

KEW OBSERVATORY, RICHMOND, SURREY, I



SEISMOLOGICAL BULLETIN FOR JANUARY, 1947

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> .	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec<sup>-1</sup></sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.  
 TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.  
 SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
3	Z	1P	02	29	(22)			(8900) Deeper than normal. Short-period Vertical Short-period Vertical	
	Z	1pPP		32	58				
	NE	eS		39	(34)				
	NE	eLQ	03	01	-				
	ZNE	eLR		07	-				
	Z	M		16	52	13	-21		
	E	M			54	13	-13		
3	N	M			55	16	+22		
		F	04	20	-				
13	N	eL	12	53	-				
		F	13	10	-				
15	ZNE	eL	19	08	-				
		F		20	-				
21	ZN	eL	20	55	-				
		F	21	05	-				
24	ZNE	eL	17	35	-				
		M		46	25	13	-18		
		F	18	15	-				
25	ZNE	eL	04	31	-				
		F	05	15	-				
26	ZNE	1P	10	18	31		8650	Compression. Focal depth 170 Km.	
		E			42				
		ZNE	1pP		19	13			
		ZNE	1PP		21	31			
		ZNE	1S		28	07			
		ZE	1SP		29	01			
		NE	eSS		34	(00)			



**SEISMOLOGICAL BULLETIN.**

JANUARY, 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.				
26 (cont'd)	ZE	eSSS	10	37	(31)				
	ZN	eLq		40	-				
	ZNE	eLR		44	-				
	N	M		49	40	17	+26		
	E	M		50	59	18	-32		
	Z	M		51	07	18	-59		
		F	12	10	-				
29	Z	i	08	28	(14)				Doubtful pulse.(Dilatation)
	Z	i		32	12				
	Z	i		33	58				
	ZE	i		34	18				
	E	e		37	02				
	NE	i		39	55				
	Z	i		41	30				
	NE	e		43	50				
	E	e		47	(30)				
	NE	e		51	(25)				
	ZNE	eL		09(00)	-				
		F		(20)	-				

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR FEBRUARY 1947.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

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INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

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N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec-1</sup>
E.	1940, Nov, 27	24.0	8.0	0.00	81.5
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TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.  
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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.		
			h.	m.	s.					sec.	μ
7	ZNE	eL	09	45	-						
		F	11	00	-						
9	ZNE	eL	05	20	-						
		F		30	-						
9	ZNE	eL	19	40	-						
		F	20	05	-						
10	NE	iP	04	21	06			5250			
	E	ePP		22	(46)						
	E	ePPP		23	(26)						
	ZN	e		25	56						
	ZNE	eS		28	01						
	N	eSS		31	11						
	NE	eLR		35	-						
	N	M		38	50					18	+120
	Z	M		42	35					16	-38
	E	M			39					18	-21
12	ZNE	eL	20	45	-	15					
		Z	21	04	42					-14	
		F		25	-						
14	ZN	eL	08	30	-						
		F		45	-						
17	Z	iP	00	14	42			1000			
	Z	i		15	51						
	ZE	iS		16	29						
	ZNE	e		17	03						
	ZNE	e			22						

M.O. 491.....

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

**FEBRUARY, 1947.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
17 (cont'd)	ZE	e F	00	17	36				
				22	-				
18	NE	i(P)	13	52	30			9000	Large Microseisms
	NE	e(PF)		55	28				
	E	e(PPP)		57	(14)				
	NE	e		58	25				Clear Pulse
		F	14	55	-				
21	ZNE	eL	22	46	-				
	Z	M		59	05	12	-10		
		F	23	15	-				
22	ZE	eL	04	40	-				
				50	-				
24	Z	iP	17	44	32			9550	Compression
	NE	ePP		47	58				
	E	eSKS		54	(42)				
	NE	eS		55	10				
	N	ePS		56	11				
	ZE	ePPS			32				
	E	eSS	18	00	42				
	N	eSSS		05	02				
	E	e(PKKS)			28				
	ZNE	eLR		14	-				
	Z	M		20	30	17	-18		
		F	19	30	-				



SEISMOLOGICAL BULLETIN FOR.....MARCH.....19..47

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
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N.	1940, Nov. 29	<sup>sec.</sup> 24.5	<sup>sec.</sup> 8.2	0.00	<sup>sec-1</sup> 74.3
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
2	Z	iPKP	19	30	17			(12500)	Compression
	Z	iPP		31	21				
	ZE	i(PPP)		33	12				
	NE	eSKS		37	09				
	E	e(SKKS)		38	23				
	E	ePS		40	57				
	N	e(PFS)		42	(00)				
	NE	eSS		47	07				
	ZNE	e(SSS)		51	(50)				
	N	eL <sub>Q</sub>	20	00	-				
	ZNE	eL <sub>R</sub>		07	-				
E	M		21	48	22	+13			
Z	M			56	24	-24			
N	M		22	16	24	+34			
	F		50	-					
10	ZNE	eL	02	18	-				
		F		40	-				
11	NE	eL	17	19	-				
		F		30	-				
16	NE	eL	10	19	-				
	Z	eL		26	-				
		F		45	-				
17	ZE	iP	08	30	48			7900	Compression
	ZE	i(P <sub>c</sub> P)		31	(14)				
	ZE	ePPP		35	05				
	Z	i		38	21				
	NE	iS		40	03				
	ZE	iPS			23				
	NE	ePPS			49				
	N	i		41	23				

**SEISMOLOGICAL BULLETIN.**



From the ISC collection scanned by SISMO5

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
17 (cont'd)	N	e	08	41	49				
	E	e		42	17				
	N	eSS		44	24				
	ZE	eSS			(54)				
	ZN	eSSS		47	(30)				
	E	eSSS			49				
	ZE	eL <sub>Q</sub>		50	-				
	N	eL <sub>Q</sub>		51 <sup>1</sup> / <sub>2</sub>	-				
	N	eLR		53 <sup>1</sup> / <sub>2</sub>	-				
	ZE	eLR		54 <sup>1</sup> / <sub>2</sub>	-				
	N	M		58	54	20	+360		
	Z	M		09	03	18	+460		
E	M			40	13	+210			
	F		12	00	-				
21	ZNE	eL	23	13	-				
		F		25	-				
25	Z	1PKP <sub>1</sub>	20	52	53			(18800)	
	Z	1PKP <sub>2</sub>		54	(01)				
	Z	1PKS		56	29				
	ZN	1PP		57	36				
	Z	1		59	59				
	NE	ePPP	21	01	(31)				
	N	eSKKS		04	25				
	E	e(SKKKS)		05	(11)				
	N	i			56				
	N	1SKKS		06	21				
	N	e		07	56				
	E	ePPS		11	(33)				
	E	e		15	(11)				
	N	eSSS		26	(40)				
	E	e		30	(10)				
	N	eL		52	-				
	E	M	22	07	29				
	N	M		08	39				
	Z	M		12	28				
	F		23	55	-				
27	ZN	eL	17	52	-				
		F		18	05				
27	ZN	eL	20	44	-				
		F		50	-				
28	ZNE	eL	03	56	-				
		F		04	05				
29	ZNE	eL	07	58	-				
		F		08	15				



SEISMOLOGICAL BULLETIN FOR APRIL, 1947

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

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E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

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TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.	
			h.	m.	s.					
✓ 2	ZNE	ePP	05	59	25			13300		
	ZNE	ePKS	06	01	28					
	E	ePPP			43					
	E	e	02	30						
	E	e	03	36						
	E	eSKS	05	12						
	NE	iSKKS	06	21						
	NE	i	07	15						
	Z	iPS	09	08						
	NE	iPS			11					
	NE	e(PPS)	10	(35)						
	E	eSS	14	55						
	ZN	eSS	15	48						
	E	eSSS	19	10						
	NE	eLQ	27	-						
	ZNE	eLR	35	-						
	Z	M	54	19	16					-150
N	M			16	-90					
E	M	55	12	17	-65					
	F	09	30							
✓ 2	Z	iP	20	58	00			10100	Compression	
	Z	ePP	21	01	(40)					
	E	iSKS	03	38						
	ZNE	eS	09	(05)						
	ZNE	iPS	10	02						
	Z	eSS	15	(10)						
	ZN	eSSS	18	(40)						
	ZNE	eLR	29	-						
	N	M	42	15	19					+33
	Z	M	43	45	15					+39
	E	M		49	16					+27
	F	22	15							



DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
4	ZNE	eL	01	51	-				
		F	02	20	-				
8	ZN	eL	00	35	-				
		F		40	-				
9	ZNE	eL	15	01	-				
		F		20	-				
✓ 10	Z	iP	16	10	03			8700	Compression
	ZNE	iS		19	59				
	ZNE	eSSS		28	(42)				
	ZNE	eL		37	-				
	N	M		41	05	24	+51		
	Z	M		42	03	19	+32		
	E	M			12	18	-16		
	F	F	18	10	-				
11	ZNE	eL	00	55	-				
		F	01	20	-				
✓ 11	Z	eP	14	42	(37)				
	Z	ePP		46	38				
	NE	eSKS		53	11				
	ZE	eS			(30)				
	Z	iPS		54	46				
	NE	iPS			51				
	ZNE	ePPS		55	10				
	ZNE	e(SSS)	15	05	-				
	ZNE	eLR		14	-				
	N	M		28	51	16	+29		
Z	M			52	16	-51			
E	M			56	16	-18			
F	F	16	15	-					
12	ZE	iP	14	10	02			2400	
	ZNE	eS		13	58				
	ZNE	eL		16	-				
	N	M		17	04	18	-20		
	Z	M		18	36	10	+25		
F	F	15	00	-					
12	ZNE	eL	16	12	-				
		F		35	-				
13	ZNE	eL	04	39	-				
		F	05	25	-				
14	ZNE	eL	04	23	-				
		F	05	25	-				
✓ 14	ZNE	iP	07	27	52			9050	Dilatation
	Z	e		29	34				
	ZN	ePP		31	02				
	N	ePPP		32	(42)				
	ZNE	iS		38	05				
	ZNE	iPS		39	01				
	ZNE	iPPS			20				



M. 491.....

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

APRIL, 19 47.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
✓ 14 (cont'd)	ZN	eSS	07	43	(42)				
	ZN	eSSS		47 <sup>1</sup> / <sub>2</sub>	-				
	ZNE	eLQ		51	-				
	ZNE	eLR		55	-				
	E	M	08	00	49	24	+59		
	N	M			52	25	-105		
	Z	M		09	34	18	-78		
		F	10	50	-				
16	ZNE	eL	13	30	-				
		F		50	-				
19	ZNE	eL	17	59	-				
		F	18	10	-				
19	Z	eP	20	33	06			2300	
	ZE	eS		36	53				
	ZN	iSSS		38	12				
	E	iSSS			(22)				
	N	M		41	23	16	-30		
	E	M		42	42	12	-14		
	Z	M		43	34	13	+20		
	F		21	00	-				
22	ZNE	eL	19	28	-				
		F		35	-				
23	NE	eL	08	07	-				
		F		25	-				
✓ 24	ZNE	iP	19	44	37			5900	Dilatation
	E	i		44	58				
	NE	eP <sub>c</sub> P		45	25				
	N	ePP		46	(20)				
	ZNE	ePPP		47	26				
	E	iP <sub>c</sub> S		49	23				
	ZNE	e		50	24				
	ZNE	iS		52	06				
	N	eSS		55	(40)				
	ZN	eLQ		58	-				
	ZNE	eLR	20	00	-				
	E	M		02	40	20	+76		
	N	M		03	13	21	-85		
	Z	M		04	08	17	+105		
	F		22	15	-				
26	ZNE	eL	13	40	-				
		F	14	15	-				
26	ZNE	eL	18	28	-				
		F		50	-				
29	NE	eL	06	21	-				
		F		45	-				
30	ZNE	eL	05	26	-				
		F		55	-				



**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN FOR**..... MAY,..... 19 47.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

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COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub>	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$
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Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE : MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.		
			h.	m.	s.					sec.	μ
2	Z	eP	02	30	35			7950			
	ZE	eS		39	51						
	E	ePS		40	07						
	Z	eSSS		49	(10)						
	ZNE	eL		54	-						
2	ZNE	F	03	50	-						
		eL	14	44	-						
3	ZNE	F	15	10	-						
		eL	04	27	-						
3	E	F		40	-						
		e	09	59	07						
		eL	10	18	-						
4	ZNE	F		55	-						
		eL	23	07	-						
6	Z	F		20	-			14100	Dilatation		
		eP	20	46	34						
		iPKP		49	52						
		iPP		51	54						
		i(PKS)		53	04						
		ePPP		54	42						
		eSKKS		58	(18)						
		ePS	21	01	(38)						
		ePPS		03	23						
		eSS		09	-						
		eSSS		14	-						
		eLR		31	-						
		M		44	41					21	+75
		M		45	01					24	-155
M			51	22	+150						
7	F		01	30	-						

## SEISMOLOGICAL BULLETIN.

MAY, 1947.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
8	Z	e	18	56	44				
	ZNE	eL	19	06	-				
		F	20	10	-				
8	ZNE	eL	23	46	-				
		F	00	10	-				
9	ZNE	i	00	17	00				
	ZNE	eL		32	-				
		F	01	30	-				
9	ZNE	eL	12	41	-				
		F	13	00	-				
9	ZNE	eL	14	14	-				
		F		35	-				
9	ZNE	eL	14	47	-				
		F	15	15	-				
10	ZNE	eL	00	39	-				
		F	01	25	-				
10	ZNE	eL	02	55	-				
		F	03	20	-				
11	ZNE	eP	06	35	23			1950	Small pulse
	ZNE	i		36	29				
	Z	ePP		37	02				
	NE	eS		39	42				
	ZNE	e			50				
	ZN	eSS		40	24				
	Z	eL		41	(23)				
	NE	eL		42	-				
	N	M		44	17	14	-43		
	Z	M			51	11	+20		
E	M			01	12	+29			
		F	08	05	-				
11	ZNE	eL	18	54	-				
		F	21	45	-				
11	ZNE	eL	23	07	-				
		F	00	35	-				
12	ZNE	eL	11	13	-				
		F	12	15	-				
12	ZNE	eL	14	55	-				
		F	15	30	-				
14	ZNE	eL	02	28	-				
		F	04	35	-				
16	Z	eL	18	12	-				
		F		20	-				
16	ZNE	eL	04	24	-				
		F		40	-				

# SEISMOLOGICAL BULLETIN.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
17	Z	ePKP1	07	26	(42)			18200	Compression
	Z	iPKP2		27	47				
	Z	ePKS		30	(17)				
	ZN	ePP		31	47				
	E	e		34	(57)				
	ZN	ePPP		35	37				
	N	eSKKS		38	(37)				
	Z	ePPS		45	27				
	NE	eSS		53	-				
	ZN	eSSS		58 <sup>1</sup> / <sub>2</sub>	-				
	ZNE	eL	08	27	-				
	N	M		46	00	21	+54		
	Z	M		53	14	20	+72		
E	M	09	01	12	17	+36			
	F	11	00	-					
24	ZNE	eL	00	28	-				
		F	01	15	-				
25	Z	eL	12	52	-				
		F	13	20	-				
25	ZNE	eL	23	51	-				
26		F	00	20	-				
26	Z	eL	00	47	-				
		F	01	00	-				
26	ZNE	eL	11	44	-				
		F	12	15	-				
26	Z	iP	20	01	30			Deep focus.	
		i			56				
		e		05	30				
		e		12	(59)				
		e		15 <sup>1</sup> / <sub>2</sub>	-				
		eL		35	-				
		F	21	00	-				
27	Z	i	03	54	51			Compression, Deep focus.	
		i		55	(15)				
		i		58	03				
		e	04	01	35				
		i		04	21				
		eL		35	-				
		F	05	10	-				
27	Z	e(P)	06	14	(10)			13000	
		ePP		19	01				
		ePPP		21	(15)				
		eSKS		25	(03)				
		eSKKS		26	11				
		ePS		28	(35)				
		eSS		35	(05)				
		eSSS		39 <sup>1</sup> / <sub>2</sub>	-				
		eLq		48	-				
		eLR		54	-				
		M		07	00	04	25		+285
		M		01	55		22		+130
		M		12	12		22		+170
F		10	30	-					



DATE.	COMP.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
27	ZNE	eL F	21	38	-				
				55	-				
28	Z	i(PKP <sub>1</sub> )	15	07	43			(18000)	Compression
	Z	e(PF)		11	47				
	Z	e(SSS)		40 <sup>1</sup> / <sub>2</sub>	-				
	ZNE	eL <sub>R</sub>	16	09	-				
		F	17	10	-				
30	Z	eL F	00	00	-				
				20	-				
30	ZNE	eL F	14	08	-				
			15	20	-				
30	ZNE	eL F	22	35	-				
				45	-				

SEISMOLOGICAL BULLETIN FOR..... JUNE,..... 1947

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION : RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS : GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS : FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> .	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec-1</sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE : MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.		
			h.	m.	s.						
1	ZNE	eP	11	23	39	16	-26	2400			
	Z	iPP		24	15						
	Z	iPPP			27						
	ZNE	eS		27	(27)						
	ZNE	eL		29	-						
	N	M		31	40						
	Z	M		33	19						
1	ZNE	eL	12	20	-	20	+22				
2	NE	e(s)	19	25	-	16	+23		Z-Component out of action from 1.6. (20h. 40m) to 2.6. (09h. 40m.)		
				40	-						
2	N	M	06	56	30	16	-28				
			E	M	07					09	42
					F					08	10
3	Z	eL	02	00	-						
			F	05	-						
3	ZNE	eL	04	05	-						
			F	35	-						
3	ZNE	eL	06	04	-						
			F	25	-						
4	ZNE	iP	00	34	29	13	+51	2400	Dilatation		
	ZE	iPP			46						
	ZNE	ePPP		35	02						
	ZNE	iS		38	26						
	ZNE	eL		39	-						
	N	M		41	33						
	E	M		42	55						
	Z	M		43	17						
4	Z	F	02	10	-	10	-36				

**SEISMOLOGICAL BULLETIN.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
4	ZNE	eL F	06	08	-				
				55	-				
4	ZNE	eL F	10	39	-				
				45	-				
4	Z	eL F	15	11	-				
				40	-				
5	ZNE	eL	23	37	-				
6		F	00	00	-				
6	ZNE	eL F	01	10	-				
				25	-				
7	ZNE	eL F	05	47	-				
			06	05	-				
7	Z	i(PP)	19	07	00			(11000)	Dilatation
	NE	e(SKS)		13	24				
	ZN	i(PS)		15	52				
	ZNE	eL		30	-				
	N	M		43	37	22	+115		
	E	M		53	57	17	-20		
	Z	M		54	01	16	+42		
		F	21	40	-				
10	ZNE	eL	11	31	-				
	Z	M	12	17	56	17	-16		
		F	13	50	-				
10	Z	iP	19	45	51			2750	Compression
	Z	iPP		46	18				
	ZNE	eS		50	15				
	NE	eSS			41				
	Z	eLR		52	-				
	N	M		53	28	14	-10		
	Z	M		54	32	11	+10		
	E	M			34	11	-11		
		F	21	00	-				
11	ZNE	eL F	22	50	-				
				55	-				
12	ZNE	eL F	06	37	-				
			07	00	-				
12	Z	iP	09	17	06			12300	Dilatation
	ZE	ePP		21	47				
	ZNE	i		22	41				
	E	ePPP		23	(53)				
	ZE	e		25	59				
	ZNE	eSKS		27	38				
	NE	eSKKS		28	(33)				
	Z	eS			(53)				
	N	e		29	13				
	Z	iFS		30	59				
	Z	iPPS		32	05				
	E	eSS		37	(03)				
	F	eSSS		41	(33)				



SEISMOLOGICAL BULLETIN.

JUNE, 1947.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
12 (cont'd)	N	eL <sub>Q</sub>	09	48	-				
	NE	eL <sub>R</sub>		53	-				
	Z	eL <sub>R</sub>		55	-				
	E	M	10	11	08	19	+32		
	N	M			23	20	+54		
	Z	M			27	19	+58		
		F	14	30	-				
12	Z	eL	20	12	-				
		F		20	-				
13	ZNE	eL	16	09	-				
		F		30	-				
13	ZN	iP	20	38	44			11200	Dilatation
	ZNE	iPP		42	56				
	Z	ePPP		44	(57)				
	N	eSKS		49	(37)				
	E	iSKKS		50	12				
	NE	eS			(32)				
	ZN	ePS		52	02				
	ZNE	ePPS			37				
	NE	eSS		57	(12)				
	ZNE	eL <sub>R</sub>	21	12	-				
	N	M		32	41	18	+34		
	Z	M		36	42	18	+47		
E	M			46	16	+34			
14		F	00	10	-			end masked by next shock.	
14	Z	ePP	00	08	24				
	Z	e		10	12				
	ZNE	ePPP			36				
	NE	eSKS		14	48				
	NE	eS		15	56				
	ZNE	ePS		17	27				
	NE	eSS		22	(32)				
	ZNE	eL <sub>R</sub>		38 <sup>1</sup> / <sub>2</sub>	-				
	E	M		53	45	16	-14		
	N	M		55	44	18	+17		
	Z	M		58	46	15	-19		
			F	03	45	-			
14	ZNE	eL	08	23	-				
		F		50	-				
14	ZNE	eL	16	48	-				
		F	18	25	-				
15	ZE	eL	00	30	-				
16		F	01	25	-				
16	ZNE	eL	22	00	-				
		F		45	-				
17	Z	eL	14	56	-				
		F	15	20	-				
19	ZE	eL	02	33	-				
		F	04	20	-				



**SEISMOLOGICAL BULLETIN.**

JUNE, 1947.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
19	Z	iP	07	48	41			(11000)	Dilatation. North- component out of action.
	ZE	e(PP)		52	(44)				
	ZE	i(PPP)		54	58				
	E	e(S)	08	00	06				
	ZE	e(PS)		01	(34)				
	E	e(PPS)		02	(44)				
	NE	eLR		24	-				
	Z	M		42	56	15	+21		
	E	M		46	12	18	+16		
		F	10	15	-				
19	ZE	eL	23	32	-				
20		F	00	00	-				
20	ZNE	eL	12	55	-				
		F	13	20	-				
20	ZE	eP	13	41	(55)			4200	
	ZE	ePP		43	(35)				
	ZE	eS		47	51				
	ZNE	eL		53 <sup>1</sup> / <sub>2</sub>	-				
		F	15	00	-				
20	ZE	eL	17	19	-				
		F		50	-				
20	ZE	eL	19	53	-				
		F	20	20	-				
20	ZE	eL	22	17	-				
		F		30	-				
20	ZE	i(P)	23	14	44			(2650)	
	ZNE	e(S)		19	00				
	ZNE	e(L)		21	-				
21		F	00	15	-				
21	ZNE	eL	01	07	-				
		F		45	-				
22	ZN	eL	02	27	-				
		F		40	-				
22	Z	i	18	21	04				
	ZN	eL	19	20	-				
		F	20	30	-				
23	ZNE	eL	08	57	-				
		F	09	10	-				
23	ZE	eL	19	38	-				
		F		45	-				
23	ZE	eL	22	07	-				
		F		15	-				
25	Z	eL	23	33	-				
		F		55	-				



**SEISMOLOGICAL BULLETIN.**

JUNE, 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
27	ZNE	eL F	11	14	-				
				30	-				
28	ZE	i(PKP)	02	16	00		(12000)	Compression	
	ZE	e(FP)			59				
	Z	e(SKS)		22	(39)				
	ZNE	eL F		48	-				
			03	20	-				
28	ZNE	e	11	16	51				
	ZNE	e		17	15				
		F		22	-				
28	ZE	eL F	19	28	-				
				40	-				
28	ZNE	eL F	22	31	-				
				45	-				
30	ZNE	eL F	08	11	-				
			09	25	-				



AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.
KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.
SEISMOLOGICAL BULLETIN FOR JULY, 1947

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

 CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
 OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD $T_1$	PENDULUM FREE PERIOD $T$	DAMPING CONSTANT $\mu^2$	$\frac{Ak}{\pi l}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec.-1</sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	$\Delta$	REMARKS.
			h.	m.	s.				
1	Z	i	00	00	44				
	Z	e		02	03				
	F		05	-					
4	ZNE	eL	20	18	-				
		F		25	-				
7	Z	eL	10	23	-				
		F		30	-				
7	Z	eP	22	40	24		2450	Dilatation	
	E	ePP		41	15				
	ZE	e			(51)				
	ZNE	iP <sub>c</sub> P		44	13				
	E	iS			23				
	ZN	eL		47	-				
9	ZNE	eL	18	47	-				
		F		19	20				-
10	Z	i	10	29	12				
	ZNE	eL		43 <sup>1</sup> / <sub>2</sub>	-				
		F		12	20				-
10	ZE	iP	16	17	24		9100		
	ZE	e(S)		27	(46)				
	Z	e(SS)		32	(45)				
	ZNE	eL		16	45				
		F		17	50				-
10	Z	eL	13	01	-				
		F		10	-				
11	Z	eL	00	00	-				
					05				-

M.O. 491

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

JULY 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
12	ZN	iP	02	11	04			(8900)	Compression
	ZN	iP <sub>c</sub> P			21				
	ZNE	eS		21	(08)				
	Z	eSSS		31	-				
	ZNE	eL		42	-				
	Z	F	03	35	-				
12	ZE	iPKP <sub>1</sub>	12	49	27			(17000)	Dilatation
	ZNE	iPKP <sub>2</sub>			54				
	ZE	e		51	42				
	Z	ePP		53	(26)				
	ZNE	eL	13	50	-				
	Z	F	15	25	-				
13	ZNE	eL	07	08	-				
		F		25	-				
13	ZE	iPKP <sub>1</sub>	13	17	09			(17000)	Deep Focus ?
	Z	iPKP <sub>2</sub>			(47)				
		F	15	30	-				
14	ZN	eL	12	00	-				
		F		15	-				
16	Z	e(P)	19	33	27				
	ZNE	eL	20	07	-				
		F		45	-				
17	ZNE	eL	05	03	-				
		F	07	00	-				
17	ZNE	eL	10	15	-				
		F		35	-				
21	Z	i	00	53	(00)				
	Z	i		56	(40)				
		F	01	20	-				
21	ZNE	eL	09	42	-				
		F	10	00	-				
23	ZNE	eL	05	42	-				
			06	10	-				
23	Z	e(PP)	17	32	00			12000	
	ZNE	e(PPS)		41	(52)				
	ZNE	eL		59	-				
	Z	M	18	15	24	17	+16		
		F	20	25	-				
24	ZNE	eL	01	53	-				
		F	02	00	-				
24	ZNE	eL	09	08	-				
		F	10	55	-				
24	ZNE	i	10	59	39				
	Z	e	11	03	(00)				
		F	11	20	-				

SEISMOLOGICAL BULLETIN.

JULY, 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
24	ZNE	i	11	20	53				end masked by subsequent shock.
		eL F		45 (40)	-				
24	ZNE	i	12	36	33				Dilatation
	ZNE	eL	13	25	-				
	Z	M F		42 00	40 -	20	+20		
24	Z	eL F	16	48	-				
24	ZNE	eL F	22	51	-				
25	Z	e	01	19	02				
	Z	eL F		22 30	- -				
25	Z	eL F	01	32	-				
25	ZE	eL F	07	02	-				
25	Z	i	19	21	06				
	Z	e		23	13				
25	ZE	i	19	25	02				
25	ZNE	i	19	29	45				
	ZNE	eL F		37 25	- -				
26	Z	e	12	07	30				
	ZNE	eL F		38 25	- -				
26	ZNE	eL F	17	06	-				
26	ZNE	eL	23	16	-				
27		F	00	55	-				
28	NE	eL F	07	47	-				
			08	15	-				
29	ZNE	iP	13	54	37		7800		Compression. Azimuth probably North-East.
	Z	i			53				
	Z	i		55	33				
	Z	i		56	41				
	ZE	iPP		57	24				
	ZE	ePPP		59	(06)				
	NE	iS	14	03	48				
	E	ePS		04	(06)				
	Z	iSKS			44				
	N	eSS		08	04				
	NE	eSSS		11	22				



SEISMOLOGICAL BULLETIN.

..... JULY, ..... 1947.....

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
29 (cont)	NE	eLQ	14	13 <sup>1</sup> / <sub>2</sub>	-				
	Z	eLR		22	-				
	N	M		30	08	15	-195		
	E	M		31	03	16	+155		
	Z	M		32	53	16	-290		
		F		19	20	-			
30	ZNE	eL	00	34	-				
		F	01	00	-				
30	ZNE	eL	08	30	-				
		F		50	-				
30	NE	eL	21	45	-				
		F	22	00	-				
30	ZNE	eL	22	36	-				
		F		50	-				
31	ZNE	eL	10	40	-				
		F		55	-				
31	ZE	eL	14	36	-				
		F	15	20	-				

M.O. 491

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.
KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.
SEISMOLOGICAL BULLETIN FOR AUGUST 1947

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

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INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

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 OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD $T_1$ .	PENDULUM FREE PERIOD $T$ .	DAMPING CONSTANT $\mu^2$ .	$\frac{Ak}{\pi^2}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec.</sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	$\Delta$	REMARKS.
			h.	m.	s.				
1	ZNE	e	01	13	15				
	ZNE	e		14	06				
	ZN	eL		15 $\frac{1}{2}$	-				
	F		30	-					
1	ZE	e	03	14	46				
	ZNE	eL		20	-				
	F		30	-					
1	Z	eL	04	43	..				
	F		05	00	-				
1	ZNE	eL	05	50	-				
	F		06	20	-				
1	ZNE	eL	15	05	-				
	F			35	-				
2	ZNE	eL	01	39	-				
	F		02	10	-				
2	Z	e	02	38	50				
	ZNE	eL		44	-				
	F		03	10	-				
2	Z	eL	06	22	-				
	F			30	-				
4	ZNE	eL	18	30	-				
	F		19	10	-				

M.O. 491

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

**AUGUST 19 47**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
5	ZNE	iP	14	33	41			6000	Compression
	NE	i		34	09				
	E	iP <sub>c</sub> P		35	(16)				
	ZNE	iPP		36	(00)				
	NE	ePPP			53				
	ZNE	iS		41	17				
	NE	eSS		45	(00)				
	NE	eSSS		47½	-				
	ZNE	eLR		49½	-				
	N	M	15	01	08	20	+195		
	E	M		07	03	16	+ 82		
	Z	M			10	15	-160		
	F	19	20	-					
6	NE	iP	05	58	37			(9500)	Dilatation Deep Focus: about 600 Km.
	ZNE	i(P <sub>c</sub> P)	06	00	45				
	Z	e(S <sub>c</sub> P)		01	45				
	ZNE	e(PPP)		04	49				
	E	iSKS		08	(01)				
	ZNE	iS			17				
	Z	i(SKSE)		09	18				
	ZNE	eSS		12	(00)				
	ZNE	eSSS		20½	-				
		F	07	00	-				
6	ZNE	eL	09	53½	-			7350	
	E	M	10	00	16	10	+11		
		F	11	25	-				
7	ZNE	eP	00	51	08			7350	
	ZNE	ePP		53	30				
	Z	ePPP		55	(02)				
	ZNE	iS		59	54				
	Z	ePS	01	00	(00)				
	E	eSS		04	(00)				
	ZNE	eSSS		07	-				
	ZNE	eLR		10	-				
	Z	M		17	46	18	+19		
	E	M			54	16	- 14		
	F	03	25	-					
7	Z	e	12	33	30			6300	
	Z	e		34	(22)				
	ZNE	eL		36½	-				
	F	13	25	-					
7	ZN	eL	15	05	-			6300	
		F		10	-				
9	Z	eP	02	57	58			6300	
	ZNE	ePPP	03	01	22				
	Z	eP <sub>c</sub> S		03	(07)				
	E	eS		05	50				
	ZN	ePS			53				
	Z	e		07	18				
	NE	eSS		09	(32)				
	NE	eL <sub>Q</sub>		12	-				
	ZNE	eLR		14	-				
		F	04	25	-				

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

**AUGUST 1947**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
9	ZNE	eL F	07	13 30	- -				
12	ZNE	eL F	16	07 30	- -				
15	ZE ZE ZE ZNE ZNE NE	iP e ePPP eS eSSS eLR F	04	17 18 22 25 25 <sup>1</sup> / <sub>2</sub> 05 45	29 (17) 49 37 (07) -			3350	
15	ZNE	eL F	09 10	53 55	- -				
16	ZNE	eL F	06	10 55	- -				
17	ZNE E ZNE	e e eL F	09 10	28 46 49 50	(08) (38) - -				
17	Z ZNE E ZNE	eP e(P <sub>CP</sub> ) e(S) eLR F	15	08 12 14 <sup>1</sup> / <sub>2</sub> 35	52 31 48 -			(2400)	
18	ZNE	eL F	07	01 35	- -				
19	ZNE	eL F	20	38 55	- -				
22	Z ZNE ZNE Z ZN E ZNE	ePKP ePP iPKS ePPP ePPS eSSS eL F	02 03	50 53 24 56 05 17 <sup>1</sup> / <sub>2</sub> 42 00	(41) (31) (21) 43 40 - - -			15400	
23	ZNE	eL F	05 06	04 05	- -				
23	NE	eL F	06 07	59 05	- -				
24	Z ZNE NE ZNE ZE ZNE N F	iP iS eS <sub>CS</sub> eSS <sub>CS</sub> e eL M F	11 12 13	46 54 56 58 59 02 <sup>1</sup> / <sub>2</sub> 08 15	32 (12) 25 (22) 16 - 12 12 -	13	-19	6100	Short-Period Vertical Instrument.

M.O. 491.....

**KEY OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

August

19 47

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
26	ZNE	eL F	06	06	-				
27	ZE	i(P)	13	57	49			(14000)	Dilatation Short-Period Vertical.
	Z	i		58	56				
	ZNE	i(PP)	14	02	44				
	N	e(SKS)		07	(44)				
	Z	e		09	(14)				
	NE	e(PS)		13	(15)				
	ZE	eL F		46 17	- 30				
28	ZNE	i(P)	07	02	(15)				
	ZNE	i(P, P)			(33)				
	NE	e(PPP)		07	30				
	NE	e(S)		12	04				
	E	e(PS)			24				
	ZNE	e(PPS)			51				
	N	e(SS)		17	(15)				
	NE	eL		30	-				
	Z	eL		34	-				
	N	M F		42 08	10 40	19	-22		
28	ZNE	iP	14	41	11			9450	Compression.
	E	ePPP		46	(15)				
	ZNE	eS		51	43				
	E	ePPS		52	(45)				
	E	eSSS	15	00	(45)				
	NE	eLQ		03	-				
	ZE	eLR		08	-				
	N	M F		17 16	16 15	20	-10		
28	ZNE	eL F	20 21	35 20	- -				
	29	N	eL F	21 22	53 05	- -			
30	ZNE	iP	22	26	47			2680	Dilatation
	ZNE	iPP		27	18				
	NE	i		30	58				
	ZN	iS		31	06				
	N	eL		32	-				
	N	M		36	38	18	-105		
	Z	M		38	15	10	+67		
E	M		39	13	11	+58			
31		F	00	10	-				

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION : RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS : GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS : FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> .	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec-1</sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE : MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.  
TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.  
SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
1	ZNE	eL F	07	02	-				
				15	-				
2	ZNE	eL F	15	25	-			Instruments out of action from 14h. 12m. to 15h. 25m.	
			17	00	-				
3	ZNE	eL F	16	05	-				
			17	20	-				
3	Z	ePKP	19	15	42		15500		
	Z	e			56				
	ZN	iPP		18	37				
	ZN	ePKS		19	(22)				
	N	e(SKSP)		28	(47)				
	ZNE	eL <sub>R</sub>		58	-				
		F	21	40	-				
4	ZN	e	00	53	(07)				
	ZNE	eL	01	38	-				
		F	02	55	-				
4	ZNE	eL	15	34	-				
		F	16	15	-				
9	ZNE	eL	09	02	-				
		F		30	-				
9	ZN	eL	23	47	-				
10		F	00	05	-				
10	E	e(P)	00	09	(18)		(7350)	Small. In minute time break.	
	NE	e(S)		18	05				
	ZN	e(SS)		21	38				
	N	eL		26	-				
	ZE	eL		29	-				
		F	01	15	-				



DATE	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
11	ZNE	eL F	08	04	-				
11	ZNE	eL F	11	05	-				
13	ZNE	eL F	12	16	-				
13	ZNE	e(P)	15	16	07			(2000)	
	ZNE	e(S)		19	31				
	ZNE	e(SS)			41				
	ZNE	e(SSS)		20	01				
	ZNE	eL		21	-				
	ZNE	F		55	-				
15	ZNE	eL F	10	45	-				
			11	20	-				
15	ZNE	eL F	23	11	-				
				20	-				
17	ZNE	eL F	17	58	-				
			19	30	-				
19	ZNE	eL F	07	43	-				
			08	05	-				
20	ZNE	eL F	19	45	-				
			20	10	-				
20	ZNE	eL F	19	25	-				
			20	10	-				
21	Z	eL F	00	17	-				
				30	-				
23	ZNE	eL F	01	19	-				
				30	-				
23	ZNE	iP	12	36	37			5000	
	ZNE	iPP		38	16				
	ZNE	iPcS		42	19				
	ZNE	eS		43	18				
	ZNE	eSS		46	52				
	ZNE	eSSS		48	(22)				
	ZNE	eLR		52	-				
	ZNE	M	12	59	56	17	-126		
	ZNE	M	13	00	18	15	-76		
	ZNE	M		06	37	16	-79		
	ZNE	F	16	15	-				
25	ZNE	e(P)	23	50	(03)			(15000)	
	ZNE	e(PKP)		52	(53)				
	ZNE	e(PP)		55	(38)				
	ZNE	e(PPP)		58	(29)				
	ZNE	e(SKS)		59	(58)				
	ZNE	e(PPS)	00	07	(31)				
	ZNE	e(SS)		13	(23)				
	ZNE	(LQ)		28	-				

**KEW OBSERVATORY, RICHMOND, SURRE.**

SEPTEMBER 1947

**SEISMOLOGICAL BULLETIN.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
25 (cont)	ZE	LR	00	40	-				
	N	M		30	52	24	+28		
	Z	M		46	22	19	-22		
		F	02	15	-				
26	Z	i(P)	03	12	58				Short-period vert. inst.
	ZE	e		22	(59)				
	ZE	e		24	(43)				
	ZN	eL		30	-				
	N	M		35	34	17	+17		
	Z	M		39	21	14	-11		
		F	05	00	-				
26	ZN	eL	07	15	-				
		F	08	30	-				
26	ZNE	iP	16	14	45			(10000)	Compression. Deep Focus: about 150 Km.
	E	iP <sub>cP</sub>			54				
	ZNE	i(P <sub>PP</sub> )		15	19				
	ZNE	iPP		18	17				
	E	i(P <sub>PP</sub> )			43				
	Z	e		20	(53)				
	NE	i		24	41				
	ZNE	i(SKS)		25	03				
	NE	e			15				
	NE	i(S)			(23)				
	E	e			35				
	Z	i(PS)		26	37				
	N	eSS		31	(23)				
	N	eL <sub>Q</sub>		38	-				
	ZN	eL <sub>R</sub>		40	-				
E	M		48	05	10	+17			
N	M		50	54	28	-155			
Z	M		17	00	14	-56			
			19	20	-				
28	ZNE	eL	04	34	-				
		F	05	20	-				

In minute time break.



AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR.....OCTOBER.....19..47.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION : RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS : GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS : FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)

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COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> .	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$
N.	1940, Nov. 29	<sup>sec.</sup> 24.5	<sup>sec.</sup> 8.2	0.00	<sup>sec.-1</sup> 74.3
E.	1940, Nov. 27	24.0	8.2	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE : MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
						sec.	μ	km.	
1	ZN	e	12	50	(54)				
	ZE	e		51	(06)				
	ZN	e		53	(59)				
		F	14	35	-				
3	ZNE	iP	06	22	44			(6400)	Compression
	ZE	i(PcP)		23	39				Focal depth (570 Km.)
	ZE	e(pP)		24	(34)				
	ZNE	e(sP)		25	(38)				
	ZNE	e(ScP)		26	(39)				
	ZNE	eS		29	(54)				
	N	e(ScS)		31	(24)				
	ZN	i(sS)		33	17				
	ZNE	e(SS)		34	(04)				
	NE	e(SSS)		38	-				
	N	M		44	43	21	+24		
		F	08	00	-				
3	ZE	iP	23	44	30			9200	Compression
	E	iPcP			(38)				Focal depth (90 Km.)
	Z	epP			(53)				
	Z	epPcP		45	00				Short-period vertical instr.
	Z	isp			05				
	E	ePP		47	(54)				
	Z	epPP		48	(09)				
	ZE	ePPP		49	(37)				
	ZE	eS		54	(41)				
	ZE	eSP		55	(36)				
	E	lPS			47				
	E	e SSP on							
		SPS		56	10				
4	ZE	e(LR)	00	09	-				
	ZE	e(SKKS)		14	(24)				
		F	01	10	-				

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN.**

OCTOBER, 1947

DATE	COMP.	PHASE	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
4	ZNE	eL	15	43	-				
		F	16	35	-				
4	ZNE	eL	15	56	-				
		F	18	00	-				
5	Z	e	19	01	(04)				
	ZNE	eL		40	-				
	F		21	45	-				
6	ZNE	iP	20	00	(24)			(2400)	In minute time-break.
	ZNE	eS		04	(20)				
	ZNE	eL		05	-				
	N	M		09	(31)	20	-600		
	E	M			42	14	-125		
	Z	M		11	03	18	+210		
	N	(L <sub>2</sub> )	22	45	-				
	ZN	(L <sub>3</sub> )	23	02	-				
	F		00	15	-				
	7	ZN	eL	02	25	-			
F			03	05	-				
7	ZN	eL	19	08	-				
		F		25	-				
10	Z	iP	07	44	(24)			9300	In minute time break. Focal depth about 300 Km. Only short-period vertical instr. available for Z pulses.
	Z	iPcP			30				
	Z	iP		45	(34)				
	Z	iPcP			(48)				
	Z	iS		46	(06)				
	Z	iS			(16)				
	NE	eS		54	(22)				
	NE	e(SS)		59	(49)				
	NE	e(SSS)	08	03	(24)				
	E	eL <sub>Q</sub>		05 <sup>1</sup> / <sub>2</sub>	-				
	N	eL <sub>R</sub>		08 <sup>1</sup> / <sub>2</sub>	-				
	N	M		18	06	23	+22		
13	ZNE	eL	08	15	-				
		F	09	47	-				
14	Z	e(P)	02	01	(23)				In minute time-break
		i		02	29				
		e		05	55				
		e		09	(41)				
		e		13	(28)				
		e		16	(28)				
		e		20	(37)				
		e		25 <sup>1</sup> / <sub>2</sub>	-				
		M		03	14	20	18	-11	
		F		04	15	-			
14	N	e	22	56	(43)				
		eL		58	-				
		F	23	20	-				
15	ZNE	eL	20	06	-				
		F		45	-				

**SEISMOLOGICAL BULLETIN.**

OCTOBER, 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.	
			h.	m.	s.					sec.
16	ZNE	iP	02	20	07			(7000)	Compression In minute time-break.	
	E	ePcP			37					
	ZNE	ePP		22	(23)					
	ZNE	e(S)		28	(35)					
	NE	eSS		32	37					
	ZNE	eSSS		34 <sup>1</sup> / <sub>2</sub>	-					
	ZNE	eLR		38 <sup>1</sup> / <sub>2</sub>	-					
	E	M		40	44	26	+145			
	N	M		43	02	24	+245			
	Z	M		51	48	16	+150			
	F		07	15	-					
17	ZNE	eL	09	54	-					
	F		10	30	-					
17	ZE	e	13	33	(03)					
	F		14	00	-					
17	ZNE	eL	14	42	-					
	F		15	10	-					
20	ZN	iP	01	53	37			6900 Dilatation.	In minute time-break.	
	Z	iPcP		54	16					
	ZN	ePP		56	(05)					
	ZNE	ePPP		57	(27)					
	Z	ePcS		58	10					
	ZNE	eS	02	02	(02)					
	N	ePPS			33					
	E	eScS		03	(14)					
	ZNE	eSS		06	(07)					
	ZE	eSSS		08	(40)					
	ZNE	eLR		12	-					
	N	M		16	(08)	26	+49			
	Z	M			28	28	+54			
N	M		19	57	23	+49				
E	M		22	36	19	-15				
	F		05	00	-					
21	ZNE	eL	10	22	-					
	F		11	15	-					
22	E	eL	17	35	-					
	ZNE	eL	18	30	-					
	F		19	25	-					
23	ZNE	eL	13	25	-					
	F		13	35	-					
24	ZNE	eL	17	54	-					
	F		19	30	-					
26	ZNE	eL	17	35	-					
	F		18	30	-					
27	Z	i	10	33	24			Short period vertical instr.		
	ZNE	eL		37	-					
	F		12	30	-					
27	ZNE	eL	13	49	-					
	F		15	35	-					





OCTOBER, 1947

**SEISMOLOGICAL BULLETIN.**

DATE	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
28	ZNE	eL	10	40	--				
		F	13	55	--				
28	ZNE	eL	18	03	--				
		F	20	15	--				
29	ZNE	eL	14	55	--				
		F	15	15	--				

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN FOR NOVEMBER, 1947**

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub>	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{\Delta k}{\pi l}$
N.	1940, Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec<sup>-1</sup></sup>
E.	1940, Nov, 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.4	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.  
TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY,  
SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.		
			h.	m.	s.						
1	Z	e(P)	06	13	(38)	.	μ	km.	Pulse not clear.		
	ZE	e(PP)		17	41						
	Z	e(PPP)		19	(17)						
	E	e(SKS)		24	12						
	ZE	e(SKKS)			(32)						
	ZN	e(S)		25	(02)						
	E	e(PS)		26	(47)						
	N	e(SS)		31	(37)						
	Z	e(SKKS)		36	(57)						
		return)									
	NE	e(SKKS)		40	(49)						
	ZE	e(LR)		45	-						
	N	M		07	02 55					20	+17
	Z	M		07	05 33					21	+21
	F		08	35 -							
1	ZNE	1P	15	11	48	.	μ	km.	9700 Compression. Destructive in Peru. In minute time-break. In minute time-break.		
	ZN	ePP		15	(17)						
	ZNE	eSKS		22	(17)						
	ZN	eS			34						
	Z	ePS		23	35						
	E	eSS		28	(31)						
	ZN	eSSS		32	(02)						
	NE	eLQ		35	-						
	N	M		49	14					19	+104
	Z	M		50	11					18	+284
	E	M			13					17	-71
	F		20	(00)	-		Negative maximum.				
2	ZNE	e	06	56	-	.	μ	km.			
			07	09	-						

SEISMOLOGICAL BULLETIN.

NOVEMBER, 19 47.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
2	Z	iP	07	12	24			(8700)	Focus probably deeper than normal.
	ZNE	e(PcP)			(31)				
	Z	e(FP)		15	(30)				
	ZE	e(PPP)		17	(11)				
	E	e(S)		22	(21)				
	ZNE	e(SKS)			(31)				
	NE	e(PS)			(56)				
	ZN	e(PPS)		23	(14)				
	ZNE	e(SS)		26	58				
	E	e(SSS)		30	(36)				
	ZE	eLR		36 <sup>1</sup> / <sub>2</sub>	-				
	F		08	30	-				
3	ZN	eL	12	34	-				
	F		13	20	-				
4	Z	iP	00	21	14			8900	In minute time-break.  Negative maximum
	ZNE	ePP		24	(22)				
	ZN	ePPP		26	(16)				
	ZNE	iS		31	(16)				
	ZNE	eSS		36	(56)				
	ZNE	eSSS		40	(16)				
	NE	eLq		43	-				
	E	M		54	45	20	-94		
	N	M		56	11	24	-134		
	Z	M		58	56	24	-183		
	F		03	00	-				
5	NE	eL	00	05	-				
	F			20	-				
5	NE	eL	03	02	-				
	F			45	-				
6	ZNE	eL	16	30	-				
	F			37	-				
7	Z	iP	23	13	28			9600	Short period vertical instr.
	E	eSKS		23	(50)				
	N	eS		24	(06)				
	E	ePS			(44)				
	N	eLq		35 <sup>1</sup> / <sub>2</sub>	-				
	Z	eLR		40	-				
	F		00	25	-				
8	ZNE	eL	02	27	-				
	F			33	-				
8	ZNE	eL	04	45	-				
	F		05	10	-				
8	ZNE	eL	14	10	-				
	F			25	-				
8	ZNE	eL	16	55	-				
	F		17	10	-				



**SEISMOLOGICAL BULLETIN.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
9	ZNE	iPKP	05	17	36			16600	Dilatation
	Z	e		19	50				
	ZNE	e(PKS)		21	(12)				
	ZE	e(PP)			(32)				
	ZNE	e(PP)							
	NE	e(SKS)		24	(42)				
	N	e(SKKS)		28	06				
	NE	e(SKKS)			46				
	N	e(PSKS)		31	(34)				
	E	i(SS)		34	18				
	N	e(SSS)		40	42				
	ZN	e(LR)	06	09	-				
	Z	M		26	39	19	+25		
	E	M		28	57	16	+10		
N	M		29	47	21	+25			
	F		07	45	-				
9	N	(eL)	15	54	-				
	ZNE	(eL)	16	09	-				
	F			30	-				
10	ZNE	eL	03	32	-				
	F		04	01	-				
10	ZE	e(P)	04	03	37			(2900)	In minute time-break.
	Z	e(PP)		04	(10)				
	NE	e		05	40				
	ZNE	e(PcP)		07	(04)				
	ZNE	e(S)		08	(14)				
	F		06	15	-				
10	NE	eL	10	43	-				
	F		11	20	-				
11	ZNE	eL	06	48	-				
	F		09	15	-				
11	NE	eL	22	55	-				
	F		23	20	-				
12	NE	eL	01	08	-				
	F			15	-				
12	ZNE	eL	12	03	-				
	F			15	-				
12	ZN	i(PKP <sub>1</sub> )	16	37	49			(18000)	
	ZNE	i(PKP <sub>2</sub> )		38	(43)				
	Z	i(PP)		42	27				
	ZN	i(PKKP)		45	52				
	Z	e(PPP)		46	31				
	E	e(SS)	17	03	(07)				
	F		19	20	-				
13	ZNE	eL	03	54	-				
	F		04	20	-				



**SEISMOLOGICAL BULLETIN.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
14	ZNE	eL	05	53	-				
		F	06	25	-				
14	ZNE	e	11	11	54				Z record incomplete. Focus probably deeper than normal.
	NE	e		17	08				
	NE	eL		31	-				
		F	12	20	-				
15	ZNE	eL	23	50	-				
		F	00	30	-				
16	ZNE	eL	02	30	-				
		F		55	-				
17	ZNE	iP	10	12	32			(3300)	Compression
	NE	e(FcP)		15	44				
	ZNE	e(S)		17	34				
	NE	e(SS)		18	(48)				
	ZNE	e(LR)		20 <sup>1</sup> / <sub>2</sub>	-				
	E	M		23	25	16	-10		
	Z	M		24	21	20	-23		
		F	11	20	-				
20	ZNE	eL	08	28	-				
		F	09	30	-				
21	Z	i(P)	04	07	(08)			(9100)	In minute time-break.
	NE	e(S)		17	(23)				
	E	e(PS)		18	(20)				
	NE	e(PPS)			(43)				
	NE	e(SS)		23	(03)				
	NE	e(SSS)		26	27				
	NE	e(LQ)		29	43				
	NE	e(LR)		33	-				
	N	M		37	06	20	-22		
	E	M		42	21	16	+11		
	Z	M		48	51	14	-16		
	E	M		52	11	14	+11		
		F	05	50	-				
21	ZNE	eL	19	35	-				
		F	21	25	-				
22	NE	eL	22	23	-				
		F	23	15	-				
23	Z	iP	09	57	00			7500	Short period vertical instr.
	NE	eS	10	05	56				
	E	e(PS)		06	13				
	E	e(PPS)			31				
	NE	e(SS)		10	36				
	NE	e(SSS)		13	(26)				
	ZNE	e(LR)		17	-				
	N	M		25	51	16	+16		
	Z	M		26	56	13	+24		
	E	M		27	11	14	-19		
		F	11	25	-				

M.O. 491

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

NOVEMBER, 1947

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
23	ZNE	eL F	18	40	-				
				55	-				
25	NE	eL F	09	18	-				
				30	-				
25	ZNE	eL F	19	00	-				
				10	-				
26	NE	eL F	23	33	-				
			24	00	-				
29	Z	iP	10	18	46				
	ZNE	e(s)		21	(55)			(1800)	Short period vertical instr.
	N	M		26	01	16	+17		
		F	11	00	-				







**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN FOR DECEMBER, 19 47**

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914)  
OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1918).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub>	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{\Delta b}{\pi t}$
H.	1940 Nov. 29	24.5 <sup>sec.</sup>	8.2 <sup>sec.</sup>	0.00	74.3 <sup>sec<sup>-1</sup></sup>
E.	1940, Nov. 27	24.0	8.0	0.00	81.5
Z.	1940, Dec. 14	14.1	14.2	0.00	75.9

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMP.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
3	NE	eL F	13	10	-				
				20	-				
3	NE	eL F	15	07	-				
				30	-				
4	ZNE	eL F	17	49	-				
			18	05	-				
8	ZNE	eL F	18	40	-				
			19	25	-				
9	Z	i(P)	23	46	17		(2800)	Short period vertical inst.	
	ZE	e(PP)		47	06				
	ZNE	e(S)		50	(48)				
	ZNE	e(SS)		52	(18)				
10	E	M F	00	00	35	15	+11		
				30	-				
11	ZNE	eL F	13	10	-				
			14	15	-				
13	NE	eL F	13	16	-				
				25	-				
13	NE	eL F	23	52	-				
			24	00	-				
15	Z	i(PKP <sub>1</sub> )	19	40	28		(18600)	Focal depth (80K) Compression. Clear pulse.	
	Z	i(pPKP <sub>1</sub> )			47				
	Z	i(sPKP <sub>1</sub> )			58				
	ZNE	i(PKP <sub>2</sub> )		41	28				
	E	e(PKP <sub>2</sub> )			50				



**SEISMOLOGICAL BULLETIN.**

**DECEMBER, 1947.**

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
15 (cont.)	Z	i(PKP)	19	41	57				Clear pulse with large amplitude, on Z component.  In minute time break.  In minute time break.
	ZE	i(PKS)		43	48				
	ZNE	i(PP)		45	17				
	ZE	i(PPP)			37				
	ZN	e(SKS)		47	23				
	Z	e(PPP)		49	07				
	ZNE	e(SKKS)		52	(01)				
	NE	e(SKSP)		55	(46)				
	E	e(PPS)		59	(01)				
	ZNE	e(SS)	20	06	(01)				
	ZNE	e(LR)		39	-				
	N	M		52	03	19	+15		
	Z	M		56	45	18	-10		
	E	M		57	57	18	+14		
	F		22	00	-				
16	ZNE	e(L)	21	06	-				
	F			20	-				
16	ZNE	eL	21	33	-				
	F		22	20	-				
18	ZNE	eL	13	11	-				
	F			20	-				
19	Z	i(P)	04	47	18		(6800)	Compression.	
	Z	e(S)		55	(36)				
	ZE	e(SS)		59	(12)				
	NE	e(LQ)	05	03	-				
	Z	e(LR)		05	-				
	F		06	20	-				
19	Z	e(PP)	16	52	46		(11500)	Short period vertical inst.	
	Z	e(PKS)		56	(10)				
	Z	e(SKS)		59	48				
	NE	e(S)	17	00	10				
	NE	e(PS)		01	52				
	Z	e(SS)		07	(42)				
	Z	e(LR)		21	-				
	F		18	30	-				
20	ZNE	eL	08	31	-				
	F		09	10	-				
21	ZNE	e(P)	17	46	(42)				
	Z			49	(30)				
	ZNE			56	(32)				
	N	e(L)		58	-				
	NE	e(L)	18	00	-				
	F		19	15	-				
24	ZE	e(PKP)	05	41	(15)		(15800)		
	ZE	e(PP)		44	(34)				
	NE	e(SKS)			56				



**SEISMOLOGICAL BULLETIN.**

DECEMBER, 1947.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
24 (cont.)	ZE	e(PPP)	05	47	(47)				
	N	e(SKS)		48	(34)				
	NE	e(SKKS)		51	30				
	ZF	e(PKKS)		53	(30)				
	E	e(LQ)	06	21	-				
		F		08	00	-			
25	NE	eL	02	35	-				
		F	03	45	-				
28	ZNE	eL	17	48	-				
		F		55	-				
29	ZNE	eL	15	40	-				
		F		45	-				
29	ZNE	eL	18	19	-				
		F		25	-				
29	ZNE	eL	18	47	-				
		F	19	10	-				
30	ZNE	eL	00	12	-				
		F		25	-				
30	ZNE	eL	02	31	-				
		F	03	20	-				
30	ZNE	eL	07	05	-				
		F		25	-				
30	ZNE	eL	09	04	-				
		F		15	-				
31	ZNE	e(L)	16	15	-				
		F	17	20	-				

