



SEISMOLOGICAL BULLETIN FOR...January.....1939...

Lat. 51° 28' 8" 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 ₁ .	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ ² .	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec ⁻¹ 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
Z.	1939, Nov. 21	14.25	12.3	-0.01	73.4

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.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940						sec.	μ	km.	
2	ZNE	e(L) F	12	13	-				Confused by microseisms
				40	-				
6	ZNE	eL F	09	00	-				
				40	-				
6	Z	i	14	23	02				eNE.
	Z	i			10				
	Z	i			31				
	N	i		26	40				
	Z	e		27	01				
	ZN	i			26				
	N	i		28	51				
	Z	i		30	30				
	Z	i		31	34				
	N	i		32	23				
	N	i		33	02				
	Z	i		34	10				
	ZN	i		36	58				
	N	i		37	12				
	ZN	i			34				
	Z	i		39	26				
	N	i		42	42				
	NE	e		45	50				
	E	e		51	50				
	E	eL _Q	15	05 $\frac{1}{2}$	-				
	NZ	eL _R		13 $\frac{1}{2}$	-				
	N	M		15	33	35	+54		
	Z	M		20	34	28	+29		
	E	M		24	15	26	+19		
		F	16	40	-				



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.....January.....1940...

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
6	Z	iP	19	10	.04			2640	Larger movement
	NE	iS		14	20				
	ZNE	i			25				
	N	eL		17	-				
	N	i(P _C S)			46				
	F		40	-					
7	ZNE	e	04	10	-				
		F		30	-				
10	N	e	11	55	-				
		F	12	00	-				
15	ZNE	e	13	29 ¹ / ₂	-				
		F		37	-				
17	Z	e	01	29	35				Doubtful pulse eE.
	Z	e		33	24				
	ZN	i			32				
	ZN	i			47				
	ZN	i		34	01				
	Z	e		37	35				
	Z	i			52				
	N	i		40	03				
	N	i			15				
	NE	i		41	07				
	E				29				
	ZN	i		42	47				
	Z	i		43	04				
	N	i			15				
	Z	i			43				
	Z	i			55				
	NE			48	25				
	N				43				
	ZNE				55				
	E	eL _Q		02	03	-			
ZN	eL _R			08	-				
E	M			12	00	25	-43		
N	M			18	04	20	-43		
Z	M				32	22	+44		
	F		04	10	-				
18			16	00	-				
19			15	00	-			Time marking system out of order Disturbance on 19d. from about 0600hrs. to 0620hrs.	
20	ZNE	eL	11	15	-				
		F		12	10	-			
26	ZN	eL	08	00	-			Very small	
26	Z	e	17	23	-				(Doubtful pulse Small movement " " " " " "
	NE	i		28	22				
	N	i		32	34				
	N	e		34 ¹ / ₂	-				
	N	e		41	34				
	NE	eL _Q		47 ¹ / ₂	-				

M.O. 455.....

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

...January.....1940...

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940. 26	N	M	17	54	15	26	-32		
	Z	eL		55	-				
	E	M ^R		56	39	24	-25		
	Z	M	18	05	08	13	+19		
		F		40					
26	N	e	23	40	-				
	Z	e		44	-				
		F		48					

(Signed)

G.C. Simpson K.C.B.
Superintendent.

6th February 1940



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

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

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N.	1939, June 30	24.5 ^{sec.}	8.2 ^{sec.}	0.00	77.7 ^{sec-1}
E.	1939, July 21	24.3	8.1	0.00	72.8
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			h.	m.	s.				
1940									
7	Z E N N E ZN	iP iS i e eLQ eLR F	17	27	53			8550	52°N 175°E (USCGS) Long waves poorly developed.
9	ZNE	eL F	14	40	-				
12	NE Z	eL eL F	00	48	-				Confused by microseisms
16	ZE	e F	01	40	-				
20	ZN Z Z ZN N N Z N ZN N E Z ZNE NE	iPKP i ipPKP ePP iSKP ipKS ipPP ipPKS epPPP i eSKKS iPSP eSS eSSS	02	37	27			15,200	Dilatation eE Azimuth about North Focal depth about 200 Km
			03	03 $\frac{1}{2}$	-				

M.O. 455

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

February.....19.40..

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
20	E	eL _Q		15	-				Long waves small
	ZN	eL _R		25	-				
		F		04	30	-			
20	ZNE	e	14	10	-				Small Confused by microseisms
		F		40	-				
22	N	eL	14	20	-				Very small
		F		35	-				
23	N	e	00	47 $\frac{1}{2}$	-				
	N	i(L)		49	51				
	ZE	e(L)		51	-				
	N	M		51	55	10	+15		
		F		01	05	-			
24	Z	e	12	30	32				
	N	e		41	08				
	NE	eL _Q	13	01	-				
	Z	eL _R		06	-				
	Z	M		13	56	20	+15		
	N	M			59	20	+15		
		F		40	-				
29	ZNE	iP	16	13	05			2720	Compression Amplitudes of first movement as read in mm:- Z N E +2.1 +0.8 -0.8 Giving azimuth 135°
	ZN	i			17				
	ZNE	i			25				
	N	iS		17	27				
	E	i			35				
	E	i			43				
	Z	i			51				
	Z	i		18	09				
	E	i			15				
	Z	i			19				
	E	i			30				
	N	i			41				
	N	eL		20 $\frac{1}{2}$	-				
	ZE	eL		22 $\frac{1}{2}$	-				
	N	M		23	07	14	-48		
E	M		24	40	14	-26			
Z	M			43	13	+40			
	F		17	10	-				

(Signed)

G.C. Simpson K.C.B.
Superintendent.

5th March 1940.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

10 APR 1940

File Hall

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR.....MARCH.....19..40..

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

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N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec ⁻¹ 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
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			h.	m.	s.				
1940						sec.	μ	km.	
3	Z	i(FkP)	00	25	18				
	Z	i			50				
	Z	i		26	13				
	ZN	eL	01	20	-				
		F	02	25	-				
4	ZN	e	20	15	27				
	N	e		19	11				
	N	eL		21	-				
	ZE	eL		22 $\frac{1}{2}$	-				
		F		40	-				
6	ZN	eL	20	05	-				Small
		F		20	-				
7	Z	eL	08	12	-				Very small
		F		30	-				
11	ZNE	eL	12	10	-				Very small
		F		25	-				
12	ZNE	e	23	18	-				Small, not very distant
		F		22	-				
14	Z	e	18	42	49				Very small
	Z	e		47	17				
	Z	i		50	17				Small movement, confused by microseisms
	Z	i			57				
	Z	i		52	56				
	Z	e	19	00 $\frac{1}{2}$	-				
	Z	e		02	44				
	N	e		07	37				
	Z	e		10	39				
	NE	eLQ		30	-				



SEISMOLOGICAL BULLETIN.

MARCH.....19.40..

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940									
14	Z	eL _R		40	-				
	N	M		45	19	34	+20		
	Z	M	20	03	28	22	+16		
		F		45	-				
15	ZNE	eL	06	28	-			Small	
		F		42	-			Confused by microseisms	
16	ZN	e	07	42	-			Very small.	
		F		48	-				
18	Z	e	06	46	18			Confused by microseisms	
	ZNE	eL	07	05	-				
		F		45	-				
19	N	e	04	52	05			Confused by microseisms	
	N	e		56	36				
	N	e			46				
	N	e(L)	05	04 $\frac{1}{2}$	-				
	ZE	e(L)		08	-				
		F		20	-				
21	Z	e	14	21	15			small movement	
	ZNE	eL		53	-				
		F	16	10	-				
22	Z	e	20	43	40			small movement.	
	ZNE	eL	21	40	-				
		F	22	40	-				
28	Z		12	43	12			All movements before 13h. 15m	
	E	e			20			very small and confused by	
	Z	e		48	15			microseisms	
	ZN	e		50	11				
	E	e		53	-				
	ZN	e			30				
	N	e		55	27				
	Z	e(L?)		58 $\frac{1}{2}$	-				
	E	e(L?)	13	05	-				
	N	eL		17	-				
	Z	M	13	26	20	17	+17		
		F	14	20	-				
	Z	i(P)	16	02	04			(10,500) Focal depth about 200 km	
	Z	e(pP)			54				
	Z	i(PP)		06	04			(Analysis tentative)	
	Z	e(pPP)			47				
	NE	i(SKS)		12	19				
	Z	i(SP)		14	23			Large movement	
	Z	e(PS)			51				
	Z			16	23				
	Z	(PKKP)		19	15				
	N	(SS)			56				
	N	e(SSS)		24 $\frac{1}{2}$	-				
	N	eL		30	-			Long waves not well developed.	
	ZE	eL		40	-				
		F	17	20	-				
30	Z	eL	00	55	-			Very small.	
		F	01	10	-				

SEISMOLOGICAL BULLETIN.

MARCH

1940.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940 31	ZE	e F	17	43	- 50				Small, confused by microseisms. (Signed) G.C. Simpson K.C.B. Superintendent. 2nd April 1940.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING

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

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			h.	m.	s.				
1940						sec.	μ	km.	
1	Z	e	11	39	28				Small movements (by path greater than 180°)
	Z	e		42	18				
	E	e		47	15				
	ZE	e		49 ¹ / ₂	-				
	Z			52	24				
	Z			55	56				
	E	e(L)	12	11 ¹ / ₂	-				
	Z	eL		18	-				
	Z	eL	13	25	-				
	Z	F		50	-				
6	ZE	eL	14	24	-				
		F	15	05	-				
8	ZE	e(L)	09	50	-				Confused by microseisms Very small
		F	10	10	-				
10	Z	e	20	36	37				Very small movement
	E	eL		59	-				
	Z	eL	21	03	-				
		F		45	-				
11	ZE	eL	09	48	-				Very small
		F	10	15	-				
13	ZNE	e	06	39	48				Not very distant
	ZE	e(L)		45	-				
		F	07	15	-				
14	E	e	15	35	-				Small, confused by microseisms
	Z	e		40	-				
		F	16	10	-				



DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940									
16	ZN	iP	06	19	33			8,500	Compression
	Z	I			46				
	Z	i			55				Azumuth about North
	Z	i(PP)		22	49				
	NE	iS		29	19				
	E	iSKS			37				N component record defective
	ZE	iPS			55				
	Z	e(SS)		35	16				
	Z	eSSS		38	17				
	E	LQ		39	57				
	ZE	eLR		43 ¹ / ₂	-				
	E	M		55	08	19	+28		
	Z	M	07	05	22	17	+31		
		F							Overlapped by next shock
16	Z	iP	06	54	53			(8,600)	iP from short period instrument.
	E	(S)	07	04	45				Confused by later movement of preceding shock
	ZE	eL		18	-				N component record defective
	E	M		35	54	18	+32		
	Z	M		38	28	16	+50		
		F	09	45	-				
18	Z	eL	20	50	-				Very small
		F	21	05	-				
19	Z	e	15	18	20				Very small movement
	ZNE	eL		26	-				
		F		55	-				
20	ZNE	eL	20	36	-				Very small
		F		50	-				
22	NE	e	12	25	10				
	ZNE	e(L)		37	-				
		F		55	-				
23			19	50	-				No record on Galitzin instruments.
			20	40	-				
24	ZNE	eL	11	25	-				
		F	12	00	-				
24			15	15	-				No record on Galitzin instruments.
				55	-				
26	E	e(P)	07	56	35			(900)	First pulse very doubtful (on Wood-Anderson E component only)
	E	e(S)		58	12				
	N	e(L)		59	-				
	ZE	e(L)	08	00 ¹ / ₂	-				
	F			04	-				
26	N	E	21	13	50				Very small pulse. Not very distant.
	ZNE	e(L)		17	-				
		F		24	-				



SEISMOLOGICAL BULLETIN.

.....April.....1940.....

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1940									
26	N	e F	22	26	20				Very small
				31	-				
27	Z	e	09	57 $\frac{1}{2}$	-				All movements very small
	Z	E		58 $\frac{1}{2}$	32				
			10	08	-				No record during changing of charts.
				22	-				
	ZN	eL F		35	-				Overlapped by next shock.
27	Z	e(PKPa)	10	42	42				(a15,000) Analysis into two shocks (b8,000) is tentative
	Z	e(Pb)		44	39				
	Z	e(PPP a)		48	39				
	N	e(SKSA)		50	07				
	N	e(Sb)		53	59				
	Z	e(SKSb)		54	48				
	N	e(SSb)		58	33				
	N	e(PSS a)	11	04	24				
	ZNE	eL(b)		06 $\frac{1}{2}$	-				
	N	M(b)		09	52	13	+10		
	Z	M(b)			56	12	+9		
		F	12	45	-				
27	Z	e	18	24 $\frac{1}{2}$	-				All movements very small
	N	e		28	-				
	Z	e		37	54				
	Z	e	19	01	-				
	ZNE	eL		10	-				
		F	20	30	-				
30	ZNE	e F	05	33	-				Small
				55	-				

(Signed)

G.C. Simpson K.C.B.
Superintendent

3rd May 1940.

Correction to Kew Seismological Bulletin.

March 1940

The earthquake listed on the 28th at 12 hrs, is wrongly dated. The shock occurred on the 27th. The times are given correctly.



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

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			h.	m.	s.				
May 1	ZNE	eL F	13	25	-				
4	Z E N N N ZNE	iP eS iSKS ePS eSS eL F	07	35	55			8500	eN 53°N 173°E (U.S.C.G.S.)
4	ZNE	eL F	17	30	-				
4	Z Z N ZN N N N E Z E N	iP ePP iS iSS i i i i M M M F	21	10	07			4770	eE (and PcP) eZE (and ScS).large movement. Beginning of long waves not well marked.
						17 18 17			+23 -20 +54
5	Z E N N N N ZE	iP eSKS S i eSS eL eL	02	16	40			9750	Compression
									27 04 27 42 33½ - 42 - 45 -

M.O. 455.....

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

.....MAY.....1940..

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
		F	04	50	-				
5	ZNE	eL F	06	30 45	- -				Very small
7	Z NE N N N ZE	P eS eSS i(L) i i M F	22	30 35 36 41 42 43 45 23	03 10 33 30 26 26 - 45			3350	Beginning of long wave not well marked.
10	ZE	e F	02	11½ 20	- -				Small
11	Z Z Z Z E ZE	P (PcP) (ePP) e S eL F	14	06 09 12 16 35 15	30 56 18 46 14 45			8470	
11	Z	e(L) F	21 22	45 00	- -				Small
17	ZE	eL F	02 03	40 00	- -				Small
17			15	18 51	- -				No record on Galitzin instruments
18			10 12	25 05	- -				No record on Galitzin instruments.
19	Z Z E N E E E Z N ZE N Z E	eP e(PcP) eS eSKS ePS e eSS eSSS eL _Q eL _R M M M F	04	48 49 59 08 32 02 04 08 13 15½ 21 25 55 07	53 18 - 08 - 22 30 - - - 58 53 55 45			8930	Felt in California
19	ZN Z Z ZNE E	i i e e i F	15	28 31 34 37 41 16	41 39 21 33 09 05				N-Z records defective

SEISMOLOGICAL BULLETIN.

19.....

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.				
19	Z		18	28	37				
	Z				47				
	ZE	eL	19	05	-				N & Z records defective
		F		15	-				
20			10	10	-				No record on Galitzin instruments.
21			09	55	-				
	Z		19	08	03				
	Z	i			08				eE
	Z				17				Small
	Z	e	09	41					Near shock
		F		12	-				
23	Z	e	06	13	1/2-				Small,
	ZE	e		23	-				
	E	eL		45	-				
	Z	eL		50	-				
		F	07	35	-				
24	Z	iP	16	46	55			10330	eNE, Compression
	ZNE	i			16				First movement in
	Z	iPP		50	52				minute break.
	NE	i		56	44				Small movement
	N	iSKS		57	48				eZE
	E	iS		58	08				eN. Large movement.
	N	iPS		59	22				
	ZNE	iSS	17	04	09				Large movement.
	E	eSSS		07	35				
	N	iSSS			53				Reported from Callao
	Z	i		08	30				
	N	eLQ		10	35				
	E	eL		12	-				
	N	M		15	42	36	+970		
	Z	eLR		18	-				
E	M		22	50	23	+300			
Z	M		23	18	22	+205			
N	M		25	30	19	+250			
	F		21	40	-				
24	Z	e	19	10	55				In minute break, very small.
	Z	i		13	15				larger movement.
	Z	i			31				Long train of very short
	Z	i			44				period waves.
	Z	i			58				
		F		18	-				
24	Z	iP	22	10	52			10370	eNE Compression
	Z	ePP		14	1/2-				
	ZNE	eSKS		21	25				
	N	iS		22	07				
	NE	i			30				Probably repetition of
	Z	ePS		23	11				shock at 16h.
	N	e		25	20				
	N	eSS		27	45				
	N	eLQ		35	1/2-				
	ZE	eLR		42	-				
	E	M		46	17	25	+24		
	N	M		48	32	20	-29		
	Z	M		49	56	18	+22		

SEISMOLOGICAL BULLETIN.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
25		F	01	00	-				
27	ZE Z E Z	i i e i F	04	19 20 26 33 50	22 37 25 07				eN eE Very small
27	ZNE	eL F	09	00 50	- -				Small
28	Z Z ZNE Z N ZNE Z NE N ZE E N	e e i e e e e e L L M M F	09 10	59 00 01 03 08 11 12 21 28 38 47 52 12	35 59 08 43 39 03 - 15 - - 27 59 -				Very small (Doubtful Pulse) Very small, on short period instrument only
						19 22	+10 +27		Doubtful pulse.
29	Z Z ZNE E ZE NE Z N	iP i eS eSS e(SSS) eLQ eLR M F	02	07 15 17 22 24 27 33 04	35 44 23 23 15 - - 24 - -			6230	eN.
						16	+20		Small
29	ZNE	eL F	15 16	38 05	- -				Small
31	N	eL	02	00 15	- -				Small

(Signed)
 G.C. Simpson
 Superintendent
 5th June 1940