

BATAVIA
SEISMOMETRIC RECORDS
1906.

INTRODUCTION TO THE MAGNETICAL OBSERVATIONS

1906.



I already stated in Volume XXVII, that the sensitiveness of the ADIE-balance changed through making observations in order to determine the scale-value; which induced me to leave it entirely untouched and undisturbed.

In order to be able to obtain the necessary knowledge about the scale-value, I was obliged to mount SCHULZE's balance next to it.

The scale-value of this latter balance is determined directly by deflection-experiments, whereas that of the ADIE-balance is derived from comparison of the records of both balances.

Partly on account of its being necessary to have it in the same place, partly because it was my wish to have a more complete use of the TÖPFER-SCHULZE magnetograph than was possible at *Batavia*, I decided upon its being removed to *Buitenzorg*.

Accordingly in the first days of May I mounted the instruments there in the magnetograph-room near the eastwall; the balance and SCHULZE's unifilar on a heavy block of concrete, TÖPFER's unifilar on its own tripod.

The registration-apparatus with its lamp was placed next to the pillar of ADIE's unifilar.

Soon I experienced much trouble by mildew and dust, and to cure this evil airtight wooden covers were made and put over the instruments on October 5th. So now one great case covers SCHULZE's balance and unifilar, a second one only TÖPFER's unifilar; both are standing in a gutter filled with mercury, and to keep dry the air within, a vase containing acidum sulphuricum is placed next to the instrument.

Notwithstanding all this mildew reappeared, but at present the evil seems to be overcome.

The unifilars have been arranged for the record of the components of the magnetic force directed to the *geographical* North and West.

Only one thermograph (the one of SCHULZE's unifilar) has been put in working order lest the record sheet should not get too crowded with curves; for the same reason one fixed mirror, viz. the one of the same instrument gives a base-line.

Every day the record on the sheet commences at about midnight *Greenwich* time; also the *Greenwich* and not the local hours are marked. In order to have both magnetographs better attended to, I made one of our Javanese assistants move to *Buitenzorg*.

Two times a day he gives a time-mark by eclipsing the light beam and writes down the exact time after a chronometer.

Hourly values interpolated by the aid of this TÖPFER-SCHULZE register, and the eye-readings of WILD's variometers, are marked by E and W respectively. Those marked with an asterisk are interpolated by means of the monthly mean hourly values in the simple manner, which may be demonstrated by the following example.

Hour	5	4	5	6
Hourly values	579	lost	lost	599
Monthly mean hourly values	580	588	598	606
Difference	—1	?	?	—7
Differences interpolated	—1	—5	—5	—7
Resulting hourly values	579	585*	595*	599

The aim of this interpolation is chiefly to obtain, without introducing arbitrary values, an uninterrupted series of hourly values, this being a great advantage in most of the calculating operations to which this series is to be subjected.

Rainfall. The hourly values published in the tables hereafter have been read from the sheets of a HELLMANN selfrecording raingauge. Its receiving surface is circular; diameter 15.8 cm.; height above the ground 140 cm.

Seismograph Milne. The boom of the instrument is directed N-S. The scale-values given below have been obtained by measuring on the sheets the duration of artificial swinging.



Date.			Time of Oscillation.	Angular Value of 1 mm.	Date of Readjustment.
1906 Jan. 26			15.0 Sec.	0".49	1905 Dec. 30
Feb. 13			18.4	0.55	1906 Jan. 25
" 22			15.5	0.62	
March 12			17.5	0.56	Feb. 22
" 24			15.0	0.49	
April 25			16.0	0.43	March 22
May 2			14.0	0.56	
" 9			14.5	0.52	
" 19			15.5	0.46	
June 5			16.0	0.43	
" 19			18.6	0.52	
July 14			17.8	0.55	
" 17			18.5	0.52	July 19
" 31			17.4	0.56	
August 16			17.7	0.55	Sept. 7
Sept. 15			16.2	0.42	
Oct. 16			18.0	0.54	
Nov. 14			15.2	0.48	
" 30			15.0	0.49	
Dec. 18			16.6	0.40	
" 29			15.0	0.49	
" 31			17.6	0.56	Dec. 31

Seismograph von Rebeur-Ehler ⁽¹⁾. The instrument is mounted on a heavy brick pillar next to the pillar of the MILNE-seismograph.

The middle pendulum (directed E-W) is alone recording. Air-damping after WIECHERT. The registering drum revolves in one hour; the lamp (AUER-thread lamp after STRAUBEL) moves towards the drum over a distance of 10 cm. in 24 hours. The slit of both, MILNE and EHLERT's seismographs are shut electrically every hour during 10 seconds by the Javanese observer on duty with a key next to the astronomical clock. An eclipse of two seconds in every five minutes by means of an electric clock of PEYER FAVARGER was added on April 22nd, 1904. By an alteration of the clock this eclipse occurs every minute since March 1st, 1906.

Time-scale: 1 hour = 71 cm.

Determinations of scale-value.

Date.	Time of Oscillation.	Coëfficient of Damping.	Angular Value of 1 mm.	Date of Readjustment.
1905, Dec. 18	4.7	1.4	0.15	
1906, June 23	4.9	1.4	0.14	
" , July 31	5.8	1.4	0.10	June 28
" , Dec. 31	5.4	1.4	0.11	

In December 1906 the clockwork which make the drum revolve moved at an irregular rate; this evil, caused by deterioration of a cogwheel, was remedied in the next month.

⁽¹⁾ Cf. Preface to Vol. XXVI, 1903, p. VIII.

Earthquakes and Tremors registered at the Batavia Observatory by means of the
Selfrecording Seismograph-Milne during the Year 1906.



Greenwich Civil Mean Time.

Batavia Observatory 7^h 7^m.3 E. of Grw.

N ^o .	Date.	Commen- cement.		Durat. prel. tremors. min.	Maxima.		Amplit. (double).		Total Duration. min.	Remarks.	Earthquake felt at:
		h.	m.		h.	m.	mm.	''			
	1906.										Place; Residence; Island.
758	January	15	19	34.5		19	37.7	2.5=1.1	13		{ Padang Sidimpuan, Tapanuli, Sumatra.
759	"	18	22	4.5		22	23.0	0.4 0.2	24		
760	"	20	4	11.9		4	13.0	0.5 0.2	3		
761	"	21	13	57.8	6.9	14	4.8	±11 ±5.3	87		
762	"	22	4	8.3		4	42.1	0.7 0.3	41		
763	"	24	2	37.3	4.1	2	48.3	1.0 0.5	23		{ Menado, Menado, Celebes. Galela, Ternate, Halmaheira.
764a	"	27	9	3.9						Dubious.	
764b	"	27	9	39.0						"	
764c	"	27	9	48.2						"	
764d	"	27	10	3.0		10	33.9	±2.5 ±1.2	±50	Bad spot in paper.	
765	"	30	10	30.2		10	31.1	0.5 0.2	3		
766	"	30	22	35.0		22	36.9	0.4 0.2	5	Thickening of line.	
767	"	31	15	57.2		16	29.4	±16 ±7.7	208		Columbia, South America.
						17	41.8	±1.5 ±7.2			
768	February	1	2	34.8		2	48.2	1.9 0.9	64		
769	"	10	8	48.4		9	0.9	4.3 2.1	34		
770	"	15	22	51.5		22	52.5	0.8 0.4	5		
771	"	19	2	10.2	7.7	2	40.3	5.0 2.4	138		
772	"	24	0	30.2		0	41.5	0.5 0.2	14		
773	"	25	5	13.9		5	28.0	0.6 0.3	27		Tomohon, Menado, Celebes?
774	"	27	1	52.6		1	53.7	0.4 0.2	13		
						2	4.9	0.4 0.2			
775	"	27	19	56.2		20	19.1	1.8 0.9	76		
776	March	2	6	5.2		6	29.6	1.3 0.6	80		
777	"	3	6	54.2		7	10.6	0.4 0.2	36	Thickenings.	
778	"	3	9	15.0		9	42.6	0.4 0.2	83	Thickenings.	
						10	32.4	0.6 0.3		March 4, 8 ^h to 5. 9 ^h small continuous tremors.	
779	"	6	13	45.0		14	4.1	0.6 0.3	60		
780	"	9	19	46.2		20	12.0	0.8 0.3	43		
781	"	10	6	46.5		7	15.5	1.2 0.5	87		
782	"	10	16	34.2		17	10.3	1.5 0.6	96		
783	"	13	13	41.2		14	7.9	0.8 0.3	35		
784	"	14	23	11.4		23	11.8	0.8 0.3	3		
785	"	16	22	50.1	9.2	23	5.0	4.7 2.0	60		
786	"	17	19	12.0		19	13.0	0.4 0.2	8	Thickening.	
787	"	18	21	36.8		21	38.7	±30 ±1.3	25		
788a	"	19	7	54.1		7	54.7	0.4 0.2	2	Several thickenings.	
788b	"	19	9	0.5		9	11.6	0.6 0.3	25		
789	"	20	2	4.7	5.0	2	19.9	1.2 0.5	44		Merauke, S-N. Guinea, New-Guinea.
790	"	20	4	27.1		4	28.2	0.4 0.2	13	Thickening.	

Earthquakes and Tremors registered by Milne's Seismograph.



N ^o .	Date.		Commen- cement.		Durat. prel. tremors.	Maxima		Amplitude (double).		Total Duration.	Remarks.	Earthquake felt at:
			h.	m.		h.	m.	mm.	sec.			
	1906.											Place; Residence; Island.
791	March	21	23	42.9							Boom went off at 23 ^h 43 ^m . 4; a shock from SE ^b E to NW ^b W; all the clocks at the observatory were stopped, save the electric one, the astron. clock Hohwū n ^o . 16 was stopped at 23 ^h 43 ^m . 5.	Several places, Bantam, Java. Malabar } Preanger, Java. Sukabumi } Edam, Batavia, Edam.
792	"	23	5	37.0		5	53.5	1.1	0.5	31		Siboga, Tapanuli, Sumatra?
793	"	23	8	0.3		8	15.8	0.5	0.2	24	Thickenings.	
794	"	26	3	38.7		3	42.4	0.5	0.2	24	Thickening.	
795	"	26	11	44.2		11	44.9	0.5	0.2	3	Idem.	Labuan, Bantam, Java.
796	"	26	22	44.2		22	47.2	0.7	0.3	11	Idem.	
797	"	27	5	16.5		5	21.0	0.5	0.2	31	Idem.	
798	"	27	23	14.9		23	23.1	0.7	0.3	24		
799	"	28	16	58.3		17	4.6	1.2	0.5	24		
800	"	28	18	18.5		18	44.2	2.3	1.0	86		
801	"	28	20	40.2		20	41.9	0.6	0.3	16	Thickening.	
802	April	3	10	40.6		10	41.6	0.5	0.2	3	Thickening.	Praja, Bali/Lombok, Lombok.
803	"	3	18	25.6		18	27.5	0.5	0.2	14	Idem.	
804	"	3	22	35.2		22	45.0	0.6	0.3	30		
805	"	7	5	15.3		5	20.5	0.7	0.3	12	Thickening.	
806	"	8	17	54.7		18	17.4	0.8	0.3	38		
807	"	9	10	11.3		10	12.6	1.4	0.6	12		
808	"	10	22	28.6		23	2.3	0.7	0.3	60	Thickenings.	
809	"	13	5	27.2		5	38.0	0.8	0.3	20	Several thickenings.	
810	"	13	19	23.6	5.7	19	40.6	1.8	0.8	60		
						19	58.0	1.6	0.7			
811	"	14	0	3.6	1.4	0	23.0	1.3	0.6	42		
812	"	14	4	7.6	8.8	4	16.5	2.7	1.2	100		
						4	25.2	2.0	0.9			
No record April 16, 9 ^h to 17, 8 ^h .												
813	"	18	13	33.0		14	43.3	2.9	1.2	180		San Francisco.
814	"	19	6	46.3	26 ?	7	12.8	1.1	0.5	135		
815	"	24	13	1.7		13	2.8	0.4	0.2	8	Thickening.	
816	"	25	1	39.7		1	45.1	5.3	2.3	160		
817	"	26	22	11.6		22	13.7	0.7	0.3	5		Malabar, Preanger, Java.
818	"	29	16	38.1	7.0	16	45.9	10	0.4	60		
						16	54.5	12	0.5			
819	"	30	2	12.8		2	17.2	0.7	0.3	35		
820	May	2	1	24.9		1	41.3	0.7	0.4	21	Several thickenings.	
No record May 2, 9 ^h 44 ^m to 3, 0 ^h 58 ^m .												
821	"	3	8	39.4		8	41.0	0.7	0.4	4		
822a	"	5	1	4.8		1	5.1	0.5	0.3	2		
822b	"	5	1	21.0		1	21.8	0.4	0.2	2		
823	"	8	18	47.4		18	47.4	10.6	5.4	11	Seismic origin doubtful; possibly insect ?	
			18	53.8		18	53.8	4.8	2.4			

Earthquakes and Tremors registered by Milne's Seismograph.



International
Seismological
Centre

Nº.	Date.	Commen- cement.	Durat. prel. tremors.		Maxima.	Amplitude (double).		Total Duration.	Remarks.	Earthquake felt at:
			h.	m.	min.	h.	m.	mm.		Place; Residence; Island.
824	1906. May	12	5	56.9	12.6	6	13.0	1.3=0.7	42	
825	"	13	4	16.2		4	18.0	0.7 0.4	3	
826	"	15	4	44.3		4	45.3	0.5 0.3	2	
827	"	15	8	10.2		8	10.8	0.5 0.3	2	
828	"	16	1	21.4		1	22.4	0.6 0.3	11	
						1	30.5	0.5 0.3		
829	"	16	3	24.2		3	24.8	0.7 0.4	4	
830	"	18	2	42.7		2	43.5	0.4 0.2	2	Thickening.
831	"	18	21	19.2	0.8	21	21.5	1.2 0.6	11	
832	"	19	3	29.3		3	29.7	0.5 0.3	1	Thickening.
833	"	20	5	17.0		5	17.7	0.4 0.2	1	Idem.
834	"	21	13	1.5		13	14.7	0.5 0.3	25	Several thickenings of line.
						13	21.4	0.5 0.3		
835	"	22	5	2.8		5	3.5	0.4 0.2	1	Thickening only.
836	"	23	4	58.9		4	59.5	0.4 0.2	2	Thickening.
837	"	28	2	45.5		2	45.9	1.3 0.7	6	Abrupt beginning; ap- parently origin not far off.
838	"	30	3	53.4		3	53.6	0.5 0.3	1	Thickening only.
839	"	30	12	3.6	0.6	12	5.6	2.3 1.2	9	
840	June	1	4	37.1	2.0 5.8	4	53.0	7.2 2.7	143	
841	"	1	23	18.5		23	19.0	0.5 0.2	2	Thickening only.
842	"	2	8	53.9		8	54.4	0.5 0.2	1	Idem.
843	"	2	14	42.9		14	56.7	1.0 0.4	17	
844	"	5	7	6.3		7	6.7	0.6 0.2	1	Thickening.
June, 6 from 0 ^h to 5 ^h several thickenings.										
No record June 9, 3 ^h 44 ^m to 5 ^h 19 ^m and 5 ^h 45 ^m to 6 ^h 13 ^m .										
845	"	10	20	53.8	6.0	21	4.0	5.2 2.0	49	
846	"	11	7	48.5		7	49.2	0.6 0.2	2	Thickening only.
847	"	11	11	40.1		11	48.0	1.0 0.4	18	
848	"	12	12	1.6		12	2.8	0.8 0.3	3	Thickening.
849	"	13	8	7.6		8	8.0	0.7 0.3	2	Idem.
850	"	13	9	30.8		9	32.4	1.1 0.4	6	
851	"	15	15	49.2		15	50.2	0.8 0.3	2	Thickening only.
No record June 17, 9 ^h 3 ^m to 18, 0 ^h 33 ^m .										
852	"	19	0	11.9		0	12.4	0.6 0.2	1	Thickening.
853	"	19	11	28.0	5.0	11	35.7	2.6 1.0	52	
854	"	24	11	22.7	4.3	11	31.9	27.5 10.5	105	
No record June 27, 21 ^h 8 ^m to 28, 0 ^h 48 ^m .										
855	"	29	19	12.2		19	13.4	0.6 0.2	6	
856	"	29	20	51.6		20	53.4	1.0 0.4	27	
857	"	30	8	10.2		8	10.9	0.5 0.2	2	Thickening.
858	July	1	7	56.9				0.5 0.2	66	A series of thickenings.
859	"	3				0	52.3	0.6 0.2		Thickening.
860	"	3				4	6.5	0.5 0.2		Thickenings.
						4	30.6	0.5 0.2		
861	"	3				10	10.9	0.5 0.2		Thickening.

Earthquakes and Tremors registered by Milne's Seismograph.



Seismological Centre											
N ^o .	Date.	Commencement.		Durat. prel. tremors.	Maxima.		Amplitude (double).		Total Duration.	Remarks.	Earthquake felt at:
	1906.	h.	m.	min.	h.	m.	cm	"	min.		Place; Residence; Island.
862	July	4	0	18.9	0	19.4	0.6	0.2	3	Seismic origin doubtful.	
863	"	4	2	7.5			0.5	0.2	65	Several thickenings.	
864	"	5	8	15.0	8	15.7	0.5	0.2		Two thickenings.	
					9	22.5	0.5	0.2			
865	"	6	3	33.0	3	33.7	0.6	0.2	3		
866a	"	7	7	33.8	7	35.1	0.6	0.2	5	Seismic origin doubtful.	
866b	"	7			8	32.7	0.5	0.2			
867	"	8	17	39.7	17	41.6	0.9	0.3	12		
868	"	9	1	59.7	2	2.7	0.5	0.2	10		
869a	"	9	7	56.1	7	56.9	0.6	0.2	2	Two thickenings.	
869b	"	9			8	32.6	0.6	0.2			
870	"	10	6	44.1	6	44.7	0.4	0.1		Thickenings only.	
					7	56.1	0.5	0.2			
					8	36.8	0.5	0.2			
					9	51.6	0.4	0.1			
871	"	10	19	50.9	19	55.9	2.6	0.9	38		
					20	4.2	1.8	0.6			
872	"	11	3	36.9	3	37.6	0.6	0.2	2	Thickening.	
873	"	12	3	26.9	3	27.8	0.5	0.2		Two thickenings.	
					3	51.3	0.5	0.2			
874	"	12	7	29.5	7	29.9	0.4	0.1		Two thickenings.	
	"				7	36.7	0.4	0.1			
875a	"	13	1	33.2			0.5	0.2	168	A series of thickenings.	
875b	"	13	5	9.9	5	13.4	0.6	0.2	4	Thickening.	
876	"	14	0	52.7	1	13.6	1.1	0.4	45		
877	"	14	4	30.4			0.5	0.2	20	Thickenings.	
878	"	15	8	8.4			0.5	0.2	120	A series of thickenings.	
879	"	17	2	55.5	2	55.9	0.6	0.2	1	Thickening.	
880	"	17	7	2.4	7	2.7	0.6	0.2	1	Idem.	
881	"	17	15	18.7	15	30.1	1.2	0.4	27		Elat, Amboina, Great-Kei.
882	"	19	7	8.5					117	Several thickenings.	
883	"	20	7	43.4					102	Idem.	
884	"	21	7	27.4	7	28.1	0.5	0.2		Thickenings.	
					7	34.5	0.5	0.2			
885	"	21	15	14.1	15	16.0	1.2	0.4	24		
886	"	22	0	43.9	0	44.8	0.5	0.2	2	Thickening.	
887	"	23	6	19.1	6	19.7	0.5	0.2	10	Idem.	
					6	22.5	0.5	0.2			
888	"	23	7	59.6					52	A series of thickenings.	
889	"	23	23	18.0	23	18.5	0.6	0.2	1	Thickening.	
890	"	24	9	44.0	9	44.4	0.5	0.2	1	Idem.	
891	"	24	19	9.0	19	9.5	0.6	0.2	1	Idem.	
892	"	25	2	7.1					18	Several thickenings.	
893	"	25	22	4.3	22	29.2	2.1	7.1	32		Pandeglang, Bantam, Java.
894	"	26	2	27.7	2	28.2	0.5	0.2	24	Thickenings.	
					2	45.5	0.6	0.2			
895	"	27	5	32.5	5	33.0	0.5	0.2	2	Thickening.	
896	"	27	23	26.1	23	28.5	0.5	0.2	4	Idem.	
897	"	28	5	49.4	5	50.1	0.7	0.2	8	Thickenings.	
898	"	28	9	51.7	9	52.2	0.5	0.2	2	Thickening.	
899	"	28	12	58.4	13	2.0	0.7	0.2	8		

Earthquakes and Tremors registered by Milne's Seismograph.



Nº.	Date.	Commencement.		Durat. prel. tremors.	Maxima.		Amplit. (double).		Total Duration.	Remarks.	Earthquake felt at:
			h.	m.	min.	h.	m.	mm.	min.		Place; Residence; Island;
900	1906. July	29	2	52.6		2	54.1	0.5=0.2	2	Thickenings.	
900	"	29				3	5.9	0.4 0.1			
901	"	30	11	34.4		11	39.9	0.8 0.3	36		
						11	51.7	0.8 0.3			
902	"	31	2	33.9		2	34.2	0.6 0.2	1	Thickening.	
903	"	31	10	7.7					34	Several thickenings.	
904	August	1	2	52.4		2	53.4	1.0 0.4	10		Meulaboh, Atjeh, Sumatra.
905	"	8	11	42.7					214	Several thickenings.	
906	"	9	11	7.7		11	9.9	0.8 0.3	7	Thickening.	
907	"	9	12	27.7					25	Several thickenings.	
908	"	11	4	9.9		4	10.4	0.6 0.2	2		
909	"	12	2	3.0					95	Several thickenings.	
910	"	15	22	34.8		22	35.8	0.8 0.3	5		
911	"	17	0	23.8	± 9	2	12.1	±16±5.6	223	End P. T. lost by rolling up sheet from 0 ^h 31 ^m . 8. to 0 ^h 33 ^m . 4.	Valparalso.
912	"	18	7	28.5		7	42.8	0.9 0.3	30		
913	"	19	10	23.8		11	12.8	0.6 0.2	82	Several thickenings.	
914	"	20	6	27.3		6	28.0	0.4 0.1	5		Sipetung, Pekalongan, Java.
915	"	20	13	6.4					120	Several thickenings.	
916	"	21	12	16.2		7	32.7	0.9 0.3	32		
917	"	21	13	9.7					163	A series of thickenings.	
918	"	25	10	53.2		10	55.2	1.7 0.6	10		
919	"	25	12	22.1		12	34.2	1.0 0.4	20		
920	"	25	14	7.8		14	16.2	1.6 0.6	60		
						14	27.8	6.2 2.2			
921	"	26	6	7.8		6	25.6	4.2 1.5	86		
922	"	29	11	59.6		13	12.8	0.8 0.3	100	A series of thickenings.	
923	"	30	3	37.3		4	32.7	0.8 0.3	69		
924	"	31	5	52.2		6	5.3	0.6 0.2	20		
925	"	31	12	32.8					154	A series of thickenings.	
926	"	31	15	7.1		15	14.0	1.3 0.5	35		
No record Sept. 6, 6 ^h 17 ^m to 7, 0 ^h 30 ^m .											
927	September	7	19	7.4		19	42.3	1.4 0.6	62		
928	"	13	16	31.9		16	33.1	1.0 0.4	8		
929	"	14	16	12.6		16	25.8	11.0 4.6	132		
930	"	15	12	56.9					146	A series of thickenings.	
931	"	17	8	46.1		8	59.4	1.3 0.5	44		
						9	10.9	1.3 0.5			
932	"	17	12	50.7					144	A series of thickenings.	
933	"	18	7	53.6		7	56.1	±2 ±0.8	10		Tebingtinggi, Palembang, Sumatra.
934	"	28	16	0.2		16	12.3	1.1 0.5	36		
935	October	2	1	59.4		2	22.4	8.4 3.2	107		
						2	26.2	8.8 3.3			
936	"	2	11	51.4					227	A series of thickenings.	
937	"	6	12	37.0		12	39.8	8.2 3.1	67		

Earthquakes and Tremors registered by Milne's Seismograph.

No.	Date.	Commencement.		Durat. prel. tremors.	Maxima		Amplit. (double).		Total Duration.	Remarks.	Earthquake felt at.
	1906.		h.	m.	min.	h.	m.	mm.	min.		Place; Residence; Island.
938	October	8	11	27.8		12	57.8	0.8=0.3	92	A series of thickenings.	
939	"	10	7	30.2		7	39.5	1.0 0.4	26		
						7	43.1	1.0 0.4			
940	"	10	12	57.3		13	7.4	3.7 1.4	54		
						13	13.1	4.2 1.6			
941	"	11	5	26.2		5	37.7	0.8 0.3	30		
942	"	15	14	0.4		14	6.5	1.3 0.5	13		
943	"	17	9	46.8	5.0	10	1.4	3.0 1.1	70		
						10	4.6	2.8 1.1			
944	"	24	14	59.2	13.8	15	21.8	3.5 1.3	100		
						15	25.8	4.0 1.5			
945	"	26	12	25.2		12	29.8	1.1 0.4	16	?	
946	"	27	3	51.6		4	4.8	0.7 0.3	24		
947	"	28	15	52.6	1.0	15	53.7	$\pm 2.1 \pm 8.0$	33		Pulu Pandan, Westcoast Sumatra, Sumatra.
948	"	29	1	20.5	4.4	1	26.3	5.0 1.9	36		
949	"	31	2	9.5		2	28.8	1.2 0.5	30		
950	November	2	3	43.0		3	43.5	0.7 0.3	3	? Thickening.	
951	"	5	19	57.1	4.3	20	9.8	3.0 1.3	34		Fakfak, Ternate, New-Guinea.
952	"	5	23	5.3		23	11.5	2.5 1.1	56		
953	"	10	5	19.6					24	Thickening.	
954	"	11	17	57.3		17	59.1	5.8 2.6	8	Abrupt beginning. The electric clock was stopped (direction of pendulum N—S). (Another clock, dir. of pend. E—W, was stopped too).	
955	"	12	18	4.1					9	Thickening.	Krawang, Buitenzorg } Batavia, Java.
956	"	14	11	4.1	9.8				2	Thickening.	
957	"	14	17	48.1		18	12.0	1.5 0.7	89		
958	"	15	3	4.6		3	15.6	0.9 0.4	25		
959	"	15	23	31.1					8		
960	"	18	12	39.4					5	Thickening.	
961	"	19	7	22.2		after 7 26.1 before 7 29.9		$>34 >15.0$	145	Abrupt beginning.	
962	"	23	0	47.1					5	Thickening.	
963	"	27	5	36.3		5	42.1	0.8 0.5	16		
964	"	28	9	4.51					6	Thickening.	

No record December 2, 19^h 4^m to 3, 0^h 33^m.

965	December.	3	23	22.6					38	Several thickenings.
966	"	9	19	5.0		19	5.7	0.9 0.4	7	
967	"	13	13	2.2		13	3.8	1.0 0.5	10	

Earthquakes and Tremors registered by Milne's Seismograph.



Nº.	Date.	Commen- cement.	Durat. prel. tremors.	Maxima.	Amplit. (double).	Total Duration.	Remarks.	Earthquake felt at:
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No record December 13, 7^h 7^m to 16, 0^h 33^m.

1906.			h.	m.	min.	h.	m.	min.	sec.	min.		Place; Residence; Island.
968	December	18	21	20.5		21	50.7	1.6	0.7	63		
969	"	19	1	26.4	10.2	2	6.2	8.0	3.7	177		
970	"	19	18	35.2						13	Thickening.	
971	"	19	21	52.7						21	Idem.	
972	"	22	18	30.9		18	53.6	5.8	2.7	96		
973	"	23	17	52.4		18	34.7	1.0	0.5	60		
974	"	26	6	17.8		6	38.4	1.8	0.8	46		
975	"	27	23	53.2						9	Thickening.	

No record December 29, 22^h 53^m to 31, 2^h 23^m

Earthquakes registered by Ehlert's Horizontal Pendulum.

Direction of Pendulum: E—W.

Greenwich Civil Mean Time.

Batavia Observatory = 7^h 7^m. 32^s E of G.M.T.

N ^o .	Date.	Commence- ment.	Commence- ment of larger oscill.	Time of maximum oscill.	Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at:
	1906.	h. m.	h. m.	h. m.	mm.			Place; Residence; Island.
416	January	2	2 12.3		? 3	1.4		
					at least			
417	"	3	± 2 2.9		? 5	± 1.5	Spoiled paper.	
418	"	6	21 52.7		21 53.1	2	0.2	
419	"	7	16 13.7		16 17.2	3	0.3	
420	"	9	19 1.9		19 3.1	2	0.1	
421	"	11	9 58.5		10 2.2	10	0.2	
422	"	15	19 31.19	19 33.8	19 36.69	17	0.9	Padang Sidimpuan, Tapanuli, Sumatra.
423	"	18	22 1.0		22 10.2	4	0.4	
424	"	21	13 57.9	14 4.46	14 46.4	133	1.5	
425	"	22	4 15.52		4 15.7	2	0.2	
426	"	24	2 36.9	2 40.99	2 41.15	22	0.5	Menado, Menado, Celebes. Galela, Ternate, Halmaheira.
					past	at least		
427	"	27	9 53.6		10 3.6	7	1.2	Spoiled paper.
					before			
					10 21.8			
428	"	28	14 46.86	14 53.99	14 54.2	6	0.3	
429	"	30	10 26.09	10 30.4	10 31.2	9	0.3	Spoiled paper.
430	"	31	13 57.51		16 12.2	64	2.5	Columbia.
						at least		
431	February	1	2 35.67		± 2 46.1	18	1.0	Spoiled paper.
432	"	5	4 40.37		4 40.54	5	0.4	
433	"	7	7 18.1		7 23.92	7	0.3	Tomohon, Menado, Celebes (?)
434	"	8	0 18.1		0 21.46?	3	0.3	
435	"	10	8 48.1		8 59.96	7	0.3	
436	"	15	22 50.8		22 52.52	11	0.3	
437	"	19	2 9.3		2 19.6	40	2.0	
438	"	19	13 41.0		13 42.02	3	0.1	
439	"	20	4 45.9		4 46.50	2	0.1	
440	"	20	5 50.05		5 59.29	2	0.3	
441	"	24	0 30.2		0 31.8	6	0.3	
442	"	25	5 17.6		5 22.39	5	0.3	Tomohon, Menado, Celebes ?
443	"	26	23 8.9		23 9.41	4	0.1	
444	"	27	1 42.97	1 52.4	1 53.55	14	0.3	
445	"	27	19 51.9	19 56.8	19 58.9	11	0.8	
446	March	2	6 23.94	6 31.72	6 32.45	10	0.8	
447	"	3	9 3.4		9 18.1	5	0.6	
448	"	5	16 49.88		16 50.88	3	0.1	
449	"	6	14 2.7		14 3.0	5	0.1	
450	"	9	19 29.1		19 38.51	4	0.6	
451	"	10	6 45.4		6 55.56	11	0.8	
452	"	10	12 23.4		12 28.3	4	0.3	?
453	"	10	16 30.4	16 42.17	16 42.67	21	1.1	
					16 44.10	19		

Earthquakes registered by Ehlert's Horizontal Pendulum.



International
Seismological
Centre

N ^o .	Date.		Commence- ment.		Commence- ment of larger oscill.		Time of maximum oscill.		Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at: Place; Residence; Island.
			h.	m.	h.	m.	h.	m.				
454	March	13	13	34.91	13	41.55	13	42.04	12	0.6		
455	"	14	20	15.74?			20	25.8	4	0.3		
456	"	14	23	10.01			23	11.4	9	0.2		
457	"	16	22	49.0			22	58.8	7	0.8		
458	"	17	19	11.50?			19	14.38	5	0.2		
459	"	18	6	48.0			6	50.40	4	0.3		
460	"	18	13	4.6 ?			13	14.7	3	0.3		
461	"	18	19	7.6			19	8.9	2	0.1	?	
462	"	18	21	36.8	21	37.40	21	39.0	40	0.7		
463	"	19	8	13.0			8	19.1	4	1.0		
464	"	20	2	1.1			2	12.86	7	0.8		Merauke, S.New Guinea New Guinea.
465	"	20	3	40.0			4	1.7	3	0.6		
466	"	21	23	42.5			past 23	45.8	>132	?	The trace left the paper; a shock from SE ^b E to NW ^b W; all the clocks at the ob- servatory were stopped, save the electric one; the astronomical clock Hohwū n ^o . 16 was stopped at 23 ^h 43 ^m . 50.	Several places, Bantam, Java. Malabar, } Preanger, Sukaboemi } Java. Edam, Batavia, Edam.
467	"	23	5	49.12			5	52.34	9	0.6		
468	"	24	1	11.9	5	52.04	1	12.12	3	0.1		
469	"	26	3	35.1				49.5	2	0.7		
470	"	26	11	44.2	11	44.22	11	45.1	4	0.2		
							11	45.9				
471	"	26	22	43.00			22	46.9	6	0.6		
472	"	27	5	11.1			5	19.02	3	1.3		
							6	18.78	2			
473	"	27	23	53.3			23	21.47	3	0.7		
474	"	28	6	1.7			6	11.99?	2	0.2		
475	"	28	16	53.64			17	1.4	4	0.8		
476	"	28	18	14.9			18	24.23	8	1.5		
477	"	28	20	18.6	18	24.14	20	44.90	2	0.7		
478	"	29	17	34.8			17	42.9	3	0.4		
479	"	29	22	9.2			22	20.03	2	0.8		
480	April	2	16	29.2			16	57.0	2	0.6		
481	"	5	10	35.6			10	39.63	3	0.3		Praja, Bali/Lombok, Lom- bok.
482	"	5	18	19.2			18	26.60		0.5		
483	"	5	22	35.3	22	41.9	22	42.00	12	1.1		
No record April 6, 2 ^h — 7 ^h .												
484	"	6	12	37.53			12	38.9	2	0.1		
No record April 7, 2 ^h — 5 ^h .												
485	"	7	4	59.6			±5	20.2	2	0.8		
486	"	7	22	51.4			23	4.7	2	0.5		
487	"	8	17	47.2	17	55.0	17	56.7	7	1.0		

Earthquakes registered by Ehlert's Horizontal Pendulum

N ^o .	Date.	Commence- ment.		Commence- ment of larger oscill.		Time of maximum oscill.		Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at Place; Residence; Island.	
		h.	m.	h.	m.	h.	m.					
1906.												
488	April	9	10	11.42	10	11.66	10	13.2	27	0.3	?	
489	"	10	21	43.0			21	53.7	3	1.8		
490	"	12	8	12.83			8	12.9	6	0.2		
491	"	13	5	22.7			5	30.9	4	0.4		
492	"	13	19	24.2	19	29.58	19	32.37	8	1.4		
493	"	13	23	57.9								
		14			0	3.80	0	20.7	7	1.5		
494	"	14	4	8.24	4	16.7	4	16.76	31	1.7		
495	"	16	11	34.0			11	38.6	2	0.1		
496	"	17	17	53.0			18	0.0	2	0.1		
497	"	18	13	32.9			14	30.43	13	3.5	San Francisco.	
No record April 19, 1 ^h to 20, 1 ^h .												
No record April 20, 22 ^h 23 ^m to 21, 0 ^h 33 ^m .												
498	"	24	13	1.4			13	2.44	9	0.2	?	
499	"	25	1	39.8			1	46.05	28	1.2		
500	"	26	9	32.1			9	34.47	8	0.2		
501	"	26	11	14.96			11	17.6	4	0.2		
502	"	26	22	10.8			22	13.2	8	0.3		
503	"	27	4	39.33			4	40.3	3	0.1		
504	"	28	8	8.4			?		1	0.3		
505	"	29	6	47.8			6	59.1	3	0.5		
506	"	29	9	54.6			9	57.0	3	0.2		
507	"	29	16	38.0	16	45.27	16	45.41	10	2.0		
							16	46.2	11			
							16	54.22	11			
No record April 29, 23 ^h 30 ^m to 30, 1 ^h .												
508	"	30	2	5.1	2	22.6			4	1.2	?	
509	May	1	15	54.39			16	2.96	2	0.3		
510	"	2	1	20.6	1	25.7	1	25.9	3	0.6		
							1	26.6				
511	"	2	7	17.8			7	17.9	2	0.4		
512	"	3	8	35.25			8	43.0	2	0.6		
513	"	4	11	7.53			11	11.87	2	0.2		
514	"	4	11	57.86			12	25.08	2	0.6		
515	"	4	16	3.0			16	3.1	2	0.1		
516	"	4	23	24.85			23	24.94	3	0.3		
517	"	5	0	42.1			1	0.8	2	1.0	Praja, Bali/Lombok, Lombok.	
518	"	6	13	44.31			13	47.39	5	0.3		
No record May 8, 0 ^h 36 ^m to 9, 0 ^h 33 ^m .												
No record May 9, 1 ^h 21 ^m to 2 ^h 56 ^m .												
519	"	12	5	57.9			6	15.48	8	0.8	Abrupt beginning. Sukabumi } Preanger, Malabar } Java.	
520	"	12	11	0.6			11	1.1	4	0.1		
521	"	14	10	36.5			10	38.0	4	0.3		
522	"	17	18	17.6			18	26.53	3	0.3		
523	"	18	21	11.32			21	22.8	5	0.5		
524	"	20	11	26.51			11	28.8	2	0.3		
525	"	21	12	52.09			12	58.43	4	0.4		
526	"	28	2	45.47			2	47.0	18	0.2		
527	"	29	10	58.85			10	59.5	4	0.1		
528	"	30	1	4.29			1	5.10	2	0.1		

Earthquakes registered by Ehlert's Horizontal Pendulum.



		International Seismological Centre						
Nº.	Date.	Commence- ment.	Commence- ment. of larger oscill.	Time of maximum oscill.	Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at:
1906.		h. m.	h. m.	h. m.	mm.			Place; Residence; Island.
No record September 12, 0 ^h 40 ^m to 6 ^h 12 ^m .								
586	September	13	16 32.64	16 33.8	20	0.2		
No record September 14, 6 ^h 12 ^m to 15, 0 ^h 29 ^m .								
587	"	17	8 46.7	9 1.84	5	1.0		Tebingtinggi, Palembang Sumatra.
588	"	18	7 52.8	7 55.08	25	0.6		
589	"	20	17 53.5	17 55.1	2	0.4		
590	"	21	1 39.17	?	2	0.6		
No record September 24, 0 ^h 32 ^m to 6 ^h 10 ^m .								
591	"	28	15 44.9	15 46.0	7	1.6		?
592	"	29	12 56.9	12 57.15	2	0.3		
593	October	1	16 47.6	16 47.8	3	0.1		
594	"	2	1 59.55	2 12.8	18	2.4		
595	"	2	12 11.06	12 19.81	3	0.8		
596	"	2	14 44.1	14 53.34 14 53.47	20	1.5		
597	"	4	17 6.3	17 8.9	4	0.2		
598	"	6	12 37.24	12 39.8	84	2.0		
599	"	8	5 13.4	5 15.7	3	0.2		
600	"	8	16 34.7	16 35.1	3	0.1		
601	"	9	6 26.2	6 27.4	2	0.1		
602	"	10	1 56.8	?	2	0.4		
603	"	10	7 25.9	7 31.0	7	0.9		
604	"	10	12 57.3	13 2.3	17	1.3		
605	"	10	23 3.0	23 13.91	2	1.1		
				23 18.4	2			
606	"	11	5 13.6	5 20.24	3	1.0		
607	"	15	13 32.5	?	2	1.0		
608	"	16	14 49.9	15 0.3	2	0.4		
609	"	16	17 44.67	17 46.0	6	0.2		
				17 46.24	6			
				17 47.4	6			
610	"	17	9 47.40	9 56.1	9	1.5		
				10 4.0	9			
611	"	18	20 4.0	20 9.1	2	0.6		
612	"	24	14 53.0	15 0.44 15 25.6	6	1.6		
613	"	27	3 46.6	4 0.0	2	0.7		
614	"	28	15 52.71	15 53.70 ±15 54.8	77	1.8		Pulu-Pandan, West coast Su- matra, Sumatra.
615	"	29	1 21.10	1 25.5	33	1.1		
616	"	31	2 6.3	2 31.7	4	1.1		
617	November	2	3 25.5	3 26.8	2	0.2	?	Fakfak, Ternate, New Guinea.
618	"	2	16 14.3	16 18.3	2	0.2	?	
619	"	4	15 7.2	15 7.9	2	0.1	?	
620	"	5	19 57.08	20 1.28 20 1.4	21	1.3		
621	"	5	23 5.4	23 11.22	16	0.8		
622	"	8	0 48.5	0 58.5	3	0.8		
623	"	9	9 23.0	9 28.0	3	0.3		
624	"	9	15 9.4	15 18.1	3	0.7		
625	"	10	5 26.4	5 26.5	2	0.6		
626	"	11	6 55.3	6 55.8	3	0.2		

Earthquakes registered by Ehlert's Horizontal Pendulum.

N ^o .	Date.	Commence-ment.		Commence-ment of larger oscill.		Time of maximum oscill.		Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at: Place; Residence; Island.
		h.	m.	h.	m.	h.	m.				
627	1906. November	11	17	36.9		±17	37.7	± 30	0.3	Abrupt beginning. The electric clock was stopped (direction of pendulum N-S). Another clock, dir. of pend. E-W, was stopped too.	
628	"	12	18	4.8		18	9.0	2	0.2		Krawang, } Batavia, Java. Buitenzorg }
629	"	14	11	2.8		11	4.1	5	0.2		
630a	"	14	17	24.99		17	26.0	2	0.2		
630b	"	14	17	48.37		17	36.95	11	2.1	Beginning between 17 ^h 48 ^m . 20 and 17 ^h 48 ^m . 37 (hour-mark).	
631	"	15	3	0.0		3	7.0	6	0.6		
632	"	15	23	26.1		23	34.6	2	0.4		
633	"	18	12	38.0		12	41.0	5	0.2		
634	"	19	7	21.94		?		>116	>0.1	Abrupt beginning; the trace left the paper.	

No record November 19, 7^h 28^m to 20, 0^h 43^m.

635	"	22	22	16.2		22	17.4	2	0.1		
636	"	23	0	42.30		0	48.7	2	0.7		
637	"	25	11	25.6	11	36.97	11	37.3	4	0.6	
638	"	26	0	26.2		?		2	0.1	?	
639	"	27	5	33.9		5	38.0	12	0.6		
640	"	28	9	22.9		9	45.4	2	1.0		
641	December.	3	23	19.3		23	36.3	5	1.1		

No record December 7, 2^h 11^m to 10^h 18^m.

Idem " 9, 17^h 23^m to 10, 0^h 36^m.

642	"	12	4	17.2		?		2	0.5	?	
643	"	12	7	9.3		?		2	0.2	?	
644	"	13	12	56.9		13	21.3	3	0.6		
645	"	14	14	7.3		?		2	0.1	?	
646	"	17	10	55.5		±11	4.1	2	0.3	?	
647	"	17	17	10.8		17	16.8	3	0.2		
648	"	18	21	11.2		21	22.9	5	0.4		
649	"	19	1	26.54	1	36.6	1	37.8	15	1.8	
650	"	19	18	28.4		18	36.2	6	0.2		
651	"	19	21	48.8		21	55.2	4	0.2		

No record December 20, 10^h 22^m to 11^h 23^m.

Idem " 21, 10^h 22^m to 11^h 30^m.

Idem " 22, 10^h 18^m to 11^h 53^m.

652	"	22	18	30.6	18	38.5	18	38.8	28	± 2.0	
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Earthquakes registered by Ehlert's Horizontal Pendulum.

Nº.	Date.	Commence- ment.	Commence- ment of larger oscill.	Time of maximum oscill.	Average amplitude of max. oscill. (double).	Duration in hours.	Remarks.	Earthquake felt at International Seismological Centre Place; Residence; Island.
	1906.		h. m.	h. m.	h. m.	mm.		

No record December 22, 20^h 26^m to 23, 0^h 26^m.

653	December	23	±17	38.9		?	at least 3	± 1.5	
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No record December 24, 10^h 5^m to 14^h 28^m.

654	»	26	6	13.3		6	38.5	6	1.9	
655	»	26	12	59.2		?		2	0.7	?
656	»	26	18	45.1		?		2	0.2	?
657	»	27	23	47.9		23	52.7	3	0.4	
658	»	29	0	51.8		0	53.1	4	0.1	