	I_r	eP	1 2,4				(5000)	
				S	1 9,0					
				i	1 9,2					
				F	1 32					
—	» 7	Amb.	I_r	P_N	12 42 53				2000	
				S_W	12 46 12					
				F	12 52					
—	» 10	Amb.	I_v	eP	10 4 48				300	
				S	10 5 22					
				F	10 9					
—	» 10	Amb.	I_v	P	11 35 22				510	
				iS	11 36 18					
				F	11 41					
3	» 12	Bat.	I	i_W	20 55 4					
				F	20 59					
		Med.	I	i	20 42,2					
				i	20 42,5					
				L	21 12,4		19			
				L	21 18,5		20			
				F	21 55					
4	» 13	Bat.	I	i	21 50 52					
				F	21 56					
5	» 14	Bat.	I_r	eP	1 29 48					Manado and Soela Isl.
				i	1 33 46					
				i	1 35 52					
				F	1 40					
		Amb.	I_v	P	1 28 8				540	
				iS	1 29 7					
				F	1 35					
—	» 14	Med.	I	e	17 12,5					
				i	17 14,6					
				i	17 18,2					
				F	17 23					
6	» 15	Bat.	II_u	i_v	2 9 56					Dilatation.
				i_E	2 10 0					Mexico.
				i_S	2 11 2					
				i_E	2 14 4					
				eL	2 47		37			
				L	2 59 50		37			
				L	3 9 14		22			
				L	3 26 0		36			
				L	3 33 18		30			
				F	4 4					
		Mal.	I_u	i	2 10 49					

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
				eL	3 6					
				L	3 8	22				
				F	3 46					
		Med.	II_u	eP	2 11,2					
				iP	2 12,9					
				L	2 42	39				
				L	2 53,6	43				
				L	3 6,1	28				
				M	3 13,8	20				
				M	3 15	21				
				F	4 21					
		Amb.	II_u	P	2 10 2					
				i	2 12 34					
				i	2 13 27					
				L	2 30	27.5				
				M	3 2	35				
				M	3 5 57	26				
				F	4 9					
7	Jan. 15	Bat.	I_V	eP	18 17 33					Koleberes, W. Priangan (W. Java).
				F	18 20					
		Mal.	I_V	P	18 18 2				90	
				iS	18 18 13					
				F	18 19					
8	» 15	Bat.	I	P	21 8 35					
				i	21 15 54					
				i	21 16 38					
				F	21 26					
9	» 15	Bat.	II	iP	22 49 34					
				i	22 50 38					
				i_E	22 51 4					
				i	22 58 6					
				F	23 39					
		Amb.	I_r	iP	22 46 37				1900	
				iS	22 49 48					
				F	23 32					
—	» 15	Mal.	I_V	P	22 54 50				100	Tjitjoeroeg (W. Priangan).
				iS	22 55 2					
				F	22 56					
10	» 17	Bat.	I	e	3 9,8					
				F	3 23					
11	» 18	Bat.	III_d	iP_V	13 12 6				200	WSW, dilatation.
				iP	13 12 7					West-Java and Lampongs (S. Sumatra).
				i_V	13 12 10					
				iS	13 12 30					Pens off $13^h\ 12^m\ 31^s$ on $13^h\ 18^m$
				F	13 36					
		Mal.	III_V	iP	13 12 55				270	
				iS	13 13 26					
				F	13 20					
		Med.	II_r	P	13 14,3				(1900)	
				S_E	13 17,3					
				i_S	13 17,9					
				i	13 18,1					
				F	13 48					
12	» 19	Bat.	I	eP_V	12 27 52					
				iP	12 27 56					
				i	12 28 49					
				i_E	12 33 11					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half) A_E	Amplitude (half) A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
				P	12 56					
		Med.	I	e	12 50,1					
				i	12 53,0					
				i	12 55,3					
				i	12 59,2					
				F	13 15					
		Amb.	II_V	P	12 23 46				600	
				iS	12 24 51					
				F	13 9					
—	Jan. 20	Amb.	I_V	iP	5 10 8				350	
				iS	5 10 48					
				F	5 37					
13	» 20	Bat.	I	i	9 43 36					
				i	9 45 17					
				i	9 46 23					
				F	9 49					
		Med.	I	eP	9 53,1					
				iS	9 57,6					
				F	10 1					
14	» 20	Bat.	I_r	P	15 28 52				1110	N. Sumatra and Salangor and Negeri sembilan (Malacca).
				S	15 30 29					
				F	15 48					
		Med.	III_V	P	15 21,9				(160)	ESE.
				iP	15 21,1					WNW.
				iS	15 21,4					
				off	15 21,4					
15	» 20	Bat.	III_V	iP	23 44 1				290	Destructive at Boemiajoe (C. Java).
				iS	23 44 34					
				F	24 31					
		Mal.	III_V	iP	23 44,3				(120)	In minute mark.
				S	23 44 45					
				F	24 0					
—	» 24	Med.	I_V	P	13 22 42				210	
				S	13 23 6					
				F	13 26					
16	» 24	Bat.	I_r	iP	13 46 42				1680	
				S	13 49 33					
				F	14 8					
		Mal.	I	i	13 48 45					
				i	13 50 12					
				F	13 52					
		Med.	II_r	P	13 46 56				4500	
				i	13 48 23					
				iS	13 53 0					
				F	14 52					
		Amb.	I	i	13 45 45					
				i	13 48 40					
				L	13 52 43	17				
				F	14 13					
—	» 27	Amb.	I_V	P	6 46 22				300	
				iS	6 46 56					
				F	6 59					
17	» 27	Bat.	III_r	eP_V	13 13 54					WNW, faint dilatation followed by strong compression.
				iP_V	13 13 55					
				iP	13 13 57					
				L_V	20 25,3	33				Kamaing, India.

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
				i	20	17	58					
				i_{NS}	20	28	3					
				F	21	19						
		Med.	III_r	P	20	14	15				2610	
				iP	20	14	18					
				S	20	18	22					
				F	21	58						
		Amb.	I_u	P	20	18	12				5030	
				i S	20	24	35					
				L	20	27.6		17				
				F	21	4						
18	Jan. 28	Bat.	II	iP_v	21	31	52					Dilatation.
				iP	21	31	55					
				i	21	33	28					
				i_{EW}	21	42	0					
				eL_v	21	44.5		24				
				F	22	17						
		Med.	II_u	eP	21	32	30				5250	
				iS	21	39	20					
				F	23	10						
		Amb.	II	iP	21	29	3					
				F	22	45						
—	» 29	Med.	I	i_N	17	21	27					
				i_E	17	22	58					
				F	in next.							
—	» 29	Med.	I	i_N	17	42	46					
				F	18	0						
—	» 30	Med.	I_u	i	3	37	35				5840?	
				S?	3	44	59					
				F	4	4						
—	» 31	Med.	I	e_{NS}	20	54	12					
				i	20	55	51					
				F	21	9						

FEBRUARY.

—	Feb. 1	Mal.	I_v	P	6	50	30				70	
				Si	6	50	38					
				F	6	52						
—	» 2	Med.	I	e	3	47						
				i_w	3	48	44					
				F	4	5						
19	» 2	Bat.	III_u	iP_v	22	57	59				7890	SE, dilatation. New Zealand.
				iP	22	58	4					
				iP_v	22	58	5					
				i	22	59	41					
				iS	23	7	15					
				i	23	8	0					
				L	23	16	33	42.5				
				L	23	25.5		23.3				
				M	23	27	5	21.0				
				M	23	29		21.0				
				F	23	7						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epicentre.	Remarks.
									μ	μ	km.	
		Mal.	II_u	iP	22	57	58				7670	
				i	23	6	0					
				iS	23	6	58					
				L	23	15		20.0				
				M	23	22	3	30				
				L	23	48		15.0				
				F	24	10						
		Med.	III_u	P	22	59	5					
				S	23	9	51					
				i	23	15	3					
				L	23	28		37				
				L	23	29	32	26.5				
				M	23	31	32	26				
				M	23	35	18	20				
				F	26	18						
		Amb.	II_u	iP	22	55	26				7350	
				i	22	55	50					
				S	23	4	10					
				L	23	10	55					
				M	23	21	10					
				F	24	37						
—	Febr. 4	Med.	I	e	6	42	32					
				F	6	55						
—	» 7	Med.	I	e	1	16	44					
				F	1	29						
20	» 8	Bat.	I	i_v	1	55	4					
				i	1	55	6					
				i_N	2	5	30					
				F	2	12						
		Med.	I	e	1	56	10					
				i	2	6	44					
				F	2	13						
21	» 10	Bat.	I_r	e	1	30,6						Kamaing, India.
				i	1	40	9					
				i	1	41	44					
				F	2	5						
		Med.	III_r	P	1	27	40				2750	
				S?	1	31	57					
				i	1	35	45					
				F	1	46						
22	» 10	Bat.	I_v	P	5	59	42				420	S. Sumatra.
				S	6	0	29					
				F	6	17						
		Mal.	I_v	eP	6	0	0				450	
				S	6	0	30					
				F	6	8						
		Med.	I	e	6	1	9					
				F	6	24						
23	» 10	Bat.	III_d	iP	6	35	37				450	WNW, compression. S. Sumatra and W. Java.
				iS	6	36	26					
				off	6	37	37					
				on	6	38						
				F	8	39						
		Mal.	III_v	iP	6	35	52					
				i	6	35	59					
				F	6	50						

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No.	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
		Med.	III_r	iP	6 36 37				(1280)	No minute marks.
				i	6 37 39					
				iS	6 38 51					
				F						
		Amb.	II	e_N	6 39 51					
				L	6 49 27	26				
				F	7 54					
—	Feb. 11	Med.	I	e	18 15,6					No minute marks.
				e	18 23,0					
				L	18 47	26				
				M	18 51	22				
				F	19 13					
—	» 12	Med.	I_u	P	0 52,1				(6100)	P uncertain.
				S	0 59 45					
				i	1 0 49					
				i	1 11 30					
				F	1 26					
—	» 12	Mal.	I	P	4 18 7				110	
				iS	4 18 20					
				F	4 20					
24	» 12	Bat.	III_v	P_v	5 44 8				430	WNW; compression.
				P	5 44 9					S. Sumatra and Bantam.
				i_w	5 44 12					
				i_v	5 44 13					
				i_N	5 44 15					
				S	5 44 38					
				F	6 36					
		Mal.	II_v	P	5 45 19				660?	
				S?	5 46 30					
				F	6 10					
		Med.	III_r	P	5 46 22				1330	
				i	5 46 41					
				S	5 48 41					
				F	7 47					
		Amb.	I	P	5 49 47					
				L	5 58	27				
				F	6 17					
25	» 13	Bat.	I_v	P	0 46 31				620	
				S	0 51 49					
				F	1 2					
		Med.	I_r	iP	0 47 23				3020	
				iS	0 51 59					
				F	1 23					
26	» 13	Bat.	II_u	iP	1 38 35				7980	New Zealand.
				S	1 47 58					
				i_v	1 48 32					
				L	1 57 26	25.5				
				L_v	1 57 26	23				
				L	2 5 36	21				
				M	2 8,4	20				
				M_v	2 10,4	19.5				
				F	3 18					
		Mal.	I_u	P	1 38 23				7820	
				S	1 47 31					
				eL	2 4	20.0				
				M	2 7 30	18.8				
				F	2 44					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
		Amb.	II_u	P	1 36 59					
				S	1 40 30					
				L	1 51 24	26				
				M	2 3 37	17				
				F	3 15					
		Med.	II_u	P	1 38 38					
				S	1 48 59					
				L	2 6	26				
				M	2 10	24				
				M	2 17	19.5				
				F	4 35					
—	Feb. 13	Med.	I	e	11 43 21					
				F	11 54					
27	» 13	Bat.	I	eP	22 26 40					
				F	22 43					
		Med.	I	e	22 20 28					
				L	22 22	28				
				i	22 23 15	14				
				i	22 26 46					
				F	22 51					
28	» 14	Bat.	III_v	eP	13 59 52				480	About NW.
				i	13 59 59					Bantam (W. Java).
				i	14 0 7					
				S	14 0 45					
				F	14 57					
		Mal.	II_v	P	14 0 13				590	
				S	14 1 17					
				F	14 16					
		Med.	III_r	P	14 1 12				1240	
				iS	14 3 22					
				F	16 18					
29	» 15	Bat.	I_v	P_w	13 28 52				330	S. Sumatra.
				S	13 29 30					
				F	13 36					
30	» 16	Bat.	I_u	P_E	18 58 30				6480	
				S	19 6 29					
				F	19 14					
		Med.	I_u	e	18 58 33				(5780)	
				i	19 5 54					
				L	19 18 47	20,0				
				F	19 33					
—	» 18	Mal.	I_v	eP	2 8 37				(40)	
				iS	2 8 41					
				F	2 10					
31	» 18	Bat.	I_u	e	19 15,6					
				i	19 20 44					
				F	19 31					
		Med.	II_u	P	19 18 2				8270	
				i	19 26 15					
				iS	19 27 31					
				F	19 47					
32	» 19	Bat.	III_v	iP_v	17 41 28				550	WNW, compression.
				iP	17 41 33					S. Sumatra.
				iS	17 42 33					
				F	in next.					

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No.	Date 1931.	Station	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
		Mal.	II_v	iP_1	17	41	58				540	
				iP_2	17	42	14					
				iS_1	17	42	57					
				iS_2	17	43	14					
				F	18	12						
		Med.	III_r	eP_{NS}	17	42	55				1570	
				i	17	43	33					
				iS	17	45	36					
				F	in next.							
		Amb.	I	eP	17	46	11				(3780)	
				i	17	51	34					
				L	17	56		30				
				F	in next.							
33	Feb. 19	Bat.	III_v	iP_v	18	25	21				550?	Compression.
				iP	18	25	25					Cocos Islands.
				S?	18	26	33					
				F	19	12						
		Mal.	I_v	P	18	24	47				430	
				S	18	25	35					
				F	18	34						
		Med.	III_v	i	18	27	49				(930)	
				i	18	29	29					
				F	19	2						
		Amb.	I	i	18	50	21					
				F	18	51						
—	» 19	Amb.	I	i	21	37	15					
				i	21	40	38					
				F	21	45						
34	» 20	Bat.	II_u	iP_v	5	42	29				5840	ENE, compression.
				iP	5	42	30					
				iS	5	49	54					
				F	6	29						
		Mal.	I_u	P	5	42	40				6320	
				eS	5	50	30					
				F	5	54						
		Med.	III_u	iP	5	42	8				5350	
				iS	5	49	5					
				i	5	50	6					
				F	6	36						
		Amb.	I	iP	5	41	33					
				F	6	12						
35	» 22	Bat.	I_v	eP	10	33	43				970?	Moeara Mentalla, S. E. Borneo?
				S?	10	35	26					
				F	10	47						
36	» 22	Bat.	I	eP	21	30	19					Flores?
				i	21	31	34					
				i	21	38	35					
				F	21	53						
		Med.	II_r	eP	21	32	48				2140	
				i	21	33	23					
				iS	21	36	19					
				F	22	7						
37	» 23	Bat.	I_r	P	5	28	18					Flores??
				i	5	29	35					
				i	5	32	33					
				L_v	5	35,6		13				
				F	5	41						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
		Med.	I_r	P	5	30	30				3890	
				i	5	31	59					
				iS	5	35	59					
				i	5	35	40					
				F	6	3						
38	Feb. 24	Bat.	I_r	P_v	17	31	0				1600	Bima Soembawa and Waingapoe Soembawa, (Minor Sunda I.).
				eP	17	31	29					
				iP_v	17	31	31					
				S_{NS}	17	34	15					
				F	17	55						
		Med.	I_r	P	17	34	1				3190	
				S	17	38	47					
				i	17	43	10					
				F	18	4						
39	» 26	Bat.	I_v	eP	8	36	43				260	
				S	8	37	12					
				F	8	41						
—	» 26	Amb.	I_v	P	10	3	11				260	
				iS	10	3	40					
				i	10	3	49					
				F	10	13						
—	» 26	Mal.	I_v	P	21	50	20				130	
				iS	21	50	35					
				F	21	52						
40	» 27	Bat.	II_r	P_v	9	42	14				2380	NE, compression.
				P	9	42	24					Menado (N. Celebes).
				S	9	46	14					
				L_v	9	50	13		24			
				F	10	11						
		Med.	II_r	P	9	43.7					(3410)	No minute marks.
				iS	9	48.7						
				F	10	23						
		Amb.	II_v	iP	9	39	10				690	
				iS	9	40	24					
				F	10	11						
41	» 27	Bat.	I_r	i	11	16	51					Menado.
				F	11	22						

MARCH.

42	March 2	Bat.	I_u	iP_v	2	29	36				7070	Compression.
				eP	2	29	38					
				iP_v	2	29	42					
				iP	2	29	44					
				iS	2	38	6					
				L	2	48.5			40			
				F	3	13						
		Med.	I	P	2	31	46					
				i	2	41	11					
				L	2	59.4			25			
				F	3	41						
		Amb.	I	P	2	26	39					
				i	2	64	45					
				i_N	2	28	38					
				F	3	5						

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	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
3	March 2	Bat.	I_r	i_W	7	30	14					Manado.
				F	7	50						
		Med.	I_r	eP	7	32	30				3330	
				S	7	37	25					
				i	7	38	38					
				F	7	56						
		Amb.	I_v	iP	7	26	13				520	
				iS	7	27	10					
				F	7	49						
	» 3	Amb.	I_v	P	6	7	(50)				(40)	In minute mark.
				iS	6	7	55					
				F	6	11						
4	» 4	Bat.	I_v	eP_v	4	57	51				320	Compression.
				eP	4	57	56					S. Sumatra.
				iP_v	4	58	6					
				S	4	58	27					
				F	5	6						
5	» 5	Bat.	I_r	i_N	18	2	41					Teupah, Atjeh (N. Sumatra).
				L_v	18	4	20	20				
				i_E	18	5	0					
				L_v	18	11	10	15				
				F	18	15						
		Med.	II_v	iP	18	1	4				380	Azimuth WSW.
				iS	18	1	47					
				F	18	13						
	» 7	Amb.	II_v	P	4	24.0					(80)	In minute mark.
				iS	4	24	10					
				F	4	42						
6	» 7	Bat.	I	e	10	10	55					
				e	10	13	55					
				i	10	18	8					
				F	10	27						
	» 8	Med.	I	eP	0	55	39					
				i	0	56	15					
				i	1	5	51					
				L	1	16	46	25				
				L	1	31	36	81				
				F	2	3						
7	» 8	Bat.	I_u	eP	2	4	0				(9900)	Azimuth NNW.
				iS	2	14	46					Balkan.
				i_W	2	16	28					
				L	2	44	48	23				
				F	2	50						
8	» 9	Bat.	II_u	P_v	3	59	13				6420	
				iP	3	59	14					
				iS	4	7	9					
				i	4	9	6					
				L	4	19	28	31				
				L_v	4	19	28	30				
				L	4	24.5		19				
				M	4	26	43	15				
				F	5	12						
		Med.	II_u	iP	3	57	58				6250	
				iS	4	5	44					
				i	4	6	50					
				L	4	15.9		38				

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude half. A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
				M	4	20.6		20				
				F	5	19						
		Amb.	I_u	iP	3	57	17				5220	
				i	3	57	34					
				iS	4	4	5					
				L	4	13		22				
				F	4	54						
—	March 11	Med.	I_r	eP	4	4	57				3540	
				iS	4	10	5					
				i	4	10	20					
				F	5	30						
49	» 11	Bat.	I_r	iP_v	6	4	24				2640	Dilatation.
				P_{EW}	6	4	25					
				S	6	8	33					
				F	6	29						
		Amb.	II_v	P	5	59	53				350	
				iS	6	0	13					
				F	6	16						
—	» 11	Med.	I	P	10	19	31					
				i	10	20	55					
				i	10	25	23					
				i	10	25	57					
				L	10	36		22				
				F	11	21						
50	» 11	Bat.	I	iP_v	12	35	44					Compression.
				P_E	12	35	47					
				i	12	36	45					
				i	12	37	50					
				i	12	42	27					
				i	12	43	17					
				L	13	53	27	18				
				L_v	13	53	45	20				
				L_v	13	57	40	18				
				F	13	14						
		Amb.	I	e	12	33	2					
				L	12	42		18				
				F	13	12						
—	» 11	Amb.	I	i	16	3	22					
				F	16	15						
—	» 11	Med.	I	eP	18	48	29					
				i	18	50	6					
				F	19	12						
—	» 12	Amb.	I_v	P	4	48	16				310	
				S	4	48	51					
				F	4	53						
51	» 12	Bat.	I	i_v	10	49	43					
				i	10	49	43					
				i	10	56	27					
				F	11	5						
—	» 12	Med.	I	eP	11	0	28					
				i	11	8	52					
				F	11	55						
—	» 12	Med.	I_v	P	18	46	0				380	
				S	18	46	43					
				F	19	8						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half) A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
—	March 24	Amb.	I_V	P	11	30	5				140	
				S	11	30	19					
				F	11	33						
58	» 27	Bat.	I_V	P_V	23	47	4				540	Compression.
				P	23	47	5					S. Sumatra.
				i_V	23	47	42					
				iS^V	23	48	1					
				S	23	48	4					
				i_V	23	48	27					
				F	24	7						
59	» 28	Bat.	I_V	P	8	27	7				340	S. Sumatra.
				S	8	27	46					
				F	8	35						
—	» 28	Amb.	I_V	eP	9	56	54				480?	
				S?	9	57	47					
				F	10	6						
60	» 28	Bat.	III_r	iP_V	12	43	33				I 2540	Az. WNW; dilatation.
				iP_1	12	43	54				II 2300	Probably two schocks.
				iP_2	12	44	37					S. Moluccas.
				S_1	12	47	36					
				S_2	12	48	36					
		Amb.	III_V	iP	12	39	48				140	Azimuth NW.
				iS	12	40	4					
				F	14	52						
		Med.	III_u	iP	12	38	6				6900	Azimuth NW.
				S	12	46	28					
				F	14	8						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half) A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
	March 13	Amb.	I	eP	21	48	19					
				i	21	51	13					
				F	21	56						
52	» 18	Bat.	I	i	8	25	14					
				L	8	54		25				
				M	9	20		15				
				F	9	52						
		Med.	II	e	8	22	3					
				i	8	44	48					
				L	9	5		20				
				M	9	12		18.5				
				F	10	30						
53	» 18	Bat.	I	i_{NS}	10	37	8					
				F	10	42						
		Mal.	I_V	P	10	37	1				330	
				iS	10	37	39					
				F	10	40						
54	» 18	Bat.	II_r	iP_V	20	18	41				1530?	Az. ENE; compression.
				iP	20	18	43					Sangir Isl. (N. Celebes).
				S?	20	21	20					
				F	20	52						
		Mal.	I	P	20	18	44					
				F	20	32						
		Amb.	II_r	iP	20	16	0				1070	Azimuth WNW.
				S	20	17	53					
				F	21	10						
		Med.	II_r	iP	20	16	29				3520	
				i	20	16	51					
				S?	20	21	36					
				F	21	36						
55	» 18	Bat.	I_V	P_W	21	55	46				430	Benkoelen (S. Sumatra).
				S_S	21	56	34					
				F	22	10						
		Med.	I_r	eP	21	57	21				1250	
				eS	21	59	32					
				i	22	0	2					
				F	22	10						
	» 18	Med.	I	i	22	19	9					
				F	22	31						
56	» 19	Bat.	II_r	iP_V	6	30	51				3390	Faint dilatation, strong
				P_N	6	30	54					compression.
				S	6	35	50					Hong Kong.
				i	6	36	21					
				F	7	12						
		Amb.	I_r	P	6	30	6				2830	Azimuth NNW.
				S	6	34	29					
				i	6	41	14					
				F	7	3						
		Med.	II_r	iP	6	25	33				2360	
				iS	6	29	21					
				i	6	30	33					
				F	7	37						
57	» 22	Bat.	I_V	e_{NS}	0	41	45					
				S	0	42	22					
				F	0	45						
		Mal.	I_V	eP	0	41	3				200	
				iS	0	41	26					
				F	0	43						

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SEISMOLOGICAL BULLETIN 1931.

BATAVIA OBSERVATORY, JAVA.

CONSTANTS.

1931.	E-W component.			N-S component.			V component.		
	V.	T_o.	ε.	V.	T_o.	ε.	V.	T_o.	ε.
April	220	6.3	2.9	200	6.7	3.6	330	4.6	2.7
May	„	6.5	3.1	„	6.7	3.6	„	4.6	2.2
June	„	6.6	3.3	„	6.7	3.6	„	4.6	2.5

	With lifted pen						With writing pen					
	e_o			r			e_o			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
April	1.12	1.12	1.13	0.0	0.0	0.0	1.10	1.12	1.14	0.98	0.47	0.64
May	„	„	„	„	„	„	10.9	1.16	1.14	0.89	0.45	0.69
June	„	„	„	„	„	„	1.14	1.14	1.14	0.85	0.42	0.52

APRIL.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epicentre.	Remarks.
									A_E	A_N		
					h	m	s	sec.	μ	μ	km.	
—	April 1	Med.	I	eP	1	56	11					
				i	1	57	16					
				F	2	4						
—	„ 2	Med.	I	e	0	57						
				i	0	59	44					
				i	0	41	23					
				F	0	57						
—	„ 2	Amb.	I_v	iP	12	23	38				380	
				iS	12	24	21					
				F	12	39						
—	„ 3	Amb.	I_v	iP	19	14	54				420	
				S	19	15	41					
				F	19	23						
16	„ 3	Bat.	I_u	iP_v	23	29	39				6890	WNW; dilatation.
				iP	23	29	40					
				iS	23	38	1					
				F	23	53						
		Med.	I	P	23	24.4						No minute marks.
				i	23	25.4						
				i	23	25 8						
				i	23	34.1						
				F	23	56						
		Amb.	I_r	iP	23	28	28				4980	NNW.
				iS	23	35	2					
				F	24	52						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h m s	Period.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	April 4	Amb.	III$_d$	iP	14 5 38				(80)	
				off	14 5 48					
62	» 5	Bat.	I	eP	21 39 26					
				e	21 45,1					
				F	21 55					
63	» 6	Bat.	I$_r$	iP$_v$	6 58 19				4970	SE, compression.
				P	6 58 22					
				S	7 4 55					
				L	7 15	28				
				L	7 22	18				
				F	7 38					
		Med.	I$_v$	P	6 59 29					
				S	7 7 17					
				i	7 7 55					
				F	in next.					
		Amb.	I$_r$	iP	6 54 17				4260	S.
				S	7 0 6					
				F	7 28					
—	» 6	Med.	II$_v$	P	7 24 4				320	Teupah, Atjeh.
				iS	7 24 40					
				F	7 58					
—	» 7	Mal.	I$_v$	eP	19 4 26				80	
				iS	19 4 36					
				F	19 5					
—	» 8	Mal.	I$_v$	iP	8 32 28				150	
				iS	8 32 43					
				F	8 35					
64	» 8	Bat.	I	eP	19 9 44					
				e	19 17 24					
				i	19 18 55					
				F	19 27					
		Amb.	I$_r$	P	19 5 42				1080	
				iS	19 7 36					
				L	19 9 28	27				
				M	19 10 15	15				
				F	19 29					
65	» 9	Bat.	I$_v$	iP	1 0 47				150	NE, dilatation.
				iS	1 1 4					West Priangan (W. Java).
				F	1 7					
		Mal.	II$_v$	iP	1 0 43				110	
				iS	1 0 56					
				F	1 6					
66	» 9	Bat.	I$_v$	iP	19 53 0				150	Dilatation.
				iS	19 53 17					Djampang Koelon (W. Priangan).
				F	19 57					
		Mal	I$_v$	iP	19 52 56				90	
				iS	19 53 7					
				F	19 55					
67	» 9	Bat.	I	e	23 11 25					
				i	23 19 56					
				F	23 29					
68	» 10	Bat.	I	e	12 9 41					
				F	12 21					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h m s	Period. sec.	Amplitude (half) A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	April 11	Med.	I$_r$	P	2 13 21				1070	
				S	2 15 14					
				F	2 25					
69	» 12	Bat.	I	e	2 11,1					
				i	2 19 44					
				L$_{NS}$	2 34	21				
				M	2 35	20				
				F	2 50					
		Med.	I	eP	2 13					
				i	2 22 37					
				L	2 40,7	18				
				F	3 5					
70	» 15	Bat.	I$_v$	P$_{EW}$	6 9 13				200	
				S	6 9 36					
				F	6 16					
71	» 16	Bat.	I$_r$	eP	11 58 33				1720	
				eS	12 1 28					
				F	12 19					
		Med.	I$_r$	P	12 0 54				2460	
				iS	12 4 50					
				i	12 8 34					
				F	12 30					
		Amb.	I	i	11 58 53				(3520)	
				i	12 4 0					
				F	12 18					
—	» 17	Amb.	I$_v$	iP	9 7 57				410	
				S	9 8 43					
				F	9 17					
—	» 18	Amb.	I	P	18 41 12					
				F	18 47					
72	» 21	Bat.	I	e$_{EW}$	23 52.0					
	» 22			e$_{EW}$	0 0.8					
				i	0 14 59					
				F	0 34					
	» 22	Med.	I	i	0 3 32					
				F	0 52					
73	» 24	Bat.	I	e	5 48 54					
				F	6 6					
		Mal.	I$_v$	P	5 48 35				570	
				iS	5 49 37					
				F	5 55					
—	» 24	Amb.	I$_v$	P	13 26 26				830?	
				S?	13 27 55					
				F	13 31					
74	» 24	Bat.	II$_v$	iP$_v$	16 3 52				250	WSW, compression.
				iP	16 3 53					Lampongs, S. Sumatra.
				iS	16 4 19					
				F	16 16					
		Mal.	I$_v$	P	16 4 13				380	
				S	16 4 56					
				F	16 7					
		Med	I$_r$	P	16 5 58				2510	
				S	16 9 48					
				F	16 19					

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
75	April 24	Bat.	II_u	iP	17	30	55				5000	ESE;
				S	17	37	36					
				i_{NS}	17	38	31					
				L_v	17	46,2		30				
				F	18	2						
		Mal.	I_u	iP	17	31	1				5050	
				S	17	37	39					
				F	17	45						
		Med.	II_u	iP	17	32	2				6330	
				iS	17	39	55					
				F	18	33						
		Amb.	II_r	iP	17	27	55				2940	SSW,
				iS	17	32	26					
				i	17	33	11					
				L	17	40,8		16				
				F	18	4						
—	» 25	Med.	I_v	eP	9	22	19				200	Tapanoeli, N. Sumatra.
				iS	9	22	42					
				F	9	27						
76	» 25	Bat.	I_v	iP_v	20	39	36				150	NE, dilatation.
				iP	20	39	37					West Priangan.
				iS	20	39	54					
				F	20	45						
		Mal.	I_v	P	20	39	41				140	
				iS	20	39	57					
				F	20	45						
77	» 27	Bat.	I	eP	17	2	39					
				i	17	11	25					
				i	17	12	52					
				F	17	28						
		Med	I	eP	17	0	57					
				i	17	10	13					
				F	17	50						
—	» 30	Med.	I_v	P	10	25	55				170	Taroetoeng, Tapanoeli.
				iS	10	26	15					
				F	10	31						

MAY.

78	May 2	Bat.	I_v	eP	5	26	54				550	Benkoelen, S. Sumatra
				S	5	27	54					
				F	5	35						
		Med.	I_v	eP	5	28	19				480	
				eS	5	29	12					
				i	5	29	49					
				F	5	41						
—	» 3	Med.	I	e	19	22,4						
				i	19	24	55					
				F	19	36						
—	» 4	Med.	I_r	P	2	51	55				2010	
				S	2	55	15					
				F	3	15						

No.	Date 1931.	Station.	Character.	Phase	Time (G. C. T.). h	m	s	Period. sec.	Amplitude half. A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	May 7	Mal.	I_v	eP	4	21	1				100	
				iS	4	21	15					
				F	4	23						
—	» 7	Amb.	I_v	P	19	34	9				380?	
				S?	19	34	52					
				F	19	37						
—	» 9	Amb.	I_v	iP	20	32	0				50	
				iS	20	32	7					
				F	20	35						
—	» 10	Med.	I_v	P	3	4	8				240	
				S	3	4	35					
				i	3	4	48					
				F	3	14						
79	» 12	Bat.	I_u	iP_v	1	48	28					Compression.
				iP	1	48	30					ESE.
				i	1	57	51					
				F	2	2						
		Med	I_u	P	1	48	6				7320	
				iS	1	56	59					
				i	1	59	29					
				F	2	5						
—	» 12	Amb.	I_v	iP	17	11	15				180	Dilatation.
				S	17	11	56					
				F	17	17						
—	» 13	Amb.	I_v	eP	7	31	43				870	
				S	7	33	16					
				F	7	42						
80	» 13	Bat.	I	P_w	7	53	25					
				i	8	0	9					
				i	8	1	21					
				F	8	9						
		Med.	I_r	P_{NS}	7	53	50					
				iS	7	59	3				3630	
				F	8	21						
—	» 14	Amb.	I	i	2	55	37					
				i	3	3	3					
				F	3	4						
81	» 15	Bat.	I_u	iP_v	7	52	38					Dilatation.
				P	7	52	39				7120	WNW?
				iS	8	1	14					
				F	8	8						
		Med.	I	P	7	53	42					
				i	8	3	14					
				F	8	10						
82	» 20	Bat.	I	eP	2	33	45					
				eL	3	25						
				L	3	30						
				M	3	35			20			
				L	3	51						
				F	4	4						
		Amb.	I	i	2	42	37					
				L	3	11			20			
				L	3	32,4			35			
				F	4	2						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
		Med.	II	e	2	40	57					
				i	2	49	32					
				i_E	2	52	29					
				L_{NS}	3	9,2		40				
				M	3	27						
				F	4	27						
83	May 20	Bat.	I	i	5	26	53					
				F	5	36						
		Med.	I_u	iP	5	14	56				5460	
				S	5	21	59					
				F	5	37						
—	» 20	Amb.	I_v	P	16	51	32				60	
				iS	16	51	39					
				F	16	58						
—	» 20	Amb.	I_v	iP	18	58	35				160	
				iS	18	58	54					
				F	19	10						
84	» 24	Bat.	I_r	P	0	18	27				2930	
				iS	0	22	57					
				F	0	36						
		Amb.	I	e	0	16	27					
				F	0	23						
		Med	I_r	P	0	18	53				2650	
				iS	0	23	3					
				i	0	23	26					
				i	0	32	17	14				
				F	0	42						
85	» 24	Bat.	I	P	21	25	48					
				F	21	40						
		Amb.	I	i	21	23	46					
				i	21	37	15					
				F	21	40						
—	» 27	Med.	I	P	0	54	24					
				i	0	55	31					
				i	0	56	47					
				F	1	7						
—	» 27	Mal.	I_v	P	18	27	53				160	
				iS	18	28	11					
				F	18	30						
86	» 29	Bat.	I_v	P	2	8	58				200	
				S	2	9	21					
				F	2	12						
		Mal.	I_v	P	2	8	56				190	
				S	2	9	18					
				F	2	11						

JUNE.

No.	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
87	June 1	Bat.	I	i	12	9	22					
				F	12	17						
88	» 2	Bat.	I_u	P	2	46	32				5220	
				iS	2	53	20					
				F	2	59						
89	June 2	Bat.	I	i	3	40	53					
				F	3	47						
		Med.	I	eP	3	33	57					
				i	3	34	45					
				F	3	43						
90	» 2	Bat.	I_v	P	11	12	48				460?	Boemiajoe, Central Java.
				S?	11	13	39					
				F	11	20						
—	» 2	Med.	I	eP	16	34						
				F	16	41						
91	» 3	Bat.	I_r	eP	14	5	12				2330	
				S_{NS}	14	8	58					
				F	14	16						
92	» 4	Bat.	II_r	iP_v	9	55	18					Dilatation.
				iP_w	9	55	19					Ceramond Banda, Moluccas.
				F	10	16						
		Amb.	III_v	iP	9	51	6				380	Azimuth SE.
				iS	9	51	49					
				F	10	18						
		Med.	I	eP	9	57	45					
				i	10	0	17					
				i	10	5	38					
				i	10	7	49					
				F	10	29						
—	» 8	Amb.	I_v	iP	14	28	11				260	
				S	14	28	41					
				F	14	40						
—	» 9	Med.	I	e	12	52	34					
				F	13	3						
—	» 9	Med.	I	i	16	21	59					
				L	16	52.0		20				
				F	17	14						
—	» 10	Med.	I_v	eP	12	24	17				750	
				S	12	25	38					
				F	12	33						
93	» 16	Bat.	I_v	P	22	1	58				180	Dilatation.
				iP_v	22	2	2					Tjibitoe, C. Priangan (W. Java).
				iS	22	2	19					
				F	22	6						
		Mal	I_v	iP	22	2	8				160	
				iS	22	2	26					
				F	22	4						
94	» 17	Bat	I_v	P	11	1	53				240	
				iS	11	2	20					
				F	11	10						
—	» 17	Amb.	I_r	iP_N	17	6	10				2160	
				iS	17	9	42					
				F	17	22						
		Med.	I_u	iP	17	8	42				5460	
				iS	17	15	45					
				i	17	16	10					
				F	17	34						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half) A_E	A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
—	June 21	Mal.	I_v	eP	22	59	37				60	
				iS	22	59	44					
				F	23	0						
—	» 23	Med.	I_v	iP	3	11	1				290	Atjeh.
				iS	3	11	34					
				F	3	17						
95	» 23	Bat.	I_u	iP_v	6	24	16				5920	Compression. Azimuth SSW.
				iP	6	24	20					
				iS	6	31	44					
				F	6	40						
		Amb.	I_r	P	6	22,7					(4740)	
				iS	6	28	59					
				F	6	36						
		Med.	I	i	6	24	25					
				L	6	47						
				F	7	4						
—	» 23	Mal.	I_v	P	18	58	37				160	
				iS	18	58	55					
				F	19	0						
—	» 24	Mal.	I_v	P	13	6	22				150	
				iS	13	6	39					
				F	13	8						
—	» 25	Med.	I	eP	0	51	16					
				i	0	53	56					
				F	1	4						
96	» 26	Bat.	I_v	P	6	0	34				260	E. Pringan (W. Java). Dilatation.
				iP_v	6	0	38					
				iS	6	1	4					
				i	6	2	3					
				F	6	9						
		Mal.	II_v	P	6	0	24				150	
				iS	6	0	39					
				F	6	4						
97	» 27	Bat.	I	e	18	0,8						Padang (W. Sumatra).
				F	18	8						

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Batavia Observatory.

We acknowledge with thanks the receipt of the following bulletins.

Adelaide	1929,No.1-4	Ottawa	1931,13-26
,, prel.	1931,May-August	Oxford	1927,July-Sept.
Apia	1931,Feb.-June	Paris	1931,Avril-Juin
Barcelona	1930,141-1931,146	Pasadena	1931,22-24
Beograd	Ann.micr.1930	Perth	1931,8-9
Berkeley	1930,Vol.2,No.20	,, prel.	1931,Aug.7
Buffalo	1931,March,April	Phu Lien	1930,Aout-Sept.; Nov.-Déc. 1931,Janvier.
Cartuja	1931,No.1-2	,, spéc.	1931,Aout-Sept. 9
Crimée	1929,1-4	Riverview	1928,7-12
Denver	1931,No.2-3	,, prov.	1931,6-8
Espâna	1930,74-75	Roma Boll.sett.	1931,703-720.
Florissant	1931,12-25	Saint Louis	1931,7-19
Göttingen	1929-1931,März	,, prel.	1931,23-43
Graz	1930,No.10-1931,No. 5	San Fernando	1931,2-3
Hamburg	1931,4-6	Stonyhurst	1928,4-16
Helwan	1931,May-July	Strasbourg	1931,Avril-Juin
Hong Kong	1931,March-June	,, bull.d'éch.	1931,9-10
,, princ.e'qu.	1931,May-Aug.	,, bull.bibl.	1931,3
Innsbruck	1930,No.3-4	Stuttgart	1931,1.Halbjahr
Kew	1931,April-July	Sydney	1931,April-July
Kobe	1930,Vol.6,No.4-1931,Vol.7,No.1	Tananarive	1930,Nov.-1931,Févr.
Köbenhavn	1928,5-8	Taunus(Frankfurt)	1931,S.3-9
Koti	1931,1-5	Uccle	1931,1-2
,, prel.	1931,April-June	U.R.S.S.	1929,10-12;1930,4-9
La Paz	1930,26-38	Washington, Georgetown	1931,173-177
La Plata	1931,3-5	Washington, USCGS.Rep.	1930,July-Oct.
Lemberg	1930,No.3-1931, No.2	Washington, prel.det.	1931,Apr.15-Aug.16
Little Rock	1931,1-11	Wien	1930,No.8-1931,No.4
Manilla	1930,July-December	Wellington	1931,30,33-35
,,	1931,23-44	Zagreb	1930,25-37
,, spec.	1931,May-Aug.	Zi-ka-wei	1931,6-9
,, USCGS	1931,May 20-Sept.9	,, prel.	1931,May-June
Melbourne	1931,14	Zürich	1931,26-27
Nagasaki	1931,3-5		
New York Fordham	1931,Feb.-April		
Numazu	1931,Apr.-May		
Osaka	1930,July-Dec.		
,,	1931,53-62		

Batavia, June 1 - Sept. 29, 1931.

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...OGICAL BULLETIN 1931.

BATAVIA OBSERVATORY, JAVA.

CONSTANTS.

1931.	E-W component.			N-S component.			V component.		
	V.	T_o.	ε.	V.	T_o.	ε.	V.	T_o.	ε.
July	220	6.4	3.2	200	6.6	3.4	330	4.6	2.8
Augustus	220	6.2	3.1	200	6.6	3.3	330	4.7	3.1
September	220	6.2	3.1	200	6.8	3.5	330	4.8	3.2

	With lifted pen						With writing pen					
	e			r			e			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
July	1.12	1.12	1.13	0.0	0.0	0.0	1.12	1.12	1.15	0.84	0.40	0.55
Augustus	„	„	„	„	„	„	1.10	1.10	1.16	0.83	0.39	0.58
September	„	„	„	„	„	„	1.08	1.12	1.14	0.60	0.33	0.62

JULY.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).			Period.	Amplitude (half).		Distance of epicentre	Remarks.
									A_E	A_N		
					h	m	s	sec.	μ	μ	km.	
—	July 1	Med.	I	e P	6	0						
				F	6	11						
98	» 4	Bat.	I	P	11	12	38					
				i	11	13	50					
				i	11	14	43					
				F	11	27						
		Med.	I	e_{EW}	11	13	33					
				i_{NS}	11	15	42					
				F	11	28						
99	» 4	Bat.	I	e	13	2	59					
				F	13	10						
100	» 7	Bat.	I_v	iP_v	9	33	26				220	E; dilatation.
				iP	9	33	26					
				iS	9	33	51					
				F	9	48						
		Mal.	I_v	P	9	3,1					270	No time marks.
				iS	9	3.6						
				F	9	6						
101	» 8	Bat.	I_v	iP_v	13	53	15					SW; compression.
				P	13	53	20					Bantam (West Java).
				i	13	53	22					
				F	14	2						
		Mal.	I_v	P	13	53.0					190	No time marks.
				iS	13	53.4						
				F	13	52						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude half. A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	July 10	Med.	I_v	P	11	23	55				260	Tapanoeli (N. Sumatra).
				S	11	24	2					
				F	11	55						
—	» 11	Amb.	I	P	6	0	12					
				F	6	5						
—	» 11	Amb.	I_v	P	15	26	56				230	
				S	15	27	2					
				F	15	31						
102	» 12	Bat.	II_r	i P_v	16	50	48				2990	SW, dilatation.
				i P	16	50	49					
				S	16	55	23					
				F	17	23						
		Amb.	I_r	P	16	50	10				1430	
				S	16	52	59					
				F	17	50						
		Med.	III_r	P_w	16	51	9				2930	
				e S	16	55	59					
				F	17	50						
103	» 14	Bat.	I	e	15	48	56					
				F	16	1						
		Amb.	I_r	i P	15	45	18				2250	
				S	15	46	58					
				F	15	58						
—	» 15	Amb.	I_v	P	2	54	57				60	
				i S	2	55	4					
				F	3	0						
—	» 15	Med.	I	e	16	46						
				e L	17	2		25				
				F	18	20						
—	» 16	Med.	I_v	P	7	2	14				360	Geumpang (Atjeh, N. Sumatra).
				i S	7	2	55					
				F	7	4						
104	» 17	Bat.	I	i	7	10	58					Azimuth SE.
				F	7	15						
—	» 17	Med.	I_v	P	8	7	22				290?	
				S?	8	7	55					
				F	8	12						
105	» 18	Bat.	I	e	5	47,1						
				F	5	54						
		Med.	I	e	5	47	27					
				F	5	53						
106	» 18	Bat.	I	P	6	56	37					
				i	6	57	24					
				i	6	58	2					
				F	7	4						
		Med.	I	e	6	59	40					
				F	7	5						
107	» 18	Bat.	I	i P_v	11	55	29					Compression.
				i	11	55	31					
				F	11	53						
		Med	I	P	11	55	8					
				i	11	44	19					

International Seismological Centre

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half)		Distance of epicentre.	Remarks.
							A_E	A_N		
					h m s	sec.	μ	μ	km.	
				i	11 45 5					
				L	12 5	20				
				L	12 10	16				
				F	12 23					
108	July 18	Bat.	I_v	i P_v	17 16 44				160	N; dilatation.
				e	17 16 45					
				i P_N	17 16 47					
				i S_{EW}	17 17 4					
				F	17 20					
		Mal.	I_v	P	17 16 28				250	
				i S	17 16 56					
				F	17 18					
109	» 19	Bat.	I	P	15 50 28					
				F	15 54					
—	» 19	Med.	I	e P	18 57 48					
				i	18 58 53					
				F	19 10					
110	» 21	Bat.	II_u	i P_v	3 46 37				6800	
				P	3 46 40					
				i	3 47 13					
				i S	3 54 56					
				F	4 13					
		Amb.	II_r	i P	3 44 14				4920	
				S	3 50 43					
				F	4 8					
		Med.	I_u	i P	3 47 51				7710	
				i S	3 56 54					
				F	4 26					
111	» 23	Bat.	I_u	P	14 29 7				7770?	
				i	14 30 5					
				S?	14 38 12					
				F	14 49					
		Amb.	I_r	P	14 26 4				4640?	
				i P	14 26 11					
				S?	14 32 16					
				F	14 45					
		Med.	I	P	14 30 12					
				F	14 52					
—	» 23	Mal.	I	e P	17 28 48					
				i P	17 28 52					
				i	17 35 10					
				i	17 38 5					
				F	17 39					
—	» 24	Med.	I_v	P	17 44 14				320	Atjeh, N. Sumatra.
				i S	17 44 50					
				F	17 48					
—	» 25	Amb.	I_v	i P	2 25 52				320	
				i S	2 26 29					
				F	2 38					
—	» 25	Med.	I	e	12 48 8					
				i	12 52 29					
				F	13 7					
—	» 26	Med.	I_v	P	4 53 57				190	Sibolga, (Tapanoeli, N. Sumatra).
				i S	4 54 19					
				F	5 2					

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	July 27	Med	I_v	P	6	10	11				130	Angkola (Tapanoeli).
				S	6	11	26					
				F	6	19						
112	» 27	Bat.	I_v	i P_v	9	28	42				120	Compression.
				e P	9	28	44					
				i S_v	9	28	56					
				i S	9	28	58					
				F	9	31						
113	» 28	Bat.	I	e P	3	41	21					
				F	3	58						
		Med.	I_r	P	3	42	35				3800?	
				S?	3	48	6					In hour eclipse.
				F	4	8						
114	» 29	Bat.	I_v	i P	5	17	8				210	Compression.
				i P_v	5	17	9					
				i S	5	17	32					
				F	5	22						
115	» 29	Bat.	I_v	i P_v	21	12	28				190	Compression.
				i P	21	12	31					
				i S	21	12	53					
				F	21	22						
116	» 30	Bat.	I_v	i P_v	17	18	16				220	
				P	17	18	17					
				i S_v	17	18	39					
				i S	17	18	42					
				F	17	25						
117	» 31	Bat.	I_v	e P_{EW}	13	45	46				100	
				i S	13	45	58					
				F	13	46						

AUGUST.

—	Aug. 1	Amb.	I_v	P	19	20	30				380	
				i S	19	21	13					
				F	19	25						
—	» 2	Amb.	I_v	i P	14	30	28				190	
				e S	14	30	50					
				F	14	30						
—	» 4	Med.	I	P	15	52	9					
				i	5	53	54					
				F	6	2						
118	» 5	Bat	I_v	P	20	26	12				120	WNW; dilatation.
				i S	20	26	26					Bantam and Lampongs (S. Sumatra).
				F	20	30						
		Mal.	I_v	P	20	26	15				150	
				i S	20	26	33					
				F	20	27						
—	» 6	Amb.	I	i	15	26	13					
				i	15	30	21					
				F	15	35						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
119	Aug. 7	Bat.	II	e P	2	19	27					Tanah Merah and Genjern (New Guinea).
				i	2	20	57					
				i S	2	27	46					
				L_v	2	34,4		27				
				F	3	15						
		Amb.	II	i_N	2	14	47				1790	
				i P	2	14	58					SE.
				i	2	17	48					
				L	2	20,6		24				
				F	3	27						
		Med.	II_r	i P	2	19	43				4780	Clock stops at $2^h\ 42^m$
				i S	2	26	5					
—	» 7	Amb.	I_v	i P	12	40	33				350	Laboeha (Batjan, N. Moluccas).
				S	12	41	13					
				F	12	48						
120	» 8	Bat.	I_r	e P	1	0	39				1640	
				S	1	3	27					
				F	1	13						
		Med.	II_v	P	8	58	44				870	
				i S	1	0	17					
				F	1	25						
—	» 10	Amb.	I_v	P	1	42	38				90	
				i S	1	42	48					
				F	1	44						
—	» 10	Med.	I	i	10	30	16					
				F	10	33						
121	» 10	Bat.	III_u	i P_v	21	29	18				7820	SE; compression.
				P	21	29	19					
				S? $_{EW}$	21	38	27					
				L	21	47,3		32				
				M	21	49,3		30				
				F	23	44						
		Amb.	II_r	i P_s	21	26	17				2340	
				S	21	30	4					
				L	21	41	29	40				
				L	21	51		26				
				F	23	11						
		Med.	III_u	i P	22	26	56				5240	NNW.
				i S	22	33	43					
				i	22	40	41					
				L	24	23		15				
				L	24	43		15				
				L	25	6		26				
				F	25	13						
—	» 13	Amb.	I_v	i P	0	21	20				190	
				S	0	21	42					
				F	0	33						
—	» 14	Mal.	I_v	e P	13	14	39				110	E. Priangan (W. Java).
				i S	13	14	52					
				F	13	16						
—	» 14	Mal	II_v	i P	14	4	41				90	E. Priangan (W. Java).
				i S	14	4	51					
				F	14	7						
122	» 18	Bat.	II	e_{NS}	14	32	34					
				L	14	31,6		29				

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No.	Date 1931.	Sta-tions.	Char-acter.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epi-centre.	Remarks.
								sec.	μ	μ	km.	
				L	14	52	6	13				
				M	14	56	14	12				
				F	15	17						
		Amb.	I	i	14	51	23					
				i	14	59	26					
				L	14	52		24.5				
				F	15	5						
		Med.	III	P	14	53	0					No time marks.
				i	14	59.5						
				i	14	49.8						
				i	14	52.4						
				F	15	39						
—	Aug. 19	Mal.	I_V	P	2	51	11				110	
				S	2	51	24					
				F	2	55						
123	» 23	Bat.	I_V	eP	14	23	17				310	E. Priangan and Banjoemas.
				S	14	25	52					
				F	14	29						
		Mal.	III_V	iP	14	21	56				180	
				iS	14	22	17					
				F	14	24.5						
124	» 24	Bat.	I	i	21	44	41					
				i	21	52	15					
				L	22	7		25				
				F	22	54						
		Med.	II	eP	21	27.2						No time marks.
				i	21	51.2						
				F	22	57						
—	» 25	Amb.	I_V	P	18	57	0				90	
				S	18	57	11					
				F	18	42						
125	» 27	Bat.	II_U	iP	15	56	34				5720	NNW.
				i	15	57	40					
				iS	15	43	52					
				L	16	1		16.5				
				F	17	19						
		Amb.	I_U	P	15	58	17				7200	
				iS	15	46	54					
				i	15	48	4					
				L	15	54.9		16.5				
				F	16	56						
		Med.	III_U	iP	15	54.3						No time marks.
				i	15	41 9						
				i	15	44.8						
				F	18	7						
126	» 27	Bat.	I	e	23	3	25					
				F	23	16						
127	» 29	Bat.	I_V	eP	1	24	28				510	Central Java.
				iS	1	25	24					
				F	1	29						
128	» 29	Bat.	I_V	eP	8	24	11				930	
				S?	8	25	51					
				F	8	35						
129	» 31	Bat.	I	i	6	42	14					Talaud Islands (N. Celebes)?
				i	6	44	5					
				F	6	50						

SEPTEMBER.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period.	Amplitude (half). A_E	A_N	Distance of epi-centre.	Remarks.
								sec.	μ	μ	km.	
—	Sept. 4	Med.	I_V	P	13	37,2					360	No time marks.
				S	13	37,9						
				F	13	45						
130	» 6	Bat.	I	e	5	50						
				i	5	52	42					
				F	6	1						
		Med.	II_R	eP	5	46,8					3420	No time marks.
				S	5	51,8						
				F	6	15						
—	» 8	Amb.	I_V	P	12	41	24				160	
				iS	12	41	43					
				F	12	46						
—	» 8	Mal.	I_V	P	23	23	41				110	
				iS	23	23	54					
				F	23	26						
—	» 9	Med.	I_V	P	12	51	34				190	
				iS	12	51	56					
				F	12	55,2						
131	» 9	Bat.	II_R	iP$_V$	20	46	34				4890	NE; compression
				iP	20	46	35					
				i	20	47	9					
				iS	20	53	2					
				F	21	12						
		Amb.	I	iP	20	44	5					
				i	20	45	4					
				i	20	45	37					
				i	20	54	25					
				F	21	7						
		Med.	II_R	P	20	48	58				4980	
				i	20	49	31					
				iS	20	55	54					
				F	21	37						
—	» 10	Amb.	I_V	P	3	41	38				180	
				S	3	41	59					
				F	3	45						
—	» 11	Med.	I_V	eP	11	52	0				310	
				iS	11	52	35					
				F	11	56,8						
—	» 11	Amb.	I_V	iP	21	28	59				50	
				iS	21	29	5					
				F	21	30						
—	» 13	Amb.	I_V	P	4	30	18				160	
				S	4	30	36					
				F	4	33						
132	» 16	Bat.	I	i	12	59	28					
				F	13	4						
		Med.	I	e	13	0,1						
				L	13	12,1		15				
				F	13	24						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
133	Sept. 19	Bat.	I_v	iP_v	7	47	15				990	
				iP_w	7	47	19					
				S_N	7	49	5					
				F	8	0						
		Med.	I	P	7	47	59					
				i	7	53	57					
				L	8	11		30				
				F	8	13						
134	» 21	Bat.	I_r	eP	2	29	28				4780	
				iS	2	35	48					
				i	2	36	36					
				L_v	2	56	41	15				
				F	3	11						
		Amb.		i	2	27	45					
				L	2	39	22					
				F	2	52						
		Med.	II_u	P	2	29,6					5220	No time marks.
				S	2	36,4						
				L	2	45		24				
				M	2	45		13.5				
				F	4	3						
—	» 21	Med.	I_v	eP	5	35,6					320	No time marks.
				S	5	36,3						
				F	5	45						
135	» 21	Bat.	II	P	10	33	10					
				i	10	33	48					
				F	11	9						
		Amb.	I	P	10	33	10					
				i	10	37	40					
				F	11	0						
		Med.	III_r	iP	10	32,5					3130	No time marks.
				iS	10	37,2						
				F	11	35						
136	» 21	Bat.	I	i	13	45	47					SE.
				iP	13	45	50					NW.
				i_w	13	56	4					
				F	14	2						
137	» 22	Bat.	I	P	9	40	35					
				i	9	43	54					
				i	9	44	23					
				F	9	50						
138	» 25	Bat.	III_v	iP_v	6	1	3				440	Pens off $6^h\ 2^m\ 3^s$, on $6^h\ 17^m$.
				iP	6	1	6					
				iS	6	1	52					S. Sumatra (felt from Padang to Bantam, W. Java).
				F	7	56						
		Mal.	III_v	iP	6	1	35				330	
				S	6	2	13					
				F	6	46						
		Amb.	II_r	i_N	6	5	13				2880?	
				iP	6	5	36					
				i	6	6	18					
				S?	6	10	2					
				L	6	17,4		20,5				
				F	7	14						
		Med.	III_v	iP	6	2,3					690	SE; no time marks.
				iS	6	5,5						
				F	6	46						

No.	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
139	Sept. 25	Bat.	II_v	P_v?	6	32	33				330	Overlapped by No. 138.
				iS_v?	6	33	10					Felt in Lampongs and
		Mal.	I_v	P	6	33	11				570	Palembang.
				eS	6	34	13					Overlapped by No. 138.
				i	6	34	23					
—	» 25	Mal.	I_v	P	9	31	49				600	
				iS	9	32	54					
				F	9	34						
140	» 25	Bat.	I_v	P	10	28	39					Benkoelen.
				F	10	34						
		Med.	I_v	eP	10	32.0					620	No time marks.
				iS	10	33.1						
				F	10	49						
141	» 25	Bat.	I_v	iP	10	47	21				420	
				S	10	48	8					
				F	10	58						
142	» 25	Bat.	I_v	eP_{EW}	11	47	46				440	Tandjong Keling (Palembang, S. Sumatra).
				S	11	48	35					
				F	11	54						
143	» 25	Bat.	I_v	P	17	37	26					
				F	17	43						
144	» 25	Bat.	I_v	eP	19	21.0					(380)	
				S	19	21	43					
				F	19	27						
145	» 25	Bat.	II_v	iP_v	21	32	54				460	Benkoelen and Palembang.
				iP	21	32	56					
				iS	21	33	48					
				F	21	55						
		Med.	II_v	P	21	35.0					550	No time marks.
				iS	21	36.0						
				i	21	36.4						
				i	21	38.4						
				F	22	39						
146	» 26	Bat.	I_v	i	18	56	49					
				F	19	0						
147	» 27	Bat.	I_v	iP	0	24	52				440	
				S	0	25	41					
				F	0	41						
		Med.	I	eP	0	27.2						No time marks.
				i	0	29.5						
				i	0	29.8						
				i	0	31.0						
				F	1	2						
148	» 27	Bat.	I	eP	10	14	47					
				F	10	18						
—	» 27	Med.	I_v	P	11	44 6					630	No time marks.
				S	11	48.7						
				F	11	50						
—	» 28	Med.	I_v	P	21	7.8					320	No time marks.
				iS	21	8.4						
				i	21	9.0						
				i	21	92						
				F	21	17						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period.	Amplitude (half) A_E	Amplitude (half) A_N	Distance of epicentre.	Remarks.
								sec.	μ	μ	km.	
149	Sept. 28	Bat.	III$_V$	iP$_V$	17	19	50				440	W; compression.
				iP	17	19	51					
				iS	17	20	40					
				i	17	21	47					
				F	17	49						
		Mal.	I	P	17	20	7				440?	Palembang.
				S?	17	20	56					
				F	17	24						
		Med.	II$_T$	P	17	20	6				1140	No time marks.
				i	17	21	0					
				S	17	22	6					
				i	17	22	9					
				F	18	10						
150	» 29	Bat.	I$_T$	P	5	19	21				2490	
				iS	5	25	19					
				F	5	55						
		Amb.	I$_V$	P	5	16	4				550	
				iS	5	17	4					
				F	5	30						
		Med.	I	iP	5	21.2						No time marks.
				i	5	23.7						
				i	5	24.7						
				F	5	49						
—	» 30	Amb.	I	iP	9	41	27				390	
				iS	9	42	11					
				F	9	48						

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SEISMOLOGICAL BULLETIN 1931.

BATAVIA OBSERVATORY, JAVA

CONSTANTS.

1931.	E-W component.			N-S component.			V component.		
	V.	T_o.	ε.	V.	T_o.	ε.	V.	T_o.	ε.
October	220	6.6	3.4	200	6.8	3.8	330	4.7	3.2
November	„	6.7	3.4	„	6.8	4.0	„	4.8	3.6
December	„	6.8	3.6	„	6.8	3.7	„	4.7	3.4

	With lifted pen						With writing pen					
	e			r			e			r		
	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.	EW.	NS.	V.
October	1.12	1.12	1.13	0.0	0.0	0.0	1.12	1.12	1.16	0.79	0.40	0.56
November	„	„	„	„	„	„	1.12	1.12	1.16	0.98	0.38	0.67
December	„	„	„	„	„	„	1.12	1.12	1.16	1.08	0.46	0.39

Soengei Langka, established September 1931; 5° 24′ S.L. 105° 13′ E.L. 240 m above s.l. Bosch-Omori EW. component.
Absolute time indications are not reliable.

Medan: no time signals during October.

OCTOBER.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
151	Oct. 1	Bat.	I	i	9 26 40					
				F	9 29					
—	» 2	Med.	I	eP	14 37,7					
				i	14 40,0					
				F	14 45					
—	» 2	Med.	I_v	eP	15 50.1				430	Poelau Tello (Tapanoeli, N. Sumatra) and Padang (S.W.K.)
				S	15 50.9					
				F	15 56					
—	» 3	Amb.	II_d	iP	18 46 28					Felt at Amboina.
				iS	18 46 30					
				F	18 48					
152	» 3	Bat.	II_r	eP	19 22 54				4140?	
				P_v	19 22 58					Compression.
				iP	19 23 5					WNW.
				S?	19 27.6					
				L_v	19 43	30 0				
				L_v	19 46	18				

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Batavia Observatory

Principal Earthquakes.

October 1931.

152	Oct.	3	Bat.	eP	19	22	54	S?	19	27.6	L_V 19 43	(2660Km) about W; dilat.
			Amb.	iP	19	20	7	S?	19	25 28	-	(2800)
			Med.	i	19	30,9		iS	19	39,9	-	7670
153	Oct.	3	Bat.	i	21	28	7	-			eL 21 53,4	-
			Amb.	i_N	21	25	11	-			L 21 35	-
154	Oct.	3	Bat.	iP	22	5	40	iS?	22	12 6	-	4870
			Amb.	i_N	22	2	5	i	22	7 57	-	4310
			Med.	P	22	13.4		S	22	22.4	-	7670
155	Oct.	3	Bat.	iP	22	57	28	iS_S	23	4 53	L_V 23 15 39	5900
			Amb.	i	22	54	29	i	22	59 46	-	-
			Med.	P	23	5,1		S	23	13.9	-	7430
163	Oct.	10	Bat.	P_E	0	29	22	S?	0	34 40	L 0 46 50	(3700)
			Mal.	i	0	29	16	i	0	36.7	L 0 44	-
			Amb.	P_S	0	26	31	S	0	30 52	L 0 37	2920
			Med.	iP	0	35	39	i_N	0	36 7	L 0 54	-
168	Oct.	18	Bat.	iP	4	41	0	iS	4	49 40	-	7270 NW; dilat.
			Amb.	iP	4	38.6		iS	4	45,2	L 4 52	(5000)
			Med.	i	4	45.9		i	4	55.5	-	-
171	Oct.	23	Bat.	i	11	55	50	i	12	3 49	-	-
			Med.	i	11	59,4		i	12	8.5	-	-
175	Oct.	28	Bat.	eP	5	40	44	i	5	46 59	L 5 53.9	-
			Amb.	P	5	40	40	S	5	44 48	-	8620
			Med.	P	5	47.7		i	5	52.3	-	-

Medan: no time signals.

Batavia, 12.11.'31.

S.W.V.

International Seismological Centre From the ISC collection scanned by SISMOS

No.	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec	μ	μ	km.	
				L_V	19 54	15				
				F	21 10					
		Amb.	III_r	i	19 19 57				3750?	
				iP	19 20 7					NNW.
				S?	19 25 28					
				i	19 35					
				F	20 56					
		Med.	III	i	19 30.9					
				i_W	19 31.2					
				iS	19 39.9					
				F	in next.					
153	Oct. 3	Bat.	I	i	21 28.7					
				eL	21 53.4	17				
				F	22 1					
		Amb.	I	i_N	21 25 11					
				L	21 35	31				
				F	in next.					
154	» 3	Bat.	I_r	iP	22 5 40				4870?	
				iS?	22 12 6					
				i	22 15 16					
				F	22 42					
		Amb.	I	i_N	22 2 5					
				i_S	22 2 40					
				i	22 7 57					
				F	22 38					
		Med.	I_u	P	22 15.4				(8270)	
				S	22 22.4					
				F	in next.					
155	» 3	Bat.	II_u	iP	22 57 26				5900	
				iS_S	23 4 55					
				i_N	23 5 11					
				L_V	23 15 39	32				
				L_V	23 24 15	12.5				
				F	23 59					
		Amb.	II	i	22 54 29					
				i	22 55 46					
				i	22 59 46					
				F	24 11					
		Med.	I_u	P	23 5.1				(7180)	
				S	23 13.9					
				F	25 59					
156	» 4	Bat.	I	e_{EW}	0 58 22					
				i_{NS}	1 3 24					
				F	1 20					
—	» 4	Amb.	I_V	P	7 22 1					
				iS	7 22 2					
				F	7 23 34					
—	» 4	Amb.	II	P	7 33.3				(50)	In minu te eclipse.
				iS	7 33 25					
				iS	7 34 9					new shock.
				F	7 34 55					
—	» 4	Amb.	I_V	P	7 59 25					
				iS	7 59 27					
				F	8 0 7					
157	» 5	Bat.	II_V	iP_V	4 50 6				500	Compression.
				iP_W	4 50 8					S. Sumatra.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec	μ	μ	km.	
				iS	4 51 3					
				F	5 10					
		Mal.	I_V	P	4 50 20				540	
				S	4 51 19					
				F	4 58					
		Med.	II_V	eP	4 53.4				(820)	
				S	5 0.6					
				F	5 34					
		Amb.	I_V	eP	4 54 9				820?	
				S?	4 55 37					
				F	5 2					
—	Oct. 5	Amb.	I_V	i	12 12 36					
				F	12 13.3					
—	» 5	Amb.	I_V	P	13 35 33					
				iS	13 35 34					
				F	13 36.7					
158	» 5	Bat.	I_V	P	19 6 40				130	S. Sumatra.
				iS	19 6 55					
				F	19 8					
159	» 5	Bat.	I_V	eP_{EW}	19 16 44				510	
				iS	19 17 38					
				F	19 22					
160	» 5	Bat.	I	eP	19 40 53					
				i_E	19 42 39					
				i	19 45 26					
				F	20 5					
—	» 5	Med.	I_r	P	22 45 26				1940	
				iS	22 48 40					
				F	23 39					
161	» 6	Bat.	I_V	iP_V	21 8 32				480	Compression.
				iP_W	21 8 32					Soengei Langka S—eP=
				S	21 9 25					41 sec. 360 km.
				F	21 20					
		Med.	I	eP	21 15.6				(2630)	
				S	21 19.7					
				F	21 31					
—	» 8	Amb.	I_V	P	5 16 36				90	
				iS	5 16 47					
				F	5 23					
—	» 9	Med.	I_r	eP	3 2 53				1680	
				i	3 4 9					
				S	3 5 44					
				i	3 6 36					
				F	3 35					
163	» 10	Bat.	II_r	P_E	0 29 22				4740?	
				S?	0 35 40					
				L	0 46 50		39			
				F	2 49					
		Mal.	I	i	0 29 16					
				i	0 36.7					
				L	0 44		40			
				L	0 46		33			
				L	0 56.2		19			
				F	1 0					

International Seismological Centre From the ISC collection scanned by SISMOS

Royal Magnetical and Meteorological Observatory.

Batavia.

Principal Earthquakes.

November 1931.

				P	S	L	Δ	
176	Nov. 1	Bat.	19	1 28	19 8 28		3730	NS.
		Med.	19	5,4		19 13		
178	,, 2	Bat.	10	11 18	10 18 17	10 26	5420	dilatation;NE.
		Amb.	10	1 34	10 10 4	10 15,5	7070	
		Med.	10	7 14	10 13 27	10 18	4660	
180	,, 2	Bat.	17	10 29	17 19 36	17 26	7800	
		Med.	17	7 23	17 14 16	17 31	5290	
		Amb.	17	7 8	17 10 31	17 13	2050	NNW.
188	,, 20	Bat.	14	25 28	14 33 33	14 45 52	6590	
		Amb.	14	23 17	14 29 43	14 36 33	4870	
		Med.	14	27,8	14 35 59		(6650)	
190	,, 23	Bat.	13	36 14	13 36 30		140	dilat.N56,5°E; West Java and Sutra.
		Mal.	13	36 24	13 36 53		160	
		Med.	13	38 27	13 39 50		770	dilat. NNW.

Batavia, 16 XII 1931.

S.W.V.

International Seismological Centre From the ISC collection scanned by SISMOS

No.	Date 1931.	Stations.	Character.	Phase.	Time (G. C. T.). h m s	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
						sec.	μ	μ	km.	
		Amb.	II_r	P_S	0 26 31				2810	
				S	0 30 52					
				L	0 37	29				
				F	2 21					
		Med.	III	iP	0 35 39				NW.	
				i_N	0 36 7					
				i_E	0 36 14					
				L	0 54	45				
				F	4 20					
—	Oct. 11	Med.	I	L	17 17	20				
				M	17 20	20				
				F	17 35					
164	» 11	Bat.	I_v	P	17 26 9				220	
				iS	17 26 34					
				F	17 30					
		Mal.	I_v	P	17 26 14				190	
				S	17 26 36					
				F	17 28					
165	» 12	Bat.	I	P	13 33 13					
				i	13 34 2					
				F	13 39					
		Amb.	I	i	13 30 30					
				eL	13 44	30				
				L	13 45.9	19				
				F	13 51					
—	» 12	Amb.	I_v	P	16 49 23				160	
				iS	16 49 42					
				F	16 56					
—	» 13	Mal.	I_v	eP	9 16 53				60	
				iS	9 17 0					
				F	9 18					
166	» 17	Bat.	I	iP_S	15 42 47					
				F	15 51					
—	» 18	S.L.	I	P	0 12 28					S. Sumatra.
				iS	0 12 30					
				F	0 13					
167	» 18	Bat.	I	i	0 48 4					
				i_W	0 51 42					
				F	1 4					
		Med.	I	eP	0 54.3					
				i	1 2.5					
				L	1 19	25				
				L	1 30	18				
				F	1 48					
168	» 18	Bat.	I_u	iP_v	4 40 59				7270	Dilatation. Azimuth NNW.
				iP	4 41 0					
				iS	4 49 40					
				i	4 51 4					
				F	5 5					
		Amb.	I_u	iP	4 38.6				(5030)	No time eclipses.
				iS	4 45.2					
				L	4 52	12				
				F	5 0					
		Med.	I	i	4 45.9					
				i	4 55.5					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h m s	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
							μ	μ	km.	
				i	4 56.0					
				F	5 22					
—	Oct. 18	Med.	I	eP	7 15 16					
				i	7 22 12					
				i	7 24 28					
				F	7 41					
169	» 19	Bat.	I_v	eP	11 21 45				180	
				iS	11 22 6					
				F	11 25					
170	» 19	Bat.	I_v	P	11 38 47				140	
				iS	11 39 3					
				F	11 45					
—	» 23	Med.	I_v	eP	6 59.0				(160)	Koeta Radja (Ajeh, N. Sumatra).
				iS	7 0.3					
				F	7 9					
171	» 23	Bat.	I	i	11 55 50					
				i	12 3 49					
				F	12 8					
		Med.	I	i	11 59.4					
				i	12 8.5					
				F	12 11					
—	» 24	Amb.	I_v	P	1 24 33					
				iS	1 24 35					
				F	1 25.1					
—	» 24	Amb.	I_v	P	22 28 36				70	
				S	22 28 44					
				F	22 30					
172	» 26	Bat.	I_v	iP	2 41 52				160	Dilatation; West-Java.
				iS	2 42 10					
				F	2 47					
		Mal.	II_v	iP	2 42 5				100	
				iS	2 42 17					
				F	2 47					
—	» 26	Med.	I_v	iP	10 31.0				(240)	Sibolga (Tapanoeli).
				iS	10 31.5					
				F	10 36					
173	» 26	Bat.	I	P	12 2 44					Awisang (N. Celebes)?
				i_N	12 7 31					
				F	12 17					
		Med.	I	i	12 1.9					
				F	12 25					
174	» 26	Bat.	I	e	14 47 41					
				i	14 52 8					
				F	14 57					
—	» 26	Amb.	I_v	P	16 17 30				320	
				S	16 18 7					
				F	16 26					
175	» 28	Bat.	I	eP	5 40 44					
				i	5 46 59					
				L	5 53.9					
				F	6 4					

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h m s	Period.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
		Amb.	I_r	P	5 40 40				2630	
				S	5 44 48					
				F	5 51					
		Med.	I	P	5 47.7					
				i	5 52.3					
				i	5 54.9					
				F	6 17					
—	Oct. 28	Amb.	I_d	iP	10 34 33				80	Felt at Amboina.
				iS	10 34 43					
				F	10 43					
—	» 30	Amb.	I	P	11 16 55				80	Amahei and Wahai (Ceram).
				iS	11 17 4					
				F	11 18					

NOVEMBER.

—	Nov. 1	Amb.	I_v	P	6 49 48					
				iS	6 49 50					
				F	6 51					
176	» 1	Bat.	I_r	P_{NS}	19 1 28				3730	
				i	19 8 10					
				iS	19 8 28					
				F	19 14					
		Med.	I	e	19 5.4					
				eL	19 13	24				
				M	19 18 47	14				
				M	19 21 6	12				
				F	19 41					
177	» 2	Bat.	I_v	P_N	4 35 23				530	Soengei Langka S — eP = 25 sec 220 km.
				S	4 36 21					
				F	4 59					
		Med.	I	P	4 34 9					
				i	4 34 25					
				i	4 35 28					
				F	4 50					
178	» 2	Bat.	II_u	P_v	10 11 16				5420	Dilatation NE.
				P	10 11 18					
				iS	10 18 17					
				L	10 25 59	30.0				
				L	10 31 49	20				
				L_v	10 37 29	15				
				F	in next.					
		Amb.	II_u	eP	10 1 34				7070	
				iS	10 10 4					
				iL	10 15 33	24				
				iL	10 18 9	20				
				F	11 8					
		Med.	III	iP	10 7 14					
				i_w	10 13 27					
				i_S	10 13 46					
				L	10 18	35				
				M	10 19	30				
				M_E	10 24 2	11				
				M_S	10 26 45	20				
				M_E	10 27 13	20				
				F	11 37					
179	» 2	Bat.	I_r	P	11 9 0				4930	
				S	11 15 53					
				F	11 49					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h m s	Period. sec.	Amplitude (half) A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
180	Nov. 2	Bat.	I_u	P_v	17 10 23					
				eP	17 10 29					
				i	17 11 51					
				i_{EW}	17 19 36					
				i_{NS}	17 19 49					
				eL_v	17 26	27				
				F	17 56					
		Med.	I_u	P	17 7 23				5290	
				iS	17 14 16					
				L	17 31	17				
				F	17 56					
		Amb.	I_r	iP	17 7 8				2050	Azimuth NNW.
				S	17 10 31					
				L	17 13	23				
				F	17 49					
181	» 5	Bat.	I	e	12 31.7					
				L_{EW}	12 49	29				
				F	13 0					
		Med.	I	eP	12 (34.7)					No time marks.
				i	12 (51.1)					
				F	13 (51)					
—	» 7	Amb.	I_v	P	2 18 3				420?	
				S?	2 18 50					
				F	2 26					
182	» 7	Bat.	I	e_{EW}	4 27 41					Sumatra's Westkust.
				i	4 30 28					
				F	4 38					
		Med.	I_v	eP	4 (36.1)				(710)	
				S?	4 (37.4)					
				F	4 (46)					
—	» 8	Mal.	I_v	P	5 12 7				70	
				iS	5 12 15					
				F	5 12,8					
183	» 8	Bat.	I_v	eP_{NS}	9 19 58				650	
				S	9 21 8					
				F	9 29					
		Mal.	I	e	9 20 50					
				F	9 24					
—	» 8	Mal.	I_v	P	18 51 34				80	
				iS	18 51 43					
				F	18 53					
—	» 9	Mal.	I	e	5 35 42					
				F	5 38					
184	» 9	Bat.	I_v	iP_v	7 5 50				400	
				P	7 5 51					
				iS	7 6 36					
				F	7 13					
		Mal.	I_v	P	7 6 2				260	
				S	7 6 31					
				F	7 9					
—	» 10	Amb.	I_v	P	3 18 51				150	
				S	3 19 8					
				F	3 22					

International Seismological Centre From the ISC collection scanned by SISMOS

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period. sec.	Amplitude (half) A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	Nov. 11	Amb.	I_v	P	19	6	58				140	
				S	19	7	14					
				F	19	10						
—	» 12	Med.	I_v	P	6	4	54				600	
				i S	6	5	59					
				F	6	14						
185	» 13	Bat.	I	P	3	0	51					
				i	3	1	42					
				F	3	9						
		S.L.	I	e	3	0	30				100	
				e S	3	0	42					
				F	3	1	26					
—	» 14	Amb.	I_v	P	23	11	0				240	Wahai, Ceram.
				S	23	11	27					
				F	23	16						
—	» 17	Amb.	I_v	e P	1	22	36				230	Obi I. (N. Moluccas).
				S	1	23	2					
				F	1	25						
186	» 17	Bat.	I_r	$e P_{NS}$	9	40	1				2850	
				i S	9	44	25					
				F	9	50						
		Amb.	I_v	P_{EW}	9	37	0				660	
				S?	9	38	11					
				F	9	43						
187	» 18	Bat.	I	i	3	44	6					
				i	3	53	55					
				F	4	3						
—	» 20	Amb.	I_v	i P	9	24	0				590	
				S	9	25	4					
				F	9	29						
188	» 20	Bat.	I_u	e P	14	25	28				6590	
				i S	14	33	33					
				L	14	45	52	29				
				F	15	7						
		Amb.	I_r	P	14	23	17				4870	
				i	14	25	33					
				i S	14	29	43					
				L	14	36	33	24				
				F	15	15						
		Med.	I_u	P	14	27.8					(6650)	In hour eclipse.
				i S	14	35	59					
				F	15	33						
189	» 21	Bat.	I	e P	1	21	32				230?	Banjoemas (C. Java).
				S?	1	21	58					
				F	1	26						
		Mal.	I	P	1	20	54				160	
				i S	1	21	13					
				F	1	24						
190	» 23	Bat.	III_d	$i P_v$	13	36	12				140	Dilatation. N 56.5°E. West-Java and S. Sumatra. On: $13^h\ 54^m$.
				i	13	36	13					
				i P	13	36	14					
				i S	13	36	30					
				off	13	36	32					
		Mal.	III_d	i P	13	36	24				160	
				i	13	36	28					

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
				S	13	36	53					
				F	13	44						
		Med.	I_v	i P	13	38	27				770	Azimuth NNW (dilatation).
				i	13	39	15					
				S	13	39	50					
				i_s	13	42	53					
				F	14	0						
—	Nov. 23	Mal.	I_v	i P	18	8	0				80	
				i S	18	8	9					
				F	18	9.1						
—	» 25	Mal.	I_v	P	12	39	28				80	
				S	12	39	38					
				F	12	40.1						
191	» 28	Bat.	I_v	P_{EW}	23	1	47				530?	Soengei Langka —SeP= 4 sec. (40 km.)
				S?	23	2	45					
				F	23	16						
		Med.	I_r	e P	23	4	29				1060?	
				S?	23	6	21					
				F	23	14						
—	» 29	Mal.	I	e P	14	10	51				100	
				S	14	11	3					
				F	14	11.8						
—	» 29	Med.	I_v	P	20	9	29				380	
				S	20	10	12					
				i	20	11	58					
				F	20	19						
—	» 30	Med.	I_v	P	8	8	58				230?	Simaloer I. (N. Sumatra).
				S?	8	9	24					
				F	8	16						
—	» 30	Med.	I	P	17	7	5					
				F	17	24						
192	» 30	Bat.	I_r	P	23	29	37				1320	
				i S	23	31	55					
				F	23	55						
—	» 30	Mal.	I	i	23	42	41					
				F	23	45						

DECEMBER.

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.) h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
193	Dec 1	Bat.	I	i	3	32	36					
				i	3	41	51					
				F	3	55						
—	» 2	Amb.	I_v	i P	12	5	25				440?	NW-SE.
				S?	12	6	14					
				F	12	17						
—	» 5	Med.	I_v	P_{EW}	7	49	50				400?	
				S?	6	50	35					
				F	6	59						
—	» 6	Mal.	I_v	P	4	12	51					
				i S	4	12	52					
				F	4	16						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude half. A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	Dec. 6	Amb.	I_v	P	13	2	16				70	Amahei, South Ceram.
				iS	13	2	24					
				F	13	5						
—	» 6	Amb.	III_d	iP	16	34	21				60	NE-SW; South Ceram.
				iS	16	34	28					
				off	16	34	33					
—	» 9	Amb.	I_v	iP	1	12	30				100	South Ceram
				S	1	12	42					
				F	1	19						
—	» 9	Amb.	I_v	P	14	33	13				80	South Ceram.
				S	14	33	22					
				F	14	36						
194	» 13	Bat.	I_r	P_v	6	25	50				2160	Compression.
				P_N	6	25	52					
				iS	6	29	24					
				F	6	39						
		Amb.	II^v	iP	6	22	17				330	
				iS	6	22	55					
				F	6	32						
195	» 13	Bat.	I_v	e_{NS}	23	4	33					E. Priangan (W. Java).
				eS	23	4	46					
				F	23	8						
		Mal.	II_v	iP	23	4	2				80	
				iS	23	4	11					
				F	23	6						
—	» 14	S.L	I_d	P	15	42	0					
				iS	15	42	2					
				F	15	42	30					
196	» 15	Bat.	I_v	P	10	28	8				160	C. Priangan (W. Java).
				S	10	28	25					
				F	10	31						
		Mal.	I_v	P	10	28	0				90	
				iS	10	28	10					
				F	10	30						
197	» 18	Bat.	III_v	iP	9	50	32				250	Compression; WSW. Buitenzorg (W. Java).
				iS	9	51	0					
				i	9	51	28					
				F	11	8						
		Med.	III_v	P	9	52	9				920	
				S	9	53	48					
				i	9	55	4					
				F	11	39						
		Amb.	I	i	9	55	31					
				i	9	55	41					
				i	9	56	15					
				F	10	23						
		S.L.	III_v	P	9	47	41				340	
				S	9	48	20					
				F	9	51						
—	» 19	Med.	I_v	P	2	20	20				330	Atjeh, (N. Sumatra).
				iS	2	20	58					
				F	3	1						
—	» 19	Amb.	II_v	iP	7	36	38				80	
				iS	7	36	47					
				F	7	44						

No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.). h	m	s	Period. sec.	Amplitude (half). A_E μ	A_N μ	Distance of epicentre. km.	Remarks.
—	Dec. 22	Amb.	I_v	eP	1	2	26				200	
				S	1	2	49					
				F	1	4						
198	» 22	Bat.	III_d	iP_v	10	14	37				180	Dilatation; NE. W. Java.
				P	10	14	38					
				iP	10	14	39					
				iS	10	15	0					
				off	10	15	8					
				on	10	20	31					
				F	10	32						
		Mal.	II_v	iP	10	14	39				240	
				iS	10	15	6					
				F	10	21						
		S.L.	I_v	P	10	10	17				70	
				S	10	10	25					
				F	10	14						
199	» 22	Bat.	I	P_w	19	53	39					
				i	19	54	18					
				i	19	57	10					
				i_s	19	57	26					
				F	20	5						
		Amb.	II_v	iP	19	50	22				710	
				iS	19	51	39					
				F	19	58						
200	» 25	Bat.	I_u	eP_{NS}	3	13	55				6000	
				S_{EW}	3	21	28					
				F	3	38						
—	» 25	Amb.	I_v	P	6	24	47					
				iS	6	24	51					
				F	6	26						
201	» 25	Bat.	I_v	eP_{EW}	8	33	23				420	
				iS	8	34	10					
				F	8	43						
		S.L.	I_v	eP	8	30	0				230	
				S	8	30	26					
				F	8	32						
202	» 28	Bat.	I	e	9	19	14					
				i	9	23	53					
				F	9	31						
		Amb.	II_v	iP	9	14	38				90	
				iS	9	14	48					
				F	9	37						
—	» 29	S L.	I_v	P	4	37	0				160	
				S	4	37	18					
				F	4	44						
203	» 29	Bat.	II_r	P_{NS}	16	39	51				1220	
				S	16	41	59					
				F	in next.							
204	» 29	Bat.	I_v	eP	17	9	16				400	
				S	17	10	1					
				F	17	18						

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No.	Date 1931.	Station.	Character.	Phase.	Time (G. C. T.).	Period.	Amplitude (half). A_E	Amplitude (half). A_N	Distance of epicentre.	Remarks.
					h m s	sec.	μ	μ	km.	
205	Dec. 31	Bat.	I	e	0 31,7					
				i	0 38 32					
				F	1 5					
206	» 31	Bat.	I	e	11 42 10					
				i	11 46 25					
				F	11 57					
—	» 31	Amb.	I_V	eP	18 21 33				180	
				S	18 21 54					
				F	18 25					