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METEOROLOGICAL DEPARTMENT



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DIRECTOR GENERAL OF OBSERVATORIES.

INSTRUMENTS AND THEIR CONSTANTS

Station	Instrument	Compt.	Period in Sec.	Static Magnifi- cation	Damping ratio	Paper Speed mm/min.
Bombay	Milne-Shaw	N-S	12.0	350	Unreliable	16.0
	Milne-Shaw	E-W	12.0	350	9 : 1	8.0
	Sprengnether	E-W	7.0	—	—	30.0
Calcutta	Milne-Shaw	E-W	10.0	150	20 : 1	8.0
	Wood-Anderson	N-S	2.0	870	Critical	30.0
	Omori-Ewing	N-S	18.0	32	—	25.4
	Omori-Ewing	E-W	19.0	30	—	25.4
Chatra	Wood-Anderson	N-S	1.0	1000	30 : 1	60.0
	Wood-Anderson	E-W	1.0	1000	40 : 1	60.0
	Benioff	Z	$T_0=0.72$ $T_g=0.45$	—	—	60.0
Colombo	Milne-Shaw	E-W	12.0	250	18 : 1	—
Dehra Dun	Milne-Shaw	N-S	12.0	250	20 : 1	16.0
	Wood-Anderson	E-W	1.0	1000	30 : 1	60.0
	Wood-Anderson	N-S	1.0	1000	30 : 1	60.0
Hyderabad	Milne-Shaw	E-W	12.0	253	20 : 1	8.0
	Milne-Shaw	N-S	12.0	251	20 : 1	8.0
Kodaikanal	Milne-Shaw	E-W	10.0	250	20 : 1	8.0
Madras	Sprengnether	E-W	7.2	—	Critically damped	30.0
New Delhi	Milne-Shaw	N-S	12.0	288	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1070	20 : 1	16.0
	Wood-Anderson	E-W	2.0	1841	30 : 1	60.0
	Omori-Ewing	E-W	28	30	1	12.0
Poona	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	E-W	4.0	1100	20 : 1	16.0
	Sprengnether	Z	$T_0=T_g=1.5$	—	—	30.0
Shillong	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1000	20 : 1	30.0
	Wood-Anderson	N-S	0.8	800	20 : 1	30.0
	Wood-Anderson	E-W	0.8	800	20 : 1	30.0
	Sprengnether	E-W	$T_0=T_g=7.5$	—	—	30.0
	Benioff	Z	$T_0=1.0$ $T_g=0.18$	—	—	60.0

Date	Station	Compt.	Phase	G.M.T.			△	km.	Remarks
				h.	m.	s.			
May 1954									
03 Contd.	New Delhi	E	SS i	17	51				
03	Shillong	Z	ePg eSg	11	18	15	70	Slight.	
03	Shillong	Z	e(P?) e(Sg?)	11	22	17	110	Slight.	
03	Shillong	Z	e	11	46	27		Tremor.	
03	Dehra Dun	NE	e i i	13	14	16		Slight, phases not clear.	
				14	54				
				14	55				
03	Epc : 51½° N., 159½° E. Off the SE Coast of Kamchatka ; 0=15h 29m 40s (U.S.C.G.S.) Magnitude -6½-7 (Pasadena), 6½ (Praha, Hurbanovo, Uppsala), 6½ (Kiruna).								
	Shillong	ZEN	iP PcP PPP eS PS PPS e	15	39	27	6270	Moderate.	
		EN		40	07				
				42	52				
				47	19				
				47	23				
				47	39				
				52	15				
		E	LR(?)	56	25				
		EN	M	59	12				
	Chatra	Z	eP	15	39	42		Slight, distant. Other phases not clear.	
	Dehra Dun	N	eP eS e	15	40	03		Slight, phases not clear.	
				48	28				
				50	08				
	Calcutta	E	iP iS LQ Mn	15	40	03	6780	Moderate. First Motion East.	
				48	21				
				55	29				
				16	10	41		Per.=12 secs μ=28.	
	New Delhi	N	iP iS PS S S LQ M	15	40	14	7090	Moderate. Direction of motion towards north.	
				48	49				
				49	07				
				50	05				
				56	34				
				16	05	09			
	Hyderabad	E	iP iS PS SS L M	15	41	02	7900	Moderate.	
				50	19				
				50	39				
				55	40				
				04	07				
				16	08	25		Per.=18 secs μ=13.	
	Poona	ZN N	iP eS PS PPS M	15	41	15	8200	Moderate.	
				50	46				
				51	18				
				51	39				
				16	09	53			
	Madras	E	iP PcP PP PPP iS PS PPS	15	41	17	8880	Moderate.	
				41	24				
				44	16				
				46	04				
				50	52				
				51	31				
				51	53				

Date	Station	Compt.	Phase	G.M.T.			△	km.	Remarks
				h.	m.	s.			
May 1954									
03 Contd.	Bombay	NE N NE N	iP PcP PPS SS SSS M M	15	41	18	8170	Slight.	
				41	30				
				51	36				
				55	37				
				58	41				
				16	16	45		Per.=17 secs μ=9.	
				17	19			Per.=13 secs μ=9.	
	Kodaikanal	E	iP PP PPP iS SS SSS LQ LR M	15	41	36		Slight.	
				44	27				
				46	21				
				51	27				
				56	27				
				59	45				
				16	02	05			
				06	00				
				12	30				
	Colombo	E	eP S L M1 M2	15	41	38			
				51	40				
				16	08	00			
				14	28			Amp.=0.2 mm.	
				28	03			Amp.=0.4 mm.	
03	Kodaikanal	E	e?	17	19	46			
03	Shillong	Z	eP	17	32	48		Tremor.	
03	Shillong	Z	i(Pg?)	18	15	11		Local.	
03	Epc : 31°N., 98½°E Si-Kang China ; 0=18h 20m 26s (U.S.C.G.S. and B.C.I.S.) 32°N., 98° E. 0=18h 20m 36s (Shillong)								
	Shillong	Z NE	iP Pg LQ iS LR(?) SSS S* Sg	18	22	25	840	Slight.	
				23	02				
				23	39				
				23	52				
				24	01				
				24	15				
		E		24	15				
		NE		24	19				
				24	39				
	Chatra	Z	iP PP PPP P* Pg LQ iS ? SS SSS S* M	18	23	05	1110	Slight.	
				23	14				
				23	19				
				23	30				
				23	57				
				24	51				
				24	59				
				25	07				
				25	12				
				18	25	23			
				25	39				
				26	12				
	Calcutta	N	eP iS	18	23	30	1290	Slight.	
				25	42				
		E	iS	25	40				
		N	LR	26	06				
	Dehra Dun	NE N	eP PP PPP iS PS PPS SS SSS ScS	18	24	33	4550	Moderate.	
				26	12				
				26	35				
				30	45				
				30	48				
				31	00				
				33	26				
				34	10				
				34	29				



Date	Station	Compt.	Phase	h.	m.	s.	km.	Remarks
May 1954	Dehra Dun	LR			35	30		
03		M			38	49		
Contd.	New Delhi	NE	iP	18	24	46	1950	Moderate. Direction of motion towards East.
		N	PP		25	02		
		NE	PPP		25	12		
		N	iS		28	01		
		NE	i		28	16		
			SS		28	23		
			SSS		28	36		
		N	LR		28	54		
		NE	M		30	20		
		N						
	Hyderabad	E	eP	18	25	37	2460	
			S		29	38		
			M		32	34		
	Poona	Z	iP	18	26	00		Per. = 12 secs $\mu=7$.
		E	iS		30	35		Slight shock, phases clear.
	Madras	E	P	18	26	00	2680	Moderate shock.
			PP		26	35		
			PPP		26	45		
			iS		30	16		
			LQ		30	58		
			SS		31	13		
			SeP		33	01		
	Bombay	E	e	18	31	00		Feeble.
		N	e		31	07		
			e		32	12		
		E	e		32	38		
		NE	M		34	14		
	Kodaikanal	E	e	18	31	06		Phases not clear.
	Colombo	E	eP	18	31	28		
			L		45	00		
			M		48	03		Amp = 0.1 mm.
03	Shillong	Z	i(Pg)	23	23	32		Local.
04	Shillong	Z	iP	01	39	16		Tremor.
	Poona	Z	e?	01	41	05		
04	Shillong	Z	eP	03	52	19	700	Slight.
			PP		52	25		
			Pg		52	44		
			eS		53	31		
		ZE	SS		53	41		
			S*		53	52		
			Sg		54	09		
04	Bombay	N	e	04	04	00		Feeble.
		E	e		05	33		
			e		11	27		
04	Shillong	Z	e	06	32	50		Slight, near.
			i		32	56		
04	Bombay	E	e	07	41	23		Mainly surface waves.
			e		42	49		
04	Shillong	Z	e	08	58	14		Slight, near.
04	Shillong	Z	e	09	34	26		Slight, local.
			e		35	15		
04	Shillong	Z	e	11	51	16		Tremor.
			e		51	44		

Date	Station	Compt.	Phase	h.	m.	s.	km.	Remarks
May 1954	Shillong	ZNE	iPg iSg	12	08	50	110	Slight.
04					09	04		
04	Shillong	Z	e	16	53	20		Tremor.
04	Shillong	Z	i	16	55	26		Tremor.
04	Shillong	Z	i	17	44	50		Tremor.
04	Poona	Z	eP	17	46	38		Tremor.
04	Shillong	Z	i iSg	17	47	15	170	Slight.
					47	49		
04	Shillong	N	e(M?)	18	05	56		Slight, distant.
04	Shillong	Z	e	18	12	02		Tremor.
04	Shillong	Z	iP	18	21	14		Slight, near.
04	Bombay	E	e(M)	18	22	07		Very feeble shock.
	Poona	Z	eP	18	22	50		Tremor.
04	Shillong	Z	e	20	43	04		Tremor.
04	Shillong	Z	e	20	56	10		Tremor.
04	Shillong	Z	e	23	54	53		Tremor.
05	Shillong	Z	i	00	40	11		Tremor.
05	Shillong	Z	e	01	04	48		Slight, near.
					05	16		
05	Shillong	Z	i	03	23	00		Slight, near.
	Poona	Z	e	03	24	48		
05	Shillong	Z	e	06	02	35		Slight, near.
			e		03	05		
05	Shillong	Z	e	09	05	24		Slight near.
					06	01		
05	Shillong	Z	e?	09	23	24	220	Slight.
		EN	iP		23	29		
			Pg		23	47		
			S		23	51		
			iSg		23	55		
05	Shillong	Z	i	11	44	23		Tremor.
05	Poona	Z	iP	11	46	43		Tremor.
05	Shillong	Z	i	11	59	55		Tremor.
05	Poona	Z	i	13	29	12		Tremor.
05	Shillong	N	e	13	30	26		Slight, distant.
			e		37	47		
			e		14	12		
05	Madras	E	L?	14	14	59		Slight shock, phases not clear.
	Kodaikanal	E	M	14	17	34		Tremor.
	Colombo	E		14	18	—		Tremor.
	Hyderabad	N	M	14	28	53		Per. = 18 sec. $\mu=12$.



May				h.	m.	s.	km.	
1954				17	24	37		Tremor.
05	Shillong	Z	i	17	24	37		Tremor.
	Poona	Z	eP	17	24	37		Tremor.
05	Shillong	N	e	17	29	47		Slight, distant.
			e	32	27			
			e	40	55			
05	Dehra Dun	N	e	19	30	55		Tremor.
05	Dehra Dun	NE	eP	19	57	32	910	Slight, phases not clear.
			i(S)	59	06			
			e	20	00	25		
	New Delhi	NE	eP	19	57	40	960	Slight.
		E	P*	58	01			
			LQ	59	09			
		NE	iS	59	19			
			SS	59	30			
		N	S*	59	50			
		NE	Sg	20	00	12		
	Shillong	Z	iP	19	59	57	2270	Slight.
			eS	20	03	42		
05	Dehra Dun	NE	eP	21	38	17	1280	Slight, other phases not clear.
			iS	40	27			
	Shillong		e	21	40	04		Tremor.
06	Shillong	Z	e	00	14	36		Slight, near.
			e	15	03			
06	Dehra Dun	N	e	00	46	19		Slight, phases not clear.
			e	46	58			
			i	47	11			
	Shillong	Z	e	00	47	42		Tremor.
			i	47	48			
06	Epc : 50° N., 155½° E. Off the South Coast of Kamchatka ; h=100 km. Ca ; 0=09h 02m 14s (U.S.C.G.S.)							
	Shillong	ZN	iP	09	11	32	5700	Slight, deep.
			PcP	12	46			
			eS	18	51			
			i	19	52			
			S S	21	02			
			SS	22	03			
	Chatra	Z	eP	09	11	48		Slight, distant.
	Hyderabad	EN	eP	09	13	09	7360	Slight.
		E	S	21	58			
			ScS	22	56			
			SS	26	55			
			L	34	54			
		N	M	40	24			Per.=8 secs $\mu=3$.
		E	M	40	39			Per.=8 secs $\mu=2$.
	Poona	Z	iP	09	13	24	7630	Moderate.
		NS	PcP	13	45			
			eS	22	27			
			PPS	23	09			
			M	40	52			
	Bombay	NE	eP	09	13	26	7670	Feeble, deep.
		E	eS	22	31			
		NE	PPS	23	15			

May	Station	Compt.	Phase	G.	M.	T.	h.	m.	s.	km.	Remarks
1954	Shillong	Z	e	09	15	37					Tremor.
	Shillong	Z	e	09	20	59					Tremor.
	Shillong	Z	e	11	46	34					Slight, near.
			e	47	09						
	Shillong	Z	e	17	40	24					Slight, near.
			e	40	57						
			e	41	22						
	Shillong	Z	iP	23	53	52					Slight, near.
	Shillong	Z	iP	00	30	12					Tremor.
	Shillong	Z	iP	04	44	32					Tremor.
	Shillong	Z	iP	07	41	09					Tremor.
	Hyderabad	E	M	11	12	36					Per.=8 secs $\mu=3$.
	Dehra Dun	NE	e	22	00	57					Feeble, phases not clear.
			e	01	01						
			i	01	12						
			i	01	20						
	Shillong	Z	iP	04	20	24	440				Slight.
			P*/PP	20	28						
			PPP	20	37						
			iS	21	12						
			S*/SS	21	23						
	Shillong	Z	e	06	24	02					Tremor.
			e	24	57						
	Shillong	Z	e	07	04	08					Tremor.
			e	04	39						
	Shillong	Z	iP	11	17	58					Slight.
	Shillong	Z	eP	14	12	32					Slight, distant.
	Shillong	Z	eP	14	28	24					Slight.
	Shillong	Z	eP	15	08	33					Slight.
	Shillong	Z	e	20	24	07					Slight, distant.
			e	24	15						
			e	31	56						
			e	39	00						
	Poona	ZEN	iP	20	25	34					Feeble shock, other phases doubtful.
	Bombay	E	eP	20	25	42	6610				Slight.
			eS	33	51						
	Colombo	E		20	27	—					Tremor.
	Hyderabad	E	M	20	36	40					Per.=9 secs $\mu=2$.
	Shillong	Z	i	21	35	27					Slight, local.
	Shillong	Z	i	22	30	44					Slight, local.
	Shillong	ZNE	iP	00	02	50	210				Slight.
		NE	P*	02	52						
			Pg	02	55						
			S*	03	17						
			iSg	03	19						
			SS	03	25						

Date	Station	Compt.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
May 1954			SSS	03 39		
09	Shillong					
Contd.	Calcutta	N	eP iS SS	00 04 07 05 26 05 38	750	Slight.
	Dehra Dun	N	e	00 06 56		Tremor.
	Poona	Z	e	00 11 56		
09	Shillong	Z	iP	20 50 30		Tremor.
09	Shillong	Z	ep	23 21 35		Tremor.
10	Epc: New Britain Region; 0=06h 25.5m. (B.C.I.S.)					
	Shillong	Z	iP	06 36 06		Tremor.
	Poona	Z	e?	06 37 55		
10	Shillong	Z	iP	06 43 26		Tremor.
	Poona	Z	e?	06 45 04		
10	Epc: Off the East Coast of Mindanao, Phillipines; 0=06h 41.5 m (B.C.I.S.)					
	Shillong	Z	iP	06 48 40		Tremor.
	Bombay	E	eP eS PS SS	06 48 48 57 20 57 40 07 01 22	7035	Slight.
	Madras	E	iP PeP PP PPP iS PS PPS LQ SSS LR	06 49 29 50 49 51 17 52 09 56 15 56 26 56 35 07 00 50 02 00 03 16	5121	Slight.
10	Hyderabad	E	P S M	06 49 46 56 48 07 08 39	5410	
10	Poona	Z	iP	06 50 02		Per.=21 secs μ
10	Shillong	Z	iP	08 04 58		Very feeble shock developed.
10	Shillong	Z	iP	18 46 46		Tremor.
12	Shillong	Z	iP	19 00 37		Local, tremor.
12	Shillong	Z	iP	01 45 12		Tremor.
12	Bombay	Z	iP	04 42 36		Local, tremor.
12	Poona	E	i eP	04 52 03 04 52 48		Tremor. Feeble, local tremor.
12	Epc: Off the East Coast of Mindanao, Phillipines; 61°N., 123½°E. 0=06h 22m. 14s. (U.S.C.G.S.) S Felt at Davao (Press report from Manila). 0=06h 22m 15s (B.C.I.S.)					

Date	Station	Compt.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
May 1954						
12	Shillong	Z	iP	06 29 41		Tremor.
	Dehra Dun	NE	e	06 31 29		Feeble, phases not clear.
	Poona	ZE	eP	06 31 33		Tremor.
12	Bombay	E	i	09 49 00		Feeble, local tremor.
	Poona	ZE	iP	09 49 36		Tremor.
12	New Delhi	E NE	eP PPP Pg eS LR S* Sg	18 38 33 38 48 38 52 39 24 39 26 39 37 39 50	480	Slight.
	Dehra Dun	NE	e e	18 39 56 40 30		Feeble, phases not clear.
	Poona	Z E	e? i	18 41 58 42 28		Very feeble shock, phases not clear.
	Bombay	E	e e	18 42 10 42 25		Minor local tremor.
13	Epc: 17° N., 95½° W.; h=100 km ca, 0=14h 46m 38s (U.S.C.G.S.) 16°5' N., 95°9' W.; h= 80 km, 0=14h 46m 36s (B.C.I.S.) 16°46' N., 95°54' W. h= 80 km 0=14h 46m 42s (Tacubaya) Felt over Central and SE Mexico (Press report). Magnitude - 6½ (Berkeley, Kiruna, Uppsala, Praha), 6¼ (Tacubaya)					
	Chatra	Z	e	15 05 43		Slight, distant.
	Shillong	Z N	iPKP PP PKS ₁ PKS ₂ PS PPS SKKS ₁ SS SSP SSS LR M	15 05 55 08 41 09 29 09 47 19 14 20 48 22 02 26 48 27 25 31 39 50 47 16 02 13	15410	Slight, distant.
	Bombay	N N E N	ePKP e e e	15 06 03 10 05 10 14 28 16		Distant shock, feebly recorded (Microseisms present).
	Poona	Z	ePKP	15 06 05		Probably very distant, slight earthquake phases not clear.
	Hyderabad	N E	ePKP M M	15 06 08 16 02 06 02 09		Slight. Per.=24 secs μ =11. Per.=24 secs μ =8.
	Dehra Dhun	N	e e	15 06 15 09 01		Slight, phases not clear.
	Kodaikanal	E	e	15 06 23		Long distance tremor.
	Madras	E	iPKP PP	15 06 25 10 52		Slight, other phases not clear.
	Colombo	E	e M	15 15 49 16 17 30		Amp=0.2 mm.

Date	Station	Compt.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
May 1954						
13	Shillong	Z	iP	16 33 40		Local, tremor.
13	Dehra Dun	NE	e	17 42 56		Feeble, phases not clear.
13	Shillong	Z	iP	19 57 55		Very near.
13	Shillong	Z	iP	21 04 45		Tremor.
13	Shillong	Z	iP	21 55 55		Tremor.
14	Shillong	Z	eP	00 36 00		Tremor.
14	Dehra Dun	NE	e i	03 15 26 17 43		Feeble, phases not clear.
14	New Delhi	N NE	eP iS SS SSS	04 42 25 44 06 44 19 44 31	980	Slight.
	Shillong	Z	iP	04 44 44		Tremor.
	Poona	Z	eP	04 47 44		Tremor.
14	Shillong	Z	iP	07 12 12		Tremor.
14	Shillong	Z	iP	22 11 19		Tremor.
14	Epc: 36°N., 137°E. Hondo Japan; H=250 km. O=22h 39m 25s (U.S.C.G.S.) 36°0'N., 137°4'E. h=230-240 km; O=22h 39m 27s (CMO, Japan, B.C.I.S.) 36°N., 138°E. h=250 km. O=22h 39m 27s (Shillong). Magnitude—7 (Pasadena), 6½ (Kiruna).					
	Shillong	Z N	iP pP PP PcP iS P S sS SS LQ SSS LR	22 46 37 47 30 48 08 48 56 52 25 52 41 53 56 54 33 54 48 55 23 56 34	4520	Moderate.
	Dehra Dun	NE N	eP PcP PP PPP PcS iS PPS ScS LQ SSS LR M	22 47 57 49 24 49 38 50 18 53 20 54 39 54 49 57 43 58 44 58 55 23 00 44 04 40	5060	Moderate
	New Delhi	NE	iP PP PcP	22 48 02 48 55 49 33	5210	Moderate
14	New Delhi	N	iS SS i SSS i	22 54 53 56 30 57 21 59 34 23 00 28		

Date	Station	Compt.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
May 1954						
14	Calcutta	E N E N E	iP iP P S PcS iS S SS	22 48 05 48 10 53 29 53 31 54 59 55 05 58 20	5250	Moderate. First movement West
	Madras	E	P pP S Ss	22 48 40 49 34 56 11 58 00		Moderate.
	Poona	Z E	eP i PP PPP PcS eS PS S.S? LQ LR M	22 48 56 49 49 50 57 52 15 53 31 56 37 56 45 58 13 23 02 57 05 30 10 17	6110	Moderate.
	Kodaikanal	E	iP PP PPP S SS LQ LR M	22 49 07 51 22 52 49 56 55 23 00 55 03 25 06 37 11 23		Slight.
	Hyderabad	E	iP PP iS L M N M	22 49 24 51 24 55 54 23 01 29 06 18 06 22	4840	Moderate. Per.=18 secs μ=9. Per.=18 secs μ=10.
	Bombay	NE E N E NE E	iP PcP PP i i e i iS PS M	22 49 54 50 17 52 04 52 27 54 37 56 44 56 47 58 23 58 47 23 16 —	6980	Moderate. Suppressed.
	Colombo	E	iP iS M	22 49 59 56 57 23 07 55		Amp=0.1 mm.
15	Madras	E	eP?	05 52 21		Slight, phases not clear.
	Poona	Z	eP	05 53 48		Tremor.
15	Poona	Z	eP	05 57 08		Tremor.
	Dehra Dun	NE	e i	05 58 29 58 36		Feeble, phases not clear.
15	Chatra	Z	i	22 47 05		Slight, distant.
16	Epc: 36½° N., 70½° E. Hindukush; h=200 km ca; O=20h 10m 42s (U.S.C.G.S.) 36°5' N., 70°5' E. h=220 km; O=20h 10m 43s (B.C.I.S.) 36° N., 70°5' E. h=200 km; O=20h 10m 40s (Shillong) Felt: Drosh, Cherat, Chakdara and Risalpur (Press report from Quetta).					





Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.	km.	
May 1954	Dehra Dun	NE N	eP	20	12	40	890	Moderate.
16			PP	12	47			
Contd.			PPP	12	54			
			P*	12	59			
			LQ	14	00			
			iS	14	11			
			SS LR	14	24			
			SSS	14	34			
			S*	14	40			
			S ₂ , M	15	04			
	New Delhi	NE	iP	20	12	51	960	Slight.
			PP	12	59			
			PPP	13	06			
			P*	13	15			
			Pg	13	34			
			iS	14	30			
			SS	14	41			
			N SSS	14	52			
			S*	15	04			
	Chatra	Z	iP	20	14	26	1760	Slight.
			PP	14	38			
			PPP	14	45			
			LQ	17	15			
			iS	17	22			
			SS	17	38			
			LR	18	03			
			M	19	22			
	Bombay	NE N	eP	20	14	37	1960	Slight. deep focus
			e	15	22			
			i	15	31			
	Poona	NE E	eS	17	53			
			i	18	54			
	Shillong	Z E	eP	20	14	41	1935	Slight.
			eS	17	54			
			LR	18	41			
			M	20	13			
	Calcutta	Z N	iP	20	15	09	2280	Slight.
			iS	18	54			
	Hyderabad	E	eP	20	15	12	2220	
			iS	18	52			
	Kodaikanal	E	iP	20	15	54	1620	
			iS	18	57			
			M	21	06			
	Madras	E	e?	20	19	55		Per. = 6 secs $\mu=2$.
17	Dehra Dun	E	i	20	19	58		Tremor.
17	Shillong	NE	e	19	30	40		Moderate, phases not clear.
17	Poona	Z	i	21	09	21		Tremor.
17	Shillong	Z	eP	21	14	35		Slight.
17	Shillong	Z	i	22	01	58		Tremor.
19	Shillong	Z	i	23	03	01		Tremor.
	Shillong	N	i	04	24	29		Tremor.
	Poona	Z	i	04	26	22		Slight.
								Tremor.

Epc : 31° N., 92° E. Tibet ; 0=04h 21.0 m (B.C.I.S.)

Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.	km.	
May 1956	Shillong	Z	i	06	38	32		Slight.
19			iPg	15	40	04		Slight, local.
	Shillong	Z	e	21	01	30		Tremor.
	Shillong	Z	i	23	18	05		Slight.
	Shillong	N	e(L)	26	43			
	Poona	Z	i	23	19	19		Tremor.
	Shillong	Z	i	02	08	08		Tremor.
20	Shillong	Z	e(?)	04	26	42		Slight.
20	Shillong		i	27	14			
20	Dehra Dun	NE	e	09	41	39		Slight, phases not clear.
			i	42	20			
20	Shillong	Z	i	17	15	49		Slight, local.
			i	16	16			
20	Shillong	Z	i	20	28	06		Slight, near.
			i	28	31			
			i	28	40			
21	Shillong	Z	e	04	06	20		Slight, near.
21	Poona	N	i?	04	17	34		Feeble, phases not clear.
			i	18	37			
			i	19	32			
			i	23	51			
			i	34	34			
21	Shillong	Z	iPg	04	31	41		Slight, near.
21	Dehra Dun	NE	e	05	17	40		Tremor.
21	Shillong	Z	i	05	17	52		Slight.
		N	e	17	54			
			e	22	13			
			e	25	33			
			e	27	15			
21	Shillong	Z	iPg	12	26	35		Slight., felt(!).
		N	iPg			36		
		E	iPg			37		
21	Shillong	Z	i	12	56	17		Slight.
21	Shillong	Z	i	16	25	27		Slight.
21	Hyderabad	N	M	17	10	33		Per. = 14 secs $\mu=4$.
	Poona	N	e	17	12	38		Slight.
21	Shillong	Z	i	17	52	02		Slight, local.
		N	e(M)	18	05	—		
21	Shillong	Z	e	21	04	34		Slight, near.
22	Shillong	Z	i	04	19	44		
			i	20	37			
			i	21	02			
22	New Delhi	E	eP	08	03	49	640	Slight.
			LQ	04	43			
			SS	05	08			
			S*	05	16			
			Sg	05	33			

Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.		
May 1954	Dehra Dun	NE	e	08	04	17		Slight, phases not clear
22			i		05	55		
Contd.			i		06	17		
	Poona	ZE	eP	08	08	06		Tremor.
22	Shillong	Z	i	11	41	49		Slight.
22	Dehra Dun	NE	i	11	45	25		Feeble, phases not clear
22	Shillong	Z	i	11	47	29		Slight.
22	Shillong	Z	e	12	12	39		Slight.
22	Shillong	Z	iPg	14	39	59	80	Slight (Felt ?).
		N	iSg		40	08		
23	Shillong	Z	e	04	02	11		Slight, near.
			e		02	26		
23	Epc : 46° N., 149½° E. Kurile Island ; h=150 km ca. 0=04h 10m 27s (U.S.C.G.S.) 45° N., 150° E., h=160 km ; 0=04h 10m 30s—Felt (C.M.O. Japan).							
	Shillong	Z	iP	04	19	10		Slight.
			i		19	20		
23	Chatra	Z	iP	04	19	29		Slight, probably deep
	Dehra Dun	NE	eP	04	19	59		Tremor.
	Poona	ZE	eP	04	21	09		Tremor.
23	Epc : 3° N., 124° E. Celebes Sea ; 0=06h 56m 42s (U.S.C.G.S.) 2° N., 124° E. 0=06h 56m 39s (Shillong).							
	Shillong	Z	iP	07	04	06	4230	Slight.
		N	eP		04	06		
			PP		05	35		
			iS		10	00		
	Chatra	Z	eP	07	04	41		Slight, distant.
	Madras	E	iP	07	05	00	4910	Moderate.
			PP		06	44		
			PPP		07	17		
			S P		10	20		
			eS		11	34		
			PPS		11	46		
			SS		14	46		
			LQ		15	33		
			SSS		15	47		
	Hyderabad	E	iP	07	05	16	5150	
		EN	PP		07	06		
		E	iS		12	04		
			SS		15	45		
			L		18	39		
		N	M		21	37		
			M		22	48		
	Kodaikanal		eP	07	05	17		Per.=18 sec $\mu=5$. Per.=18 secs $\mu=5$.
	Poona	ZE	iP	07	05	50	5720	Tremor.
		E	PP		07	44		Moderate.
			PPP		08	51		
			eS		13	10		
			FS		13	18		
			PIS		13	23		
			LR		20	34		
			M		25	05		

Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.		
May 1954	Bombay	E	eP	07	06	00		Feeble.
23		N	iS		13	24		
Contd.			e		13	29		
	Colombo	E	S	07	11	29		
			L		21	—		
			M		27	49		Amp=0.2 mm.
23	Kodaikanal	E	e	07	49	17		Tremor.
23	Shillong	Z	iPg	12	22	40	100	Slight.
			i		22	58		
23	Shillong	Z	i	14	34	42		Slight, near,
24	Epc : 48½° N., 156° E. Kurile Islands ; 0=07h 29m 59s (U.S.C.G.S.)							
	Shillong	Z	i	07	38	30		Slight, tremor.
	Poona	Z	iP	07	40	25		Tremor.
24	Shillong	Z	i	08	23	47		Slight.
24	Shillong	Z	ePg	17	11	53	120	Slight, Local.
			eSg		12	07		
24	Shillong	Z	e	18	03	57		Tremor.
24	Shillong	Z	ePg	18	25	55	110	Slight.
			iSg		26	08		
24	Shillong	Z	iP	19	07	40	230	Slight.
			i		07	50		
			iSg		08	13		
24	Shillong	Z	e	19	21	18		Slight.
24	Epc : Karakoram region ; 0=22h 31.7m (B.C.I.S.) 39° N., 75° E. 0=22h 31m 51s (Shillong)							
	Dehra Dun	NE	eP	22	34	05	970	Slight.
		N	PPP		34	20		
			Pg		34	49		
			eS		35	44		
			SS		35	56		
			LR		36	01		
			SSS		36	06		
			S*		36	17		
			Sg,M		36	41		
	New Delhi	NE	eP	22	34	22	1030	Slight.
		N	i		34	34		
		E	LQ		35	57		
		NE	eS		36	08		
			SS		36	19		
			LR		36	23		
			SSS		36	31		
		N	S*		36	44		
			Sg		37	07		
	Shillong	Z	iP	22	36	14		Slight.
		N	eS		39	48		
	Poona	Z	eP	22	36	28		Slight shock, phases not clear.
			iS		40	15		
			i		42	32		
	Hyderabad	E	eP	22	37	25	2710	Slight.
			S		41	43		
			M		45	25		Per.=8 secs $\mu=3$. Per.=8 secs $\mu=3$.
		N	M		45	53		



Date	Station	Compt.	Phase	G.M.T.			Δ km.	Remarks
				h.	m.	s.		
May 1954				22	41	25		
24	Bombay	E	e	41	30			
Contd.			i	42	22			
	Madras	E	i	22	45	35		Moderate, phases not clear
26	Shillong	Z	e	01	35	08		Slight.
26	Poona	Z	eP	01	54	30		Tremor.
	Bombay	N	eP	01	54	41	8150	Slight.
			eS	02	04	10		Phases lost in micro
	Shillong	N	e(M)	02	14	24		Slight.
26	Shillong	Z	iP	14	48	31		Feeble.
26	Shillong	Z	eP	19	05	34		Feeble.
27	Shillong	Z	e	07	57	56		Feeble.
27	Shillong	Z	iP	16	11	04		Feeble.
27	Epc: Celebes Sea, data discordant; 0=16h 18.0m (B.C.I.S.)							
	Shillong	Z	i	16	24	01		Feeble.
	Dehra Dun	NE	e	16	26	20		Tremor.
	Poona	ZE	eP	16	27	03		Tremor.
	Bombay	NE	e	16	34	09		
27	Poona	Z	eP	19	08	56		
27	Shillong	Z	i	23	33	48		Tremor.
28	Shillong	Z	eP	15	49	23		Feeble.
28	Shillong	Z	e	19	29	18		Feeble.
28	Shillong	Z	e	21	05	15		Feeble.
29	Shillong	Z	e	16	28	04		Feeble.
29	Shillong	Z	e	22	49	29		Feeble.
30	Shillong	Z	iP	14	55	13		Feeble.
30	Epc: Celebes Sea; 0=19h 46m 56s (U.S.C.G.S.) 1° N., 124½° E. 0=19h 46m 35s (B.C.I.S.)							
	Shillong	Z	iP	19	54	09		Feeble.
	Chatra	Z	iP	19	54	46		Slight, distant.
	Dehra Dun	N	e	19	55	46		Feeble, phases not clear
	Poona		i	56	08			
			i	56	25			
31	Shillong	Z	e?	19	55	47		Feeble.
31		Z	i	15	55	36		Tremor.
31	Epc: Flores Sea; 8° S., 118½° E. h=150 km; 0=15h 48m 48s. (U.S.C.G.S.) 8° S., 118 E. 0=15h 48m 50s (Shillong) Magnitude -6¼ - 6½ (Pasadena), 6 (Uppsala, Praha).							
	Madras	E	iP	15	56	43	4688	Moderate.
			PP	58	23			
			PcP	58	34			

Date	Station	Compt.	Phase	G.M.T.			Δ km.	Remarks
				h.	m.	s.		
May 1954				58	54			
31	Madras		PPP	16	02	16		
Contd.			ScP	03	04			
			iS	05	53			
			SS	06	31			
			LQ	08	26			
			LR	12	16			
			M					
	Shillong	N	iP	15	56	46	4560	Moderate.
			i(?)	57	31			
			PPP	59	09			
			S	16	03	00		
			SS	06	09			
			LR	08	46			
			M	12	16			
	Chatra	Z	e	15	56	49		Slight, distant.
			e	16	03	46		
	Kodaikanal	E	iP	15	56	51	4810	Slight.
			PP	58	36			
			PPP	59	18			
			iS	16	03	21		
			LQ	07	21			
			SSS	07	39			
			LR	09	30			Per.=12 secs $\mu=8.5$.
			M	13	12			
	Hyderabad	E	eP	15	57	06	5110	
			iS	16	03	51		Per.=18 secs $\mu=22$.
		N	M	14	42			Per.=18 secs $\mu=22$.
		E	M	14	51			
	Poona	Z	iP	15	57	42	5450	Moderate.
		E	PcP	59	03			
			PPP	16	00	25		
			eS	04	45			
			PS	04	52			
			PPS	04	57			
			ScS	07	13			
		N	SS	07	58			
		E	SSS	09	19			
		N	LR	11	28			
		N	LR	15	15			
		E	M	15	15			
	Bombay	E	eP	15	57	49	5870	Moderate.
			PcP	58	00			
			PP	16	00	02		
			PPP	00	54			
			iS	05	17			
		N	iS(?)	05	20			Per.=15 secs $\mu=5$.
			M	24	36			Per.=15 secs $\mu=5$.
		E	M	22	00			
	New Delhi	NE	eP	15	58	00	5700	Moderate.
		N	i	16	00	17		
			eS	05	19			
			PPS	05	33			
			ScS	07	50			
			SS	08	49			
			i	09	17			
			SSS	10	19			
			i	11	33			
			LR	12	47			
			M	17	25			

Earthquake Reports

(Non Instrumental Reports)

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations.

Place at which felt	Date	Time at which felt in G.M.T.	Intensity in R.F. scale	No. of shocks	Remarks
Tezpur	2.5.54	21h. 23m.	III	1	
Shillong	21.5.54	12h. 30m.	I	1	
Shillong	22.5.54	14h. 40m.	III	1	





GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN

JUNE, 1954



PUBLISHED UNDER THE DIRECTION OF
SHRI S. BASU, M.Sc., F.N.I.,
DIRECTOR GENERAL OF OBSERVATORIES.

INSTRUMENTS AND THEIR CONSTANTS

Station	Instrument	Compt.	Period in Secs.	Static Magnifi- cation	Damping ratio	Paper Speed mm/min.
Bombay	Milne-Shaw	N-S	12.0	350		16.0
	Milne-Shaw	E-W	12.0	350	9 : 1	8.0
	Sprengnether	E-W	To=Tg=7.0	—	—	30.0
Calcutta	Milne-Shaw	E-W	10.0	150	20 : 1	8.0
	Wood-Anderson	N-S	2.0	870	Critical	30.0
	Omori-Ewing	N-S	18.2	32	—	25.4
	Omori-Ewing	E-W	19.0	30	—	25.4
Chatra	Wood-Anderson	N-S	1.0	1000	30 : 1	60.0
	Wood-Anderson	E-W	1.0	1000	40 : 1	60.0
	Benioff	Z	To=0.72 Tg=0.45	—	—	60.0
Colombo	Milne-Shaw	E-W	12.0	250	18 : 1	—
Dehra Dun	Milne-Shaw	N-S	12.0	250	20 : 1	16.0
	Wood-Anderson	E-W	1.0	1000	30 : 1	60.0
	Wood-Anderson	E-W	1.0	1000	30 : 1	60.0
Hyderabad	Milne-Shaw	E-W	12.0	250	20 : 1	8.0
	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
Kodaikanal	Milne Shaw	E-W	10.0	250	20 : 1	8.0
Madras	Sprengnether	E-W	To=Tg=7.2	—		30.0
New Delhi	Milne-Shaw	N-S	12.0	288	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1070	20 : 1	16.0
	Wood-Anderson	E-W	2.0	1840	30 : 1	60.0
	Omori-Ewing	E-W	28	30	—	12.0
Poona	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	E-W	4.0	1100	20 : 1	16.0
	Sprengnether	Z	To=Tg=1.5	—	—	30.0
Shillong	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1000	20 : 1	30.0
	Wood-Anderson	N-S	0.8	800	20 : 1	30.0
	Wood-Anderson	E-W	0.8	800	20 : 1	30.0
	Sprengnether	E-W	To=Tg=7.5	—	—	30.0
	Benioff	Z	To=1.0 Tg=0.18	—	—	60.0

SEISMOLOGICAL BULLETIN



Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954							km.	
01	Dehra Dun	NE	e i	07	48	30		Feeble, phases not clear.
	Shillong	Z	i	07	50	59		Tremor.
01	Shillong	Z	i	12	58	35		Tremor.
01	Shillong	Z	Pg Sg	17	39	42		Local.
					39	47		
01	Shillong	Z	Pg Sg	17	41	16		Local.
					41	22		
01	Shillong	Z	Pg Sg	17	59	17		Local.
					59	22		
01	Shillong	Z	iP Pg S S* Sg	19	05	47		Slight.
					06	02		
					06	32		
					06	43		
					06	53		
01	Poona	Z	eP	20	52	39		Tremor.
01	Shillong	Z	i	20	53	41		Tremor.
02	Poona	ZE	eP	07	10	39		Slight, phases mixed up with microseisms.
02	Shillong	Z	e	09	39	45		Tremor.
02	Poona	ZN	eP	10	49	20		Slight, phases mixed up with microseisms.
02	Shillong	Z	i i	11	02	54		Slight, local.
					03	23		
02	Dehra Dun	N	e	21	56	21		Tremor.
02	Shillong	Z	e i	22	14	55		Slight.
					15	27		
03	Shillong	Z	iP Pg S Sg SS	00	30	59		Slight, local.
					31	05		
					31	25		
					31	31		
					31	39		
03	Shillong	Z	e i	07	30	31		Tremor.
					31	15		
03	Shillong	Z	e	16	55	42		Tremor.
03	Shillong	Z	e	17	29	03		Tremor.
03	Shillong	Z	e	21	52	26		Tremor.
03	Shillong	Z	Pg Sg	22	26	03		Tremor.
					26	28		Local.
04	Dehra Dun	NE	e i i	0	06	06		Feeble, phases not clear.
					06	09		
					06	38		

Date	Station	Compt.,	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954							km.	
04				Epc : $1\frac{1}{2}^{\circ}$ S., $91\frac{1}{2}^{\circ}$ W. Galapagos Island ; 0=06h 50m 42s (U.S.C.G.S.)				
				Magnitude— $6\frac{3}{4}$ —7 (Lwir), $6\frac{3}{4}$ (Pasadena), $6\frac{1}{2}$ (Tacubaya, Praha), $6\frac{1}{2}$ (Berkeley)				
	Dehra Dun	Ne	e e i	07	10	32		Feeble, phases not clear.
					12	34		
					14	09		
	Chatra	Z	e	07	10	33		Slight, distant.
	Shillong	N	PKP ₁ SKS ₂ PKKP PPP SKSP SS SSS M	07	10	34		Slight, distant.
					17	57		
					18	53		
					23	23		
					24	13		
					32	50		
					38	47		
					08	16	47	
	Hyderabad	N	M	08	34	40		Per. = 18 secs/ μ = 6.
04	Colombo	E	eP	10	37	—		
04	Madras	E	iP	10	40	50		Earthquake of moderate intensity, phases not clear due to presence of Microseisms.
04				Epc : Java Sea ; 0=10h 41m 37s (U.S.C.G.S.)				
				5° S., 108° E., 0=10h 41.6m. data discordant (B.C.I.S.)				
	Shillong	N	iP PcP iS SS/LQ LR ScS M	10	48	39		Slight.
					51	07		
					54	14		
					56	10		
					57	05		
					57	53		
					11	00	20	
	Chatra	Z E	iP eS	10	49	05		Slight, distant.
					55	05		
	Bombay	NE E N NE	eP e eS e e	10	49	24		Slight, phases doubtful due to presence of microseisms.
					54	52		
					55	49		
					58	08		
					59	27		
	New Delhi	NE N	eP iS PS PPS SSS	10	50	00	4990	Slight
					56	38		
					56	48		
					56	56		
					11	00	35	
	Hyderabad	E EN	e S L M M	10	50	13		Per. = 12 secs/ μ = 3. Per. = 12 secs/ μ = 5.
					54	34		
					11	03	44	
					07	08		
					07	55		
	Dehra Dun	N	e e e e	10	50	13		Feeble, phases not clear.
					56	52		
					57	30		
					58	08		

Date	Station	Compt	Phase	G. M. T.			Δ	Remarks
				h.	m.	s.		
June 1954							km.	
04	Kodaikanal	E	i	10	53	45	2710	Slight intensity.
04	Dehra Dun	NE	e	16	46	49		Tremor.
04	Dehra Dun	NE	e	18	23	53		Tremor.
05	Dehra Dun	NE N	eP PP PPP Pg LQ iS LR SS SSS S* Sg M	12	47	53	860	Slight.
	New Delhi	NE E NE E N	iP PP P* Pg iS SS LR SSS i S*	12	48	11	880	Slight.
06	Shillong	Z	i	11	13	42		Tremor.
Epc: $3\frac{1}{2}^{\circ}$ S., $136\frac{1}{2}^{\circ}$ E. West New Guinea; O=16h 50m 33s (U.S.C.G.S.) 3.0° S., 135.5° E. O=16h 50m 40s (B.C.I.S.) 4° S., 137° E. O=16h 50m 35s (Shillong) Magnitude—7— $7\frac{1}{2}$ (Hurbanovo), 7.1 (Praha), 7 (Pasadena, Tacubaya, Lwir), $6\frac{3}{4}$ —7 (Uppsala, De Bilt)								
	Shillong	Z N	iP iP PcP PPP PcS iS ScS SS LQ/SSS LR M	16	59	45	5890	Compression first movement North.
	Calcutta	E N E	iP iP eS iS SS LQ LR M	17	00	07	5865	Moderate.
	Chatra	Z E	iP eP PcP PP PPP iS	17	00	17	6300	Moderate.

Date	Station	Compt.	Phase	G. M. T.			Δ	Remarks
				h.	m.	s.		
June 1954							km.	
06	Chatra	E	PS	17	08	15		
Contd.			PPS ScS SS LQ LR M		08	30		
	Madras	E	iP PcP PP PPP PcS iS PS PPS ScS SS LR	17	00	29	6440	Moderate.
	Colombo	E	(P) S L	17	00	—		
	Hyderabad	E N EN N E N	iP iS ScS SS L M M	17	00	50	6660	
	Poona	Z E	eP PP eS PS PPS ScS SS SSS LQ LR M	17	01	17	7130	Moderate. Per.=23 secs/ μ =15; Per.=24 secs/ μ =27.
	Dehra Dun	NE N	eP PcP PP PPP PcS iS PS PPS ScS SS SSS LQ LR M	17	01	18	7140	Moderate.
	Bombay	E NE	iP PcP PP PPP iS	17	01	23	7310	Moderate.

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
06	Bombay	E	SKS ₁	17	11	09		
Contd.	Contd.	N	i		11	23		
		NE	SS		14	23		
		N	LQ		18	38		
		E	LQ		18	43		
			LR		21	13		
			M		29	07		
		N	M		29	11		Per. = 24 secs/ μ =12. Per. = 23 secs μ =13.
06	Dehra Dun	NE	e	19	07	07		Slight, phases not clear
			i		08	09		
			i		08	27		
06	Shillong	Z	i	22	06	35		Tremor.
07	Shillong	Z	e	06	35	35		Tremor.
07	Shillong	Z	[e e	09	51	12		Slight.
					52	01		
07								
Epc: 3 $\frac{1}{2}$ °S., 152 $\frac{1}{2}$ °E. New Britain Region; h=450 km ca; 0=10h 15m 33s (U.S.C.G.S.) 7°S., 153°E. h=500 km ca; 0=10h 15m 38s (Shillong) Magnitude—7 (Uppsala, Wellington) 6 $\frac{3}{4}$ (Pasadena, Berkeley), 6 $\frac{1}{2}$ (Lwiro).								
	Shillong	ZNE	iP pP PP i iS i sS	10	25	36	7340	Compression, first movement North and West.
					27	12		
					28	02		
					30	42		
					33	40		
					34	44		
					36	32		
	Calcutta	E N E N	iP iP iS iS	10	25	55	6835	Slight, first movement West and North.
					25	59		
					34	16		
					34	20		
	Chatra	EZ E	iP pP iS M	10	26	03	7890	Slight, deep focus, other phases not clear.
					27	38		
					34	36		
					52	—		
	Colombo	E	P S	10	26	22		Slight
					35	08		
	Madras	E	iP PcP pP? PP PcS iS PS PPS ScS	10	26	25	7412	Moderate.
					26	47		
					28	03		
					28	53		
					30	43		
					35	16		
					35	34		
					35	46		
					35	58		
	Hyderabad	E	iP e PP iS L M M	10	26	36	7660	Moderate.
					28	15		
					29	04		
					35	41		
					47	54		
					53	48		
					54	09		Per.=15 secs/ μ =4. Per.=15 secs/ μ =4.


Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
07	Kodaikanal	E	iP pP sP i	10	26	37		Slight.
Contd.					28	19		
					29	05		
					29	47		
	Dehra Dun	NE N	eP PcP PP iS PPS SS SSS LR M	10	26	51	7890	Moderate.
					27	08		
					29	37		
					36	07		
					36	59		
					40	51		
					43	41		
					49	16		
					55	23		
	New Delhi	NE N	iP pP sPi iS PS i i	10	26	53	7890	Moderate.
					28	35		
					29	34		
					36	09		
					36	41		
					40	21		
					40	50		
	Poona	Z E	iP PcP PP PPP eS SKS ₁ ScS PS PPS SS SSS M	10	26	59	8130	Moderate.
					27	06		
					29	46		
					31	35		
					36	27		
					36	37		
					36	43		
					37	05		
					37	26		
					41	28		
					44	34		
					57	23		
	Bombay	NE N NE E	eP PP PPP iS i i i SS	10	27	07	8200	Moderate.
					29	46		
					31	30		
					36	38		
					39	05		
					39	37		
					39	54		
					41	47		
	Dehra Dun	N	e	09	18	46		Tremor.
08	Dehra Dun	N	e	09	18	46		Slight, near.
08	Shillong	Z	i e	11	03	33		Slight, near.
					04	09		
09	Shillong	Z N	i e i i	00	57	08		
					57	09		
					57	56		
					58	12		
09	New Delhi	N NE	eP eS i i	03	55	42		
					57	23		
					57	28		
					57	33		
	Dehra Dun	NE	e	03	57	02		
09	Shillong	Z N	iP L	10	08	47		Slight.
					20	—		

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
10	Shillong New Delhi	Z NE	iP iP eS	22 22	45 46	14 43	5430	Slight. Slight.
		N	PPS i SSS		53 54 55 58	46 01 47 31		
11	Shillong	Z	i	01	01	34		Slight.
11	Shillong	Z	e	09	03	27		Tremor.
11	Shillong	Z	i	09	50	40		Slight.
11	Shillong	Z	iP e L	17	06	16 59 —		Slight.
	Chatra	Z	i	17	06	33		Slight, distant
11	Shillong	Z	e e	17	16	53 14		Slight, local.
11	Shillong	Z	e	19	01	51		Slight.
11	Shillong	Z	i	21	32	27		Slight.
11	Poona	Z	eP	22	47	27		Tremor.
12	Shillong	Z	i	05	34	43		Slight.
12	Shillong	Z	i	05	47	54		Slight.
12	Shillong	Z	e i	12	11	31 42		Slight, local.
12	Shillong	Z	i(S(g))	15	23	03		Slight.
13	Shillong	Z	i i	17	54	40 14		Slight.
13	Shillong	Z NE	iP ep i iSg	02	20	34 35 41 53	150	Slight.
13	Dehra Dun	NE	e i i	04	21	46 51 58		Slight, phases not clear.
13	Shillong	Z	e i	10	58	15 45		Slight.
13	Shillong	Z	e	17	10	10?		Slight.
13	Shillong	Z N	e e	17	29	36 46		Slight.
13	Shillong	Z	i i i	22	32	47 40 03		Slight.
13	Shillong	Z	i	23	10	46		Tremor.



Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
14	Shillong	Z	i	06	55	25		Tremor.
14	Shillong	Z	e	07	10	48		Tremor.
14	Shillong	Z	e	08	38	02		Tremor.
14	Shillong	Z	i e	12	15	02 30		Slight, local.
14	Shillong	Z	i	13	35	20		Slight, trace very faint.
14	Shillong	Z	i	16	37	48		Slight.
14	Shillong	Z	ePg eSg	16	58	38 50	100	Slight, local.
15	Dehra Dun New Delhi	NE NE	e eP i e	13	40	50 01 49 58		Tremor. Slight.
15	Dehra Dun	NE	e i i	13	49	30 41 14		Slight, phases not clear.
	Bombay	NE E	ePKP ₁ eSS	13	49	33 42	16780	Very distant and deep Phases not clear due to microseisms.
	Poona	Z	eP	13	49	34		Other phases mixed with microseisms.
	Chatra	Z	i	13	49	39		Slight, distant.
	Shillong	N Z N	eP eP e e i	13	49	47 48 20 05 39		Slight.
	Calcutta	E	i i	13	50	41 41		Slight, distant.
	Madras	E	iP?	13	53	47		Slight shock. Phases not clear.
	Hyderabad	E	e	14	01	07		Tremore.
16	Shillong	Z	e	17	45	39		Feeble.
16	Shillong	Z	i	23	32	28		
17				Epc: 56° N., 154 ¹ / ₂ ° W. Off the South Coast of Kodaikanal; O=01h 42m 22s (U.S.C.G.S.) 56.8°N., 154°W. O=01h 42m 24s (B.C.I.S.) Magnitude—6 ³ / ₄ (Lwiro), 6 ¹ / ₂ (Pasadena, Praha, Roma, Hurbanovo).				
	Shillong	Z N	iP eP i(S)	01	54	41 49 49		Slight, very distant

Date	Station	Compt.	Phase	G. M. T.			Δ	Remarks
				h.	m.	s.		
June 1954								
17	Chatra	Z	iP	01	54	49	9110	Slight.
Contd.		E	eP	02	05	03		
		E	eS		05	52		
			PS		06	11		
			PPS		16	20		
			LQ		20	39		
			LR		27	—		
			M					
	New Delhi	NE	eP	01	55	00		Slight
		N	iS	02	05	20		
			PPS		06	43		
	Bombay	NE	eP	01	55	28	10220	Moderate.
			eS	02	06	28		
		E	i		06	56		
			M		37	13		
		N	M		42	37		
	Poona	ZN	eP	01	55	54		
		N	i(?)	02	06	19		
			i(?)		07	08		
	Hyderabad	E	e	01	55	59		
			M	02	35	53		
		N	M		38	05		
	Calcutta	E	i	01	57	06		
			i	02	05	41		
			i		14	43		
	Colombo	E	i	02	07	10		
			L		40	—		
17	Shillong	Z	iP	02	14	48		Slight.
17	Shillong	N	i?	02	29	50		Slight.
			i?		33	50		
17	Kodaikanal	E	iP	02	36	42	2710	Slight intensity.
			PPP		37	00		
			iS		41	00		
			LQ		41	39		
			SSS		42	00		
			LR		42	51		
			M		44	51		
17	Shillong	Z	e	05	46	32		
			i		47	27		
17	Poona	Z	eP	06	03	55		Tremor.
17	Shillong	Z	iP	06	04	29		Slight shock, phases mixed up with microseism.
			iS	06	08	19	2250	Slight.
17	New Delhi	NE	eP	10	02	11		
		N	PPP		02	25		
		NE	P*		02	31		
			Pg		02	54		
		N	iS		03	54		
		NE	i		04	00		
			SS		04	06		
			LR		04	10		
			S*		04	31		
			Sg		04	39		



Date	Station	Compt.	Phase	G. M. T.			Δ	Remarks
				h.	m.	s.		
June 1954								
18	Poona	Z	eP	15	50	03		Slight shock, phases not clear.
	Bombay	NE	e	15	50	15		Feeble, near tremor.
12	Epc: Soenda Starit; 0=17h 54m 40s. Felt Djakarta (U.S.C.G.S.) 6°S., 105½° E. 0=17h 54m 42s (B.C.I.S.)							
	Madras	E	iP?	18	01	07		Slight shock, phases not clear.
	Shillong	Z	iP	18	01	29	3760	Slight.
		N	eP		01	34		
			S		06	53		
			M		13	45		
	Hyderabad	E	eP	18	01	42	3810	
			PcP		04	54		
		EN	iS		07	09		
		E	L		11	33		
			M		14	55		
	Poona	Z	eP	18	02	18	4300	Slight shock.
		N	PP		03	51		
			PPP		04	12		
			eS		08	16		
			LQ		11	14		
			SSS		11	37		
			M		16	19		
	Bombay	E	eP	18	02	20	3965	Slight. Possibly deep focus.
			PP		03	50		
			eS		07	57		
			ScS		11	55		
			i		12	54		
			i		13	25		
	New Delhi	NE	eP	18	02	52	4750	Slight.
			eS		09	17		
19	Epc: 30½° N., 130° E. Off the South Coast of Kiu-Shiu, Japan; 0=01h 56m 30s (U.S.C.G.S. and B.C.I.S.) 29¼° N., 131¼° E. H=0-10km; 0=01h 56m 22s. Felt (C.M.O. Japan). Magnitude 6½ (Strasbourg), 6 (Roma).							
	Shillong	Z	iP	02	03	13		Feeble.
		N	e		04	52		
			e		07	29		
	Chatra	Z	iP	02	03	46		Slight, distant; surface waves.
		E	e		20	—		
	Poona	Z	eP	02	05	39		Tremor.
	Bombay	E	eP	02	05	44	5780	Moderate.
			eS		13	07		
	Hyderabad	E	M	02	26	05		Per.=15 secs. μ=4
19	Poona	Z	eP	03	24	13		Tremor.



Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
19	Shillong	Z	e	05	59	40		Tremor.
19	Shillong	Z	i	12	35	03		Tremor.
19	Shillong	Z	i	23	14	44		Tremor.
20	Bombay	N	e	01	20	—		
			e		26	—		
20	Dehra Dun	NE	e	17	42	57		Tremor.
20	Epc : 5°S, 146°E. of the Coast of New Gunniea ; h=60 km ca; 0=20h 45m 57s (U.S.C.G.S.)							
	4½°S, 145½°E. h=60 km ca; 0=20h 46m 00s (B.C.I.S.)							
	Shillong	Z	i	20	56	08		Tremor.
	Dehra Dun	NE	e	20	57	28		Tremor.
	Poona	Z	eP	20	57	39		Tremor.
21	Poona	Z	e	02	08	07		Slight distant shock. Phase mixed with microseism and other phases lost shifting.
		N	i?		10	59		
			i		13	19		
			i		18	01		
	Madras	E	e	02	08	20		Tremor.
	Shillong	Z	e	02	08	29		Tremor.
21	Shillong	Z	i	02	15	41		Tremor.
	Chatra	Z	i	02	16	10		Slight, distant.
21	Poona	Z	eP	14	36	22		Tremor.
22	Shillong	Z	i(Sg)	03	49	02		Slight, strong microseism.
		N	e	04	02	—		
22	Shillong	Z	i	17	35	01		Slight, local.
22	Shillong	Z	e	22	43	40		Slight.
			e		14	17		
			e		14	41		
23	Dehra Dun	NE	e	08	01	47		Feeble.
			i		03	29		
24	Shillong	Z	Pg	09	54	25		Slight.
			Sg		54	39		
24	Shillong	Z	Pg	10	44	41	170	Slight.
			P*		44	45		
			PPP		44	55		
			Sg		45	00		
24	Shillong	Z	e	16	21	13		Slight.
			P	16	59	31	220	Slight.
			Pg		59	36		
			P*		59	46		
			S		5	57		
			Sg	17	0	02		

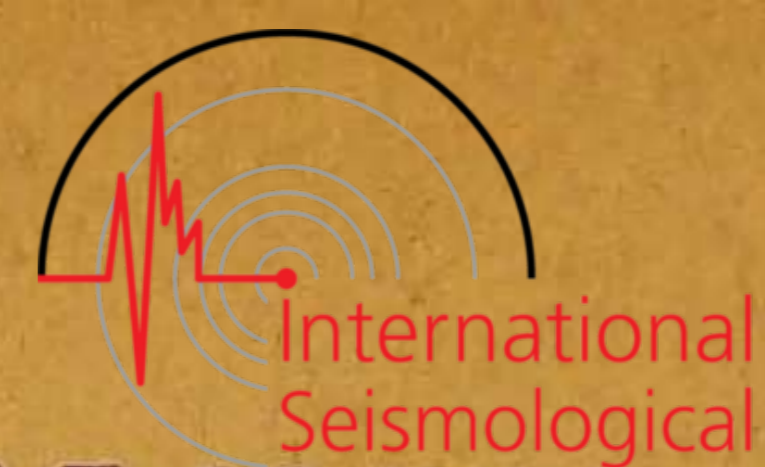
Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
June 1954								
24	Shillong	Z	Pg	17	55	48		Slight, local.
			Sg		56	21		
	Chatra	Z	i	17	56	40		
			i		58	01		
26	Shillong	Z	e	11	11	02		Tremor.
26	Shillong	Z	i	12	01	24		Tremor.
26	Shillong	Z	i	18	26	39		Slight, local.
26	Shillong	Z	Pg	20	59	48		Slight.
			Sg		59	55		
26	Shillong	Z	i	21	43	47		Tremor.
27	Shillong	Z	e	04	04	35		Slight.
			i		05	29		
27	Shillong	Z	e	16	24	27		Tremor.
28	Shillong	Z	e	03	33	38		Tremor.
28	Shillong	Z	P	03	57	42		Slight.
			P*		57	44		
			S		58	06		
			Sg		58	14		
			SSS		58	28		
28	Hyderabad	N	M	06	04	33		Per. = 23 secs/μ = 10.
28	Shillong	Z	i	11	32	13		Tremor.
28	Shillong	Z	P	14	33	25	300	Slight.
			Pg		33	34		
			S*		34	02		
			SS/Sg		34	08		
28	Shillong	Z	Pg	17	57	53		Slight.
			Sg		58	03		
28	Epc : 29¼°N., 86¼°E. South Tibet ; 0=21h 31m 44s (B.C.I.S.)							
	28.5°N., 86.8°E. 0=21h 31m 40s (Shillong)							
	Chatra	ZEN	iP	21	32	13	170	Slight.
		NE	Pg		32	15		
			PP		32	21		
			PPP		32	26		
			iS		32	34		
			SS		32	44		
			SSS		32	58		
	Shillong	ZNE	P	21	33	03	530	Slight. Probably deep, compression. First movement South and East.
		N	PP		33	05		
			LQ		33	47		
			S/LR		34	00		
			SSS		34	17		Suppressed.
			M		34	28		
	Calcutta	EN	eP	21	33	16	580	Slight, felt at Katmundu.
		N	LQ		34	03		
			iS		34	17		
		E	iS		34	20		

Earthquake Reports

(Non Instrumental Reports)

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations.

Place at which felt	Date	Time at which felt in G.M.T. h. m.	Duration in secs.	Intensity in R.F. scale	No. of Shocks	Remarks
Darjeeling	June 28	21 45	2	IV	1	—



GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN

JULY, 1954



PUBLISHED UNDER THE DIRECTION OF
SHRI S. BASU, M.Sc., F.N.I.,
DIRECTOR GENERAL OF OBSERVATORIES.

INSTRUMENTS AND THEIR CONSTANTS

Station	Instrument	Compt.	Period in Secs.	Static Magnifi- cation	Damping ratio	Paper Speed mm/min.
Bombay	Milne-Shaw	N-S	12.0	350	23 : 1	16.0
	Milne-Shaw	E-W	12.0	350	—	8.0
	Sprengnether	E-W	To=Tg=7.0	—	—	30.0
Calcutta	Milne-Shaw	E-W	10.0	150	20 : 1	8.0
	Wood-Anderson	N-S	2.0	870	Critical	30.0
	Omori-Ewing	N-S	18	32	—	25.4
	Omori-Ewing	E-W	19	30	—	25.4
Chatra	Milne-Shaw	E-W	12.0	250	20 : 1	16.0
	Wood-Anderson	N-S	1.0	1000	30 : 1	60.0
	Wood-Anderson	E-W	1.0	1000	40 : 1	60.0
	Benioff	Z	To= .72 Tg=0.45	—	—	60.0
Colombo	Milne-Shaw	E-W	12.0	250	20 : 1	—
Dehra Dun	Milne-Shaw	N-S	12.0	250	20 : 1	16.0
	Wood-Anderson	E-W	1.0	1000	30 : 1	60.0
	Wood-Anderson	N-S	1.0	1000	30 : 1	60.0
Hyderabad	Milne-Shaw	E-W	12.0	250	20 : 1	8.0
	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
Kodaikanal	Milne-Shaw	E-W	10.0	250	20 : 1	8.0
Madras	Sprengnether	E-W	7.2	—	Critically damped	30.0
New Delhi	Milne-Shaw	N-S	12.0	300	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1070	20 : 1	16.0
	Wood-Anderson	E-W	2.0	1800	30 : 1	60.0
	Omori-Ewing	E-W	28	30	1	12.0
Poona	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	E-W	4.0	1100	20 : 1	16.0
	Sprengnether	Z	To=Tg=1.5	—	—	30.0
Shillong	Milne-Shaw	N-S	12.0	250	20 : 1	8.0
	Wood-Anderson	N-S	4.0	1000	20 : 1	30.0
	Wood-Anderson	N-S	0.8	800	20 : 1	30.0
	Wood-Anderson	E-W	0.8	800	20 : 1	30.0
	Sprengnether	E-W	To=Tg=7.5	—	—	60.0
	Benioff	Z	To=1.0 Tg=0.18	—	—	60.0

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
01	Poona	Z	i?	01	31	28		Tremor.
01	Bombay	N	e	03	24	13		Feeble Background micro-seisms.
			e		29	06		
			e		31	15		
	Shillong	N	e	03	45	32		Surface wave.
01	Shillong	Z	iP	05	29	50		Slight.
	Chatra	Z	e	05	30	26		Slight.
01	Shillong	N	e	05	31	16		Slight, near.
			e		34	39		
			e		38	31		
01	Shillong	Z	iP	08	57	00		Slight, near.
	Dehra Dun	N	i		57	03		
		N	e	08	58	49		Tremor.
01	Shillong	Z	iP	09	35	15		Slight, near.
			e		36	13		
01	Shillong	Z	iPg	15	24	29	140	Slight.
		N	ePg		24	29		
			eP		24	35		
			iSg		24	46		
			S*		24	51		
			PP		24	55		
					24	55		
01	Shillong	Z	e	15	35	34		Tremor.
			e		36	12		
01	Dehra Dun	N	e	16	47	36		Feeble, phases not clear.
			e		49	06		
01	Shillong	Z	i	16	54	20		Slight, near.
			e		55	04		
01	Shillong	Z	iP	19	37	33		Slight, near.
					38	10		

Epc: 13° N., 124½° E. South East Luzon, Philippine

0=02h 45m 08s (U.S.C.G.S.)

13° N., 124.°2 E. 0=02h 45m 09s (B.C.I.S.)

12° N., 125° E. 0=02h 45m 04s (Shillong)

Magnitude—7½ (Berkeley), 7 (Praha), 6½—7 (Strasbourg, Uppsala), 6½ (Pasadena, Tacubaya, Kirana, Hurbanovo).

Date	Station	Compt.	Phase	G. M. T.	△	Remarks	
02	Shillong	ZN	iP	02	51	42	3650 Moderate.
			PP		52	44	
			iS		56	59	
			PcS		58	15	
			LQ		58	38	
			SSS		59	08	
			LR		00	25	
			ScS		02	12	
			M		04	09	

Date	Station	Compt.	Phase	G.M.T.			△	Remarks	
				h.	m.	s.			km.
July 1954									
02	Calcutta	E	iP	02	52	11	4110	Great. First movement West.	
			PP		53	37			
02	Contd.		SS	03	00	23			
	Chatra	EZ	eP	02	52	21	4250	Slight.	
		E	PP		53	53			
			PPP		54	16			
			PcS		54	38			
			e?		56	42			
			iS		58	16			
			SS	03	00	38			
			LQ		00	50			
			SSS		01	08			
									Rest of the phases lost while changing chart.
	Madras	E	i	02	53	12	Moderate. Record of beginning lost while changing chart.		
			PP		54	50			
	Hyderabad	E	iP	02	53	17	5140	Moderate.	
			PP		55	01			
			iS	03	00	04			
			ScS		02	29			
			SS		03	23			
			L		07	40			
		N	M		12	36			
		E	M		13	17			
									Per. = 22 secs $\mu = 41$. Per. = 21 secs $\mu = 27$.
	Colombo	E	P	02	53	21			S approximate. Beginning lost in hour mark.
			S	03	00	—			
			L		11	21			
	Kodaikanal	E	iP	02	53	32	5220	Moderate.	
			PP		55	17			
			PPP		56	11			
			iS	03	00	20			
			SS		03	26			
			LQ		05	02			
			LR		07	17			
			M		11	20			
									Per. = 15 secs $\mu = 49$.
	New Delhi	NE	eP	02	53	35			5250
		N	PP		55	26			
			eS	03	00	29			
			PS		00	35			
			SS		03	50			
			i		04	13			
			LQ		04	50			
			M		11	17			
							Per. = 15 secs $\mu = 49$.		
	Dehra Dun	N	eP	02	53	38	5280	Moderate.	
			P.P		54	59			
			PP		55	31			
			PP		58	43			
			PcS	03	00	33			
			iS		00	39			
			PS		00	53			
			PPS		03	29			
			S S		03	59			
			SS		05	00			
			LQ		05	15			
			SSS		07	13			
			LR		11	14			
			M						

Date	Station	Compt.	Phase	G. M. T.			Δ km.	Remarks
				h.	m.	s.		
July 1954								
03 (Contd.)	Shillong	ZN N	iP PP PPP PcP iS PcS LQ SS LR M	22	38	09	3660	Moderate, compression.
	Hyderabad	EN E EN N E N E	iP PP iS SS L L M M	22	38	22	3950	Great. Per.=24 secs $\mu=97$. Per.=21 secs $\mu=43$.
	Chatra	EZ	iP PP PPP PcP eS PcS LQ SSS iScS M	22	38	35	3920	Moderate.
	Bombay	E	iP PP PPP PcP iS SS LQ SSS ScS LR M	22	38	40	4110	Moderate.
	Poona	Z E	iP PP PPP iS PS PPS SS LQ SSS LR M	22	38	55	4253	Great.
	New Delhi	N NE	iP PP PPP PcS iS PS PPS i SS	22	39	30	4850	Moderate. Direction of first movement South East.

Date	Station	Compt.	Phase	G. M. T.			Δ km.	Remarks
				h.	m.	s.		
July 1954								
03	New Delhi	N	LQ	22	49	41		
Contd.	Contd.		LR M		51	45 45		
	Dehra Dun	NE N	eP PcP PP PPP PcS iS PS PPS SS ScS LQ SSS LR M	22	39	38	4910	Moderate. Per.=21 secs $\mu=115$.
04	Dehra Dun	NE	e i i e	00	56	52 10 23		Feeble, phases not clear. Tremor.
	Shillong	Z	e	00	59	19		Slight, near.
04	Shillong	Z	e e i	06	48	19 52 17		Tremors.
04	Dehra Dun	NE	i i	13	40	43 47		Tremor. Feeble, phases not clear.
04	Shillong Dehra Dun	Z NE	i e	15	35	22 16		Slight, near.
04	Shillong	Z	e e	17	46	53 04		Tremor.
04	Shillong	Z	e	20	02	07		Slight, near.
04	Shillong	Z	iP e	20	55	10 28		Tremor.
04	Shillong	Z	i	21	08	40		Feeble, phases not clear.
05	Dehra Dun	N	i i	09	57	53 06		Slight.
05	Shillong	Z	iPg eSg	11	37	48 59	90	Slight.
05	Shillong	Z	e e e	12	04	25 49 03		Feeble, phases not clear.
05	Dehra Dun	N	e i	12	24	34 54		Tremor.
05	Shillong	Z	e	12	26	33		Tremor.
05	Shillong	Z	iP	14	01	43		Ground wave.
05	Shillong	N	e	14	21	33		

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954							km.	
05	Shillong	Z	e	16	27	11		Tremor.
05	Shillong	Z	i	16	35	20		Tremor.
05	Dehra Dun	NE	e	19	31	59		Feeble, phases not clear.
			i		32	07		
			i		32	21		
	Shillong	Z	e	19	33	05		Tremor.
06	Shillong	Z	iP	04	10	36		Slight.
		N	i		18	54		
			e		19	31		
06	Dehra Dun	N	e	06	19	50		Tremor.
06	Shillong	Z	e	08	08	42		Tremor.
06	Epc: $46\frac{1}{2}^{\circ}$ N., $153\frac{1}{2}^{\circ}$ E. Kurile Island; $h=100$ km ca; 0=08h 04m 42s (U.S.C.G.S.) Magnitude—7 (Praha, Tacubaya), $6\frac{3}{4}$ —7 (Pasadena, Kiruna), $6\frac{1}{2}$ — $6\frac{3}{4}$ (Berkeley, Uppsala, Hurbanovo).							
	Shillong	ZN	iP	08	13	48	5920	Moderate.
		N	e		14	42		
			PcP		15	11		
			PP		15	52		
			iS		21	19		
			SS		25	01		
			LR		28	—		
			M		32	19		
	Chatra	EZ	iP	08	14	07	6180	Slight.
		E	PcP		15	00		
			PP		16	09		
			PPP		17	24		
			PcS		19	07		
			iS		21	52		
			PS		22	05		
			PPS		22	19		
			ScS		23	35		
			SS		25	42		
			LQ		27	54		
			LR		30	31		
			M		35	20		
	Calcutta	E	iP	08	14	22	6370	Moderate, first movement West.
			iS		22	18		
	Dehra Dun	NE	eP	08	14	34	6520	Moderate.
		N	PP		15	12		
			PPP		16	39		
			S		18	10		
			PS		22	38		
			PPS		22	54		
			ScS		23	04		
			SS		24	05		
			SSS		26	37		
			LQ		28	39		
			LR		29	45		
			M		32	21		
					37	34		

Date	Station	Compt.	Phase	G. M. T.			△	Remarks	
				h.	m.	s.			
July 1954							km.		
06	Colombo	E	e	08	14	49		Contd.	
			S		25	39			
			L		50	—			
			M		55	07			
	New Delhi	NE	P	08	14	50	6700	Moderate. Puncertain due starting of the phase within time break.	
		N	PP		17	08			
			PPP		18	38			
			eS		23	04			
			PS		23	16			
			ScS		24	37			
			SS		26	35			
			SSS		29	05			
			M		36	13			
	Hyderabad	EN	iP	08	15	25	7550	Moderate. Per.=16 secs $\mu=15$. Per.=15 secs $\mu=10$.	
			PP		18	01			
		E	iS		24	24			
		N	iS		24	28			
		EN	SS		28	58			
		E	L		37	46			
		N	M		41	19			
		E	M		42	06			
	Madras	E	iP	08	15	42	7780		Moderate shock, phases not clear due to presence of large microseisms.
			PcP		15	58			
			PP		18	30			
			iS		24	52			
	Poona	Z	iP	08	15	46	7800	Moderate.	
		N	PP		18	14			
			PPP		19	54			
			PcP		20	21			
			iS		24	57			
			PS		25	21			
			PPS		25	50			
			SS		29	39			
			LQ		33	55			
			M		43	10			
	Bombay	N	iP	08	15	52	7800	Moderate.	
			e		17	07			
			PP		18	24			
			iS		25	03			
			PS		25	36			
			i		26	27			
	Kodaikanal		e	08	15	59		Tremor.	
	Shillong	Z	iP	09	03	51		Slight.	
06	Shillong	Z	iP	10	23	22		Slight. Tremor.	
06	Dehra Dun	N	e	10	24	06			
06	Shillong	Z	iP	10	56	06		Slight.	
06	Shillong	Z	iP	11	20	54		Slight. Slight, distant. Tremor.	
06	Chatra	Z	i	11	21	13			
06	Dehra Dun	N	e	11	21	41		Tremor.	
06	Shillong	Z	e	1	32	22		Tremor.	
		N	e		41	44			
			e		52	—			

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
06	Hyderabad	E	M	12	20	05		Per.=20 secs $\mu=14$.
06	Shillong	Z	e	16	49	15		Tremor.
06	Dehra Dun	N	e	18	01	36		Tremor.
06	Shillong	Z	i	19	23	44		Slight.
06	Shillong	N	e	23	03	—		Slight.
	Hyderabad	E	M	23	19	16		Per.=20 secs. $\mu=8$.
07	Shillong	Z	i	01	31	00		Slight.
07	Shillong	Z	e(?) i	13	17	15		Slight.
				18	03			
08	Shillong	Z	i	14	45	17		Slight, local.
08	Shillong	Z	i	15	28	55		Slight.
		N	e(L)	30	24			
08	Shillong	Z	e	16	55	53		Tremor.
08	Shillong	Z	e	17	27	36		Tremor.
08	Shillong	Z	i	19	15	00		Slight.
09	Shillong	Z	e	12	34	23		Tremor.
		N	e(L)	45	—			
09	Shillong	Z	i	14	51	10		Slight.
09	Shillong	Z	i	15	46	57		Slight.
		N	e(M)	16	06	—		
09	Shillong	Z	i	18	36	14		Slight.
				41	33			
09	Chatra	Z	i	18	36	39		Slight, probably deep focus.
	Poona	Z	eP	18	38	28		Tremor.
10	Dehra Dun	Z	eP	20	20	20	200	Slight.
		N	iSg	20	48			
10			e	18	37	17		Feeble, phases not clear.
			i	37	17			
			l	37	36			
				38	20			
Epc. 37° N., 70½° E. Hindukush; h=200 km ca; 0=22h 56m 53s (U.S.C.G.S.) 36°5 N., 70°5 E. h=220 km; 0=22h 56m 57s (B.C.I.S.) 37° N., 72° E. 0=22h 56m 45s (Shillong) Felt—Hengu, Drosh (Press report from Quetta).								
	Dehra Dun	NE	eP	22	58	53	900	Moderate.
		N	PP	59	02			
			P*	59	08			
			PPP	59	13			
			Pg	59	36			



Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.		
July 1954								
10	Dehra Dun	N	LQ	23	00	16		
Contd.	Contd.		iS	00	26			
			SS	00	38			
			LR	00	40			
			SSS	00	48			
			S*	00	57			
			Sg/M	01	17			
	New Delhi	NE	eP	22	59	06	1030	Slight. Direction of first movement North.
			PP	59	13			
			P*	59	28			
			Pg	59	54			
		N	i	23	00	18		
			i	00	30			
		NE	iS	00	52			
			SS	01	04			
			M	01	48			
	Chatra	Z	iP	23	00	38	1780	Slight, probably deep focus.
		NE	eP	00	49			
			PP	00	58			
			PPP	03	34			
			LQ	03	36			
			iS	03	57			
			SS	04	08			
			SSS	04	22			
			LR	05	43			
			M					
	Poona	Z	eP	23	00	58	2030	Slight.
		E	PPP	01	23			
			eS	04	20			
			SS	04	42			
			SSS	04	50			
			LR	05	05			
			M	06	37			
	Bombay	N	i	23	01	10		Slight, probably deep focus. Phases not clear.
			e	01	43			
			i(S)	04	07			
	Calcutta	E	iP	23	01	19	2160	Slight.
			iS	04	54			
	Shillong	N	iP	23	01	21		Slight.
			i	05	00			
	Madras	E	eP	23	01	54	2610	Moderate.
			PP	02	29			
			PPP	02	42			
			PcP	05	30			
			iS	06	05			
			LQ	06	43			
			SS	07	00			
			SSS	07	03			
			LR	07	50			
			ScP	09	05			
			M	09	41			
	Hyderabad	N	o	23	02	18		Slight.
			iS	04	45			
			L	06	00			

Date	Station	Compt.	Phase	G. M. T.			△	Remarks.
				h.	m.	s.		
July 1954								
10	Hyderabad Contd.	E N	M M	23	07	00 11		Per. = 7 secs $\mu=5$. Per. = 8 secs $\mu=3$.
11	Chatra	Z	e i	07	30	14 35		Feeble, near.
11	Chatra	Z	e	17	15	42		Slight, near.
		E	e		21	05		Surface waves.
	Dehra Dun	N	e	17	17	13		Tremor.
	Shillong	N	e(?) i	17	17	39 21		Slight.
12	Dehra Dun	N	e	17	42	15		Tremor.
12	Dehra Dun	N	e e	17	55	00 18		Feeble, phases not clear.
12	Shillong	N	e(M)	18	52	--		Tremor.
12	Dehra Dun	N	e	23	16	37 49		Feeble, phases not clear.
13	Shillong	Z	eP	04	03	44		Feeble.
13	Shillong	Z	iP	05	54	47		Feeble.
13	Epc: 3° S., 151° E. New Britain Region; 0=08h 04m 44s (U. S. C. G. S.) Magnitude - 6½ (Kiruna).							
	Shillong	Z N	iP eP	08	15	19 26		Slight.
	Chatra	Z	eP	08	15	48		Slight, distant.
	Colombo	E	P S L M	08	16	20 25 39 40 30 46 30		
	Madras	E	e	08	16	24		Tremor.
	Calcutta	E	e i	08	16	51 24 31		Slight, distant.
	Poona	ZE	eP	08	16	51		Slight, distant shock, phases not clear.
	Bombay	E	e e e	08	17	09 17 37 26 16 27 54		Feeble.
	Hyderabad	NE	e					
13	Dehra Dnn	N	M	08	45	52		Per.=18 secs $\mu=5$.
13	Shillong	N	e	14	20	12		Tremor.
13	Shillong	Z	eP	20	07	17		Feeble.
13	Shillong	Z	iP	20	07	17		Feeble.
13	Shillong	N	e e?	22	17	11 38 33 41 28		Feeble.

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
14	Shillong	Z	eP	06	48	41		Tremor.
14	Shillong	Z	eP	11	52	07		Feeble.
14	Shillong	Z	iP	23	23	44		Feeble.
14	Shillong	Z	iP	23	53	39		Feeble.
14	Shillong Poona	Z	eP	23	55	33		Tremor.
15	Shillong	ZNE	iP iS Sg	16	23	06 23 41 23 43		Local, Slight, felt.
	Chatra	Z	i i	16	24	02 25 24		Slight, near.
	Calcutta	N	i	16	24	41		Slight, very near.
16	Shillong	ZNE E	iP Sg	00	24	55 25 14		Local, Slight, felt.
16	Shillong	Z	iP	02	59	04		Feeble.
16	Shillong	Z	eP	07	39	14		Tremor.
16	Shillong	Z	iP	12	50	01		Feeble.
16	Shillong	Z	e	12	50	27		Slight, distant.
16	Shillong Chatra Poona	Z	e	12	52	13		Tremor.
16	Dehra Dun	N	e i	15	33	47 35 20		Feeble, phases not clear.
16	Shillong	Z	eP	20	04	57		Very feeble.
16	Shillong	Z	iP	22	56	21		Feeble.
17	Shillong	Z	eP	00	44	28		Feeble.
18	Shillong	N	eP	05	21	30		Feeble.
18	Dehra Dun	NE	e i	05	56	18 56 36		Feeble, phases not clear.
18	Dehra Dun	NE	e i	06	44	33		Tremor.
18	Shillong	Z	eP	06	44	44		Slight, distant.
18	Shillong Chatra Poona	Z ZN	e eP	06	46	16		Very feeble, phases not developed.
18	Shillong	N	eP	07	05	32		Feeble.
18	Hyderabad	N N E	M M M	07	20	39 20 43		Per.=14 secs $\mu=5$. Per.=15 secs $\mu=4$.
18	Shillong	ZN	iP	09	15	35	4720	Moderate.
Epc: 35½° N., 140½° E. Off the East Coast of Hondo, Japan; 0=09h 07m 44s (U.S.C.G.S.) 35°-5N., 141°-1 E. h=40 km ea; 0=09h 07m 36s Felt (C.M.O., Japan). Magnitude—7 (Wellington), 6½ (Pasadena, Roma), 6½-6½ (Praha), 6½ (Kiruna), 6-6½ (Uppsala).								

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
18 Contd.	Shillong. Contd.	ZN	PP iS PS PPS SS LQ SSS LR M	09 21 22 22 25 25 26 27 31	17 17 13 21 06 42 04 42 00			
	Chatra	Z E	iP } eP } PP PPP PcP eS PPS SS LQ LR M	09 16 17 18 21 22 23 26 26 29 33	02 53 45 34 45 00 04 53 08 23	5080	Slight.	
	Calcutta	E	iP PcS iS SS	09 16 21 23 26	12 36 16 32	5450	Moderate.	
	New Delhi	NE N NE N	eP PP eS PPS M	09 16 18 24 24 36	57 58 25 42 30	5870	Moderate.	
	Hyderabad	EN E EN	iP PP iS SS	09 17 19 25 29	27 31 23 29	6360		
		E N E	L M M	36 40 41	27 35 47			Per.=21 secs $\mu=13$. Per.=22 secs $\mu=14$.
	Madras	E	iP PcP PPP iS PS PPS ScS SS	09 17 18 21 25 25 25 28 29	36 15 13 38 52 55 17 32	6480	Moderate.	
	Poona	N	eP PP PPP eS PS PPS SS SSS LQ LR M	09 17 20 21 26 26 26 29 32 33 36 41	50 04 26 08 19 35 17 51 21 03 00	6780	Slight.	
		E N						

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
18 Contd.	Bombay	NE	iP PcP PPP eS PS PPS SS	09 17 18 21 26 25 26 30	17 55 34 40 14 33 40 28		Moderate. Surface waves not prominent.	
	Colombo		e S L M	09 21 26 41 46	— 23 — 06			
18								Epc : 20° N., 120° E. Off the North Coast of Luzon, Phillipines ; 0=10h 57m 30 s(B.C.I.S.) Magnitude—5½ (Kiruna).
	Shillong	Z	eP eS M(?)	11 03 07 13	10 45 00		Feeble.	
	Chatra Calcutta	Z E	e eS i i	11 03 11 14 17	49 39 29 00		Slight, distant. Slight, distant.	
	Hyderabad	N E	M M	11 22 23	41 03		Per.=12 secs $\mu=3$. Per.=12 secs $\mu=3$.	
18	Chatra Shillong	Z Z	e eP	14 52 14 52	11 39		Slight, distant. Very feeble.	
18	Dehra Dun	N	e	19 34	39		Feeble, phases not clear.	
18	Shillong	Z	eP	22 10	27		Very feeble.	
18	Dehra Dun	N	e	22 55	40		Tremor.	
19	Shillong	Z	eP	14 03	30		Feeble.	
19	Shillong	Z	eP	15 57	24		Feeble.	
19	Shillong	Z	eP	17 18	26		Feeble.	
19	Poona	E	eP	19 10	20		Tremor.	
19	Dehra Dun	N	e	20 10	16		Feeble.	
19	Shillong	Z	iP	21 35	35		Feeble.	
20	Dehra Dun	N	e	01 52	49		Tremor.	
20	Shillong	Z	i i	08 52 53	33 03		Tremor.	
20	Shillong	Z	P Pg PP Sg	18 52 52 52	20 24 27 40		Very feeble.	
20	Shillong	Z	i	20 02	53		Slight.	

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
20	Dehra Dun	NE	e	20	15	21		Tremor.
20	Shillong	Z	P Pg PPP S S* Sg	20	46	46 46 58 47 02 47 26 47 30 47 36		Slight.
20	Shillong	Z N	eP eP PPP eS SSS/M	.23	40	25 40 27 40 42 41 15 41 35		Slight.
20	Chatra	Z	e	23	40	45		Slight, near.
	Calcutta	E	e	23	41	15		Slight, near.
	Poona	N	e*	23	48	38		Tremor.
21	Dehra Dun	N	e	00	45	14		Tremor.
21	Shillong	Z	Pg Sg	04	11	02 11 16		Tremor.
21	Epc: 27½° N., 101° E. Szechwan Province China ; 0=04h 38m 51s (U.S.C.G.S.) 27° N., 101 E. Yunnan Province China ; 0=04h 38m 50s (Shillong).							
	Shillong	Z N	iP eS LR M	04	40	57 42 31 43 15 43 53		Slight.
	Chatra	Z	i	04	41	51		Slight, near.
	Dehra Dun	NE N	eP PP PPP iS PcP LQ SS SSS LR M PcS ScS	04	43	33 43 55 44 08 47 19 47 31 47 35 47 56 48 09 48 34 50 24 51 08 55 06	2290	Moderate.
	New Delhi	NE N NE N	eP PP eS LQ PcP SSS LR M	04	43	41 44 03 47 22 47 32 47 46 48 03 48 19 50 32	2230	Slight.

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
21	Hyderabad	N	eP	04	43	56	2700	Slight.
Contd.			iS L M		48	13 50 33 52 56		Per.=11 secs $\mu=5$.
	Calcutta	N	i	04	44	01		Slight.
	Bombay	N	eP PPP eS LQ SS SSS LR M	04	44	41 45 48 49 26 50 35 50 56 51 11 51 51 54 01	3120	Slight, doubtful due micro-seisms.
21	Shillong	Z	i	07	15	31		Tremor.
21	Shillong	Z	i	14	54	25		Tremor.
21	Shillong	Z	e	16	46	35		Tremor.
21	Shillong	Z	iP	17	44	31		Slight.
21	Shillong	Z	i	22	07	22		Tremor.
21	Shillong	Z	i	04	10	46 10 48		Slight, local.
22	Shillong	Z	i	06	03	57		Tremor.
22	Shillong	Z	i	07	48	26		Tremor.
22	Shillong	Z	e i	07	57	29 57 58		Tremor.
22	Shillong	Z	i	10	47	39		Slight.
22	Shillong	Z	i	12	24	23		Tremor.
22	Shillong	Z	e	12	46	16		Tremor.
22	Shillong	Z	i	14	54	27		Slight, rarefaction.
22	Shillong	Z	i	18	28	59		Tremor.
22	Shillong	Z	i	04	53	09 53 28		Unidentifiable phases of a very distant shock.
23	Bombay	E	i i	04	53	09 53 28		Feeble shock. Phases lost.
	Poona	Z	iP	04	53	09		Slight compression. Other phases not clear.
	Shillong	Z	PKP	04	53	32		
23	Epc: 34½° N., 69½° E. Eastern Afghanistan; 0=14h 45m 16s (U.S.C.G.S.) 35° N., 69° E. 0=14h 45m 15s (Shillong).							
	New Delhi	NE N NE	iP PP PPP	14	47	21 47 29 47 35	360	Slight. Direction of first motion South and East.



Date	Station	Compt.	Phase	G.M.T.			△	Remarks
				h.	m.	s.		
June 1954 23	New Delhi	NE	iS	14	49	00		
Contd.	contd.		SS	49	11			
			SSS	49	22			
			Sg	49	53			
	Bombay	E	iP e(S) LR	14	48	56	1610	Slight. Possibly Record of another appears to be superposed on this shock.
				51	39			
				53	18			
	Poona	Z	iP PP PPP eS SS SSS M	14	49	01	1780	Slight.
				49	14			
				49	25			
				51	59			
				52	06			
				52	15			
				53	14			
	Chatra	Z	i(P) i(S)	14	49	09	1850	Slight, near.
				52	14			
	Hyderabad	N EN	eP eS L	14	49	28	2400	Slight.
				53	23			
				54	59			
		N	M	56	51			Per.=7 secs $\mu=6$.
		E	M	57	06			Per.=10 secs $\mu=5$.
	Calcutta	E	iP iS	14	50	00	2290	Slight. First movement East.
				53	46			
	Shillong	ZN	iP PP PPP iS LQ LR M	14	50	02	2280	Slight, rarefaction.
				50	20			
				50	44			
				53	47			
				54	00			
				55	02			
				56	44			
	Madras	E	e i	14	50	42		Phases uncertain.
				57	07			
	Kodaikanal	E	i	14	55	51		Slight.
	Colombo	E	e L M	14	57	—		Slight.
				15	00	—		
24	Dehra Dun	NE	e i	04	41	25		Feeble.
				41	36			
24	Shillong	Z	e i	04	46	36		Slight, local.
				46	54			
24	Shillong	Z	e	12	39	42		Tremor.
24	Shillong	Z	i	15	00	50		Local.
24	Shillong	Z	P PP Sg	19	05	01	170	Slight.
				05	09			
				05	21			

Date	Station	Compt.	Phase	G. M. T.			△	Remarks
				h.	m.	s.		
July 1954								
25	Shillong	Z	i	07	12	03		Tremor.
25	Shillong	Z	Pg Sg	09	32	36		Slight, local.
				32	46			
25	Shillong	Z	i	12	02	41		Very local.
25	Shillong	Z	P	16	17	06		Distant, compression.
25	Dehra Dun	NE	e	17	25	47		Tremor.
26	Shillong	Z	i i	06	40	09		Slight, local.
				40	34			
26	Shillong	Z	e	17	11	41		Feeble.
26	Shillong	Z	e	19	33	24		Tremor.
26	Madras	E	e	20	35	18		Tremor.
	Poona	ZN	e i?	20	35	21		Very distant, feeble. Phases not clear.
				38	39			
	Hyderabad	E N	i M	20	35	23		Per.=15 secs $\mu=4$.
				21	31	15		
	Dehra Dun	NE	e	20	35	40		Distant.
	Calcutta	E	e	20	35	47		Slight, distant.
	Shillong	Z	iPKP	20	35	51		Feeble, compression.
				35	51			
				40	03			
				43	44			
				50	26			
				21	00	03		
				22	05			
				37	26			
	Kodaikanal		e	20	37	56		Tremor.
26	Shillong	Z	i	20	42	25		Local.
26	Shillong	Z	i	22	11	03		Feeble.
27	Shillong	Z	i	00	46	03		Feeble.
27	Shillong	Z	i	01	23	13		Slight, local
27	Shillong	Z	i	05	46	06		Slight, local.
27	Shillong	Z	e	18	41	26		Tremor.
				42	03			
27	Shillong	Z	eP P* iSg SS	22	00	40	230	Slight.
				00	42			
				01	13			
				01	18			
27	Shillong	Z	iP eSg	22	33	53	230	Slight.
				34	26			
28	Shillong	Z	eP eSg	04	55	31	160	Slight.
				55	52			

Date	Station	Compt.	Phase	G.M.T.			Δ	Remarks
				h.	m.	s.		
July 1954								
28	Shillong	Z	iP P* Pg eS Sg	22	26	41	710	Slight.
28	Shillong	Z	iP PP P* Pg LQ eS SS S* Sg	22	30	54	690	Slight.
29	Shillong	Z	eP P* eSg	00	40	01	210	Slight.
29	Shillong	Z	e e	01	09	53		Tremor.
29	Epc: 49½° N., 158° E. Off the South Coast of Kamchatka ; 0=03h 34m 20s (U.S.C.G.S.) Magnitude—6½—6½ (Berkeley), 6 (Pasadena), 6½ (Kiruna, Uppsala, Tacubaya), 6—6½ (Praha).							
	Dehra Dun	N	e i i i i	03	43	25		Slight, phases not clear.
	Shillong	ZN	iP i PcP iS PS PPS LR M	03	44	00	6180	Moderate.
	Calcutta	E	eP iS	03	44	30	6800	Slight.
	New Delhi	NE	eP	03	44	51		Moderate.
	Hyderabad	N	eS	03	44	51		
		E	iP iS M	03	45	36	7750	
	Poona	ZN	eP PP eS SS SSS M	03	45	51	8030	Moderate.
								Per.=15 secs μ=5.
	Kodaikanal	E	eP	03	45	53		Tremor.



Date	Station	Compt.	Phase	G.M.T.			Δ	Remarks
				h.	m.	s.		
July 1954								
29	Bombay	NE N E N E	iP eS iS M M	03	45	54	8070	Moderate.
29	Shillong	Z	i i	04	14	48		Per.=19 secs μ=5. Per.=23 secs μ=10.
29	Shillong	Z	iP eS eSg SS	06	17	24	180	Slight.
29	Shillong	Z	i i	06	48	00		Tremor.
29	Shillong	Z	e	08	32	10		Tremor.
29	Shillong	Z	e	08	48	43		Tremor.
29	Shillong	Z	i i	09	34	33		Tremor.
29	Shillong	Z	i	14	03	27		Tremor.
29	Shillong	Z	i	14	03	40		Tremor.
29	Shillong	Z	e i	14	29	00		Tremor.
29	Shillong	Z	i i	14	48	59		Slight, local.
29	Shillong	Z	e e	22	25	03		Tremor.
30	Shillong		e	00	04	16		Tremor.
30	Shillong	Z	iPg	07	23	16		Slight.
30	Epc: 35½° S., 97½° , South Pacific; h=100 km ca; 0=08h 46m 11s (U.S.C.G.S.) Magnitude—6½ (Pasadena, Kiruna), 6½ (Tacubaya), 6 (Uppsala)							
	Colombo	E	e e e	09	04	25		
	Bombay	E NE E N E NE	PKP PP i e i i	09	06	06		Very distant shock, feebly recorded.
	Poona	Z	PKP i i	09	06	09		
		N		10	11	26		

Date	Station	Compt.	Phase	G. M. T. Δ			Remarks
				h.	m.	s.	
July 1954							
30 Contd.	Shillong	N	PKP ₁ PP e(SKKS ₁) e(SKKS ₂) PPS SS SSS LQ LR M	09	07	08	18580 Moderate, Beginning Benioff Vertical mixed traffic disturbance.
	Kodaikanal	E	e	09	10	57	Tremor.
	Hyderabad	E N	M M	10	08	32	Per.=21 secs $\mu = 6$ Per.=22 secs $\mu = 15$.
30	Shillong	Z	i	11	30	21	Tremor.
30	Shillong	Z	eP Pg eSg SS SSS	17	33	26	170 Slight.
31	Epc: 39° N., 104° E. Ningsia Province China; 0=00h 59m 57s (U.S.C.G.S.) 39° 5' N., 104° E. 0=00h 59m 56s (B.C.I.S.). 38° N., 105° E. 0=00h 59m 57s (Shillong). Magnitude - 7½ (Hurbanovo, De Bilt), 7.2 (Praha), 7-7.1 (Shillong), 7 (Roma), 6½ (Kiruna, Uppsala, Jerusalem), 6½ (Pasadena).						
	Shillong	ZN E N	iP ep PP PPP LQ iS SS SSS LR M PcS ScS	01	03	47	1810 Great.
	Chatra	Z	i	01	04	15	Moderate, Near; phases unidentifiable from vertical compt. record alone.
	Calcutta	E N E	iP iP PPP iS LR M	01	04	48	2430 Great. First movement West and South.

Date	Station	Compt.	Phase	G. M. T. Δ			Remarks
				h.	m.	s.	
July 1954							
31 Contd.	Dehra Dun	NE N	eP PP PPP PcP iS LQ SS SSS LR PcS M ScS	10	05	07	2650 Moderate.
	New Delhi.	N	iP PP iS i LQ SS SSS LR PcS M	01	05	17	2760 Moderate, direction of first movement North.
	Hyderabad	E	i P iS SS L M	01	06	14	3300 Great. Per.=9 secs $\mu = 176$.
	Poona	ZN	eP PP PPP iS SS SSS LR M	01	06	36	3732 Great.
	Madras	E	iP PcP iS LQ SSS LR	01	06	41	3810 Moderate.
	Bombay	NE N	iP PP PPP i iS i i LQ SS SSS LR M	01	06	43	3770 Great. (beginning)

Date	Station	Compt.	Phase	G. M. T.			△ km.	Remarks
				h.	m.	s.		
July 1954								
31 Contd.	Kodaikanal	E	iP PP PPP iS LQ SSS LR	01	07	22 40 04 01 28 00 13	4000	Earthquake intensity of moderate
	Colombo	E	P S L M1 M2	01	07	33 18 30 42 50		
31	Shillong	Z	iP	01	18	56		After shock of previous shock.
31	Shillong	Z	iP	01	26	11		After shock of previous shock.
31	Shillong	Z	i i	02	02	49 55		Tremor.
31	Shillong	Z	i	02	09	24		Tremor.
31	Shillong	Z	e e e	06	06	45 21 28		Slight, local. Beginning doubtful due merging with traffic disturbance.
31	Shillong	Z	ePg eSg	06	10	19 33	120	Slight.
31	Shillong	Z	e	06	21	41		Tremor.
31	Shillong	Z	e	12	30	53		Tremor.
31	Shillong	Z	e e	13	52	35 53		Slight, near. Traces faint due to drop in voltage.
31	Dehra Dun	N	e i	15	45	38 12		Feeble.
31	Shillong	Z	e	17	08	07		Tremor.
31	Dehra Dun	N	e	17	57	24		Tremor.
31	Shillong	Z	i e(P)	17	59	01 58		Slight, phases not clear.
31	Shillong	Z	iPg eSg	19	06	10 24	120	Slight, near.
31	Shillong	Z	iP	20	23	37		Slight.
31	Shillong	Z	eP	22	20	13		Slight.

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations

Place at which felt	Date	Time at which felt in G.M.T.		Duration in secs	Intensity R.F. scale	No. of shocks	Remarks
		h.	m.				
Shillong	July 1	15	25	1-2	II	1	—
Srinagar	July 10	23	—	30	V	2	Sound rumbling, cracking of walls heard.
Shillong	July 15	16	25	3	II-III	1	—
Shillong	July 16	00	25	3	II-III	1	—
SARKER 28.1.56							



GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of
Shri S. Basu, M.Sc., F.N.I.,
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Instruments and their constants

Station	Instrument	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/min
Bombay	Milne-Shaw	N-S	12.0	350	18:1	16
	Milne-Shaw	E-W	12.0	350	9:1	8
	Sprengnether Microseismograph	E-W	To = Tg = 7.0	-	-	30
Calcutta	Milne-Shaw	E-W	10.0	150	20:1	8
	Wood-Anderson	N-S	2.0	870	Critical	30
	Omori-Ewing	N-S	18.0	32	-	25
	Omori-Ewing	E-W	19.0	30	-	25
Chatra	Benioff	Z	To=0.72 Tg=0.45	-	Critical	60
	Wood-Anderson	N	1.0	1000	30:1	60
	Wood-Anderson	E	1.0	1000	40:1	60
	Milne-Shaw	E	12.0	250	20:1	16
Colombo	Milne-Shaw	E-W	12.0	250	20:1	-
Dehra Dun	Milne-Shaw	N-S	12.0	250	20:1	16
	Milne-Shaw	E-W	12.0	250	20:1	16
	Wood-Anderson	N-S	0.8	800	60:1	60
	Wood-Anderson	E-W	0.8	950	60:1	60
Hyderabad	Milne-Shaw	N-S	12.0	252	20:1	8
	Milne-Shaw	E-W	12.0	253	20:1	8
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8
Madras	Sprengnether Microseismograph	E-W	To = Tg = 7.2	-	-	30
New Delhi	Milne-Shaw	N-S	12.0	288	20:1	8
	Wood-Anderson	N-S	4.0	1070	20:1	16
	Wood-Anderson	E-W	2.0	1841	30:1	60
	Omori-Ewing	E-W	28.0	30	1	12
Poona	Sprengnether Microseismograph	Z	To=1.5 Tg=1.5	-	-	30
	Wood-Anderson	E-W	4.0	1100	20:1	16
Shillong	Milne-Shaw	N-S	12.0	250	20:1	8
	Benioff Short Period	Z	12.0	250	20:1	60
	Wood-Anderson	N-S	To=1.0 Tg=0.18	-	-	30
	Wood-Anderson	E-W	0.8	1000	-	30
	Wood-Anderson	N-S	0.8	1000	-	30
	Wood-Anderson	N-S	4.0	1120	-	30



DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
<u>Aug.</u> 1954	01 Dehra Dun	N	e	07 43 49	Feeble, phases not clear.
	Shillong	Z	i e	07 45 02 48 41	Tremor.
	01 Shillong	Z	i i	09 23 59 24 06	Tremor.
	01 Shillong	Z	e	09 35 20	Tremor.
	01 Shillong	Z	i i i	13 24 40 24 48 24 55	Slight, near.
	01 Dehra Dun	N,E	eP iS i	15 37 19 37 44 37 54	220 Slight, phases not clear.
	New Delhi	E	eP P*	15 37 30 37 33	310 Slight.
		N,E	PP	37 37	
		E	Pg	37 40	
			PPP	37 44	
		N,E	Lr	38 02	
		E	iS	38 05	
		N,E	S*	38 11	
			Sg	38 17	
	Shillong	Z	e e e	15 38 53 40 48 40 54	Tremor.
	01 Shillong	Z	e i	20 54 02 54 08	Tremor.
	01 Shillong	Z	i e	21 39 39 45 10	Tremor.
	02 Shillong	Z	e e	00 56 06 56 22	Tremor.
	02 Shillong	Z	iPg/P* P iSg S SS	02 59 45 59 47 59 56 03 00 01 00 11	100 Slight.
	02 Shillong	Z	e e	04 50 01 50 54	Slight, near.
	02 Dehra Dun	N	e	06 19 21	Feeble.

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02	Shillong	Z	iP P* Pg S/S* eSg SS	06 45 46 45 47 45 49 46 10 46 11 46 18	190	Slight.
02	Shillong	Z	iPg iSg	22 33 12 33 14	20	Slight.
02	Shillong	Z	e i	20 59 29 59 41		Tremor.
02	Shillong	Z	iP Pg PP eSg	21 24 41 24 43 24 48 25 10	210	Slight.
02	Shillong	Z	iPg iSg	22 04 50 04 52	20	Slight.
03	Shillong	Z	iP ePg eSg	08 24 48 24 52 25 18	220	Slight.
03	Shillong	N	e	08 35 05		Distant. Phases not clear.
03	Shillong	Z	e	12 37 11		Tremor.
03	Shillong	Z	iP ePg eSg	18 09 31 09 37 10 15	220	Slight.
03	Poona	Z	eP	18 26 52		Tremor.
03	Shillong	Z	e	18 28 02		Distant.
04	Shillong	Z	i i	01 38 57 38 59		Tremor.
04	Shillong	Z	e e	14 03 42 03 57		Tremor.
04	Shillong	Z	e	15 29 02		Tremor.
04	Shillong	Z	e	16 07 21		Tremor.
04	Shillong	Z	i	18 00 08		Tremor.
04	Shillong	Z	i	21 44 09		Tremor.
04	Shillong	Z	i e	23 59 01 59 39		Tremor. Slight.

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05	Dehra Dun	N,E N	eP PPP P* Pg Lq iS SS Lr SSS Sg/M	03 15 26 15 41 15 45 16 07 16 48 16 59 17 10 17 12 17 21 17 51	900	Moderate.
05	Shillong	Z,N N	iP iS	09 00 39 10 33	8670	Slight.
	Poona	Z,N Z	eP ?	09 02 13 25 06		Very distant feeble shock. Phases not clear.
	Colombo	E	eP S L M	09 02 39 -- -- 42 19 55 09		Amp. = 0.2mm.
	Hyderabad	N	S M	09 12 12 35 17		Per. = 15 Secs./u = 7
05	Dehra Dun	N,E N	eP PP PPP P* Pg Lq iS Lr SS SSS S* Sg/M PcP	09 19 05 19 12 19 18 19 21 19 44 20 21 20 35 20 46 20 48 20 59 20 59 21 02 21 24 25 51	870	Moderate.
	New Delhi	N,E	eP PP Lq eS SS SSS M	09 19 30 19 38 20 48 20 59 21 10 21 21 21 55	860	Slight.
05	Shillong	Z	e	09 21 21		Slight. Phases not clear.
05	Dehra Dun	N	e e	09 55 58 57 03		Tremor.
05	Shillong	Z	i	18 01 08		Tremor.
05	Shillong	Z	e	23 54 03		Tremor.

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06	Shillong	N	e	00 03 15		Tremor.
06	Dehra Dun	N,E	eP	02 56 14	890	Moderate.
			PP	56 24		
			PPP	56 29		
			Pg	56 52		
			iS	57 46		
			SS/Lr	57 57		
			SSS	58 08		
			S*	58 13		
			Sg/M	58 38		
	New Delhi	N,E	eP	02 56 32	980	Slight.
		N	P*	56 51		
		N,E	iS	58 13		
			SS	58 25		
			SSS	58 36		
			S*	58 48		
06	Shillong	Z	i	11 43 39		Tremor.
06	Shillong	Z	i	12 39 02		Slight, local.
		N,E	i	39 25		
07	Dehra Dun	N,E	eP	15 15 52	780	Moderate.
		N	PPP	16 06		
			P*	16 10		
			Pg	16 27		
			iS	17 13		
			SS/Lr	17 24		
			SSS	17 35		
			S*	17 39		
			Sg/M	17 59		
	New Delhi	N,E	iP	15 15 57	970	Slight. Direction first motion South and East.
		E	PP	16 04		
		N,E	P*	16 16		
			Pg	16 38		
			iS	17 37		
			SS	17 48		
			SSS	17 58		
			Sg	18 32		
	Poona	Z	i	15 17 35		Tremor.
	Shillong	Z,N	iP	15 18 15	2230	Slight.
07	Shillong	N	iS	21 56		
			e	18 12 38		
			e	15 05		Slight initial movement very small obscured in microseisms.
	Calcutta	E	e	18 16 19		
	Poona	N	i?	18 21 34		Tremor.



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07	Shillong	Z	e	18 39 11		Slight.
			e	39 41		
07	Shillong	Z	e	19 19 00		Tremor.
08	Shillong	Z	iP	11 50 35	290	Slight.
			eP*	50 40		
			aPg	50 46		
			eS	51 10		
		Z,N	eS*	51 15		
		Z	eSg	51 20		
09	Shillong	Z,N	i	00 16 54		Slight, near.
09	Shillong	Z	e	11 08 10		Tremor.
09	Shillong	Z	i	17 22 32		Tremor.
09	Shillong	Z	i	18 18 21		Tremor.
09	Epc: 53°N, 161°E. - h = 60 km Ca. Off the East Coast of Kamchatka. - H = 19h 16m 48s (U.S.C.G.S). Magnitude = 6½-6¾ (Pasadena, Skalate Pleso), 6½ (Berkeley, Uppsala), 6¼-6½ (Praha), 6-6¼ (Kiruna).					
	Shillong	Z,N	iP	19 26 36	6240	Moderate.
			iS	34 26		
	Dehra Dun	N	eP	19 27 06	6950	Moderate.
			PcP	27 38		
			PP	29 25		
			PPP	30 55		
			eS	35 33		
			PS	35 50		
			PPS	35 57		
			ScS	36 53		
			SS	39 40		
			Lq	43 06		
			Lr	46 00		
			M	51 00		
	New Delhi	N,E	eP	19 27 19		Moderate.
			i?	37 06		
	Colombo	E	e?	19 27 19		
			S	38 39		
			L	20 01 34		
			M	07 29		
	Hyderabad	N	P	19 28 10	7800	
		E,N	eS	37 22		
		N	PS	37 56		
			L	52 17		
			M	57 14		
		E	M	57 58		

Per. = 18 Secs./u = 21
Per. = 18 Secs./u = 11

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09	Poona Contd.	Z	eP	19 28 23	8110 Slight.
		N	PcP	28 50	
			PP	31 15	
			PPP	33 02	
			iS	37 50	
			PPS	38 29	
			SS	42 24	
			M	57 18	
Madras	E	eP	19 28 24	8130 Moderate.	
		PcP	28 32		
		PP	31 14		
		PPP	33 03		
		iS	37 53		
		SKS	38 05		
		PS	38 24		
		PPS	38 55		
Bombay	N	e(P?)	19 28 36	Moderate.	
		e	37 45		
		e(S)	38 28		
		M(?)	20 24 11		
Kodaikanal	E	e(P?)	19 29 04	8180 Slight.	
		iS	38 34		
Calcutta	E	S	19 35 30	Moderate. Beginning not recorded.	
		M	56 40		
09	Dehra Dun	N	e	20 55 36	Tremor.
			i	55 48	
09	Shillong	Z	i	21 32 36	Tremor. Near shock.
09	Shillong	Z	i	22 21 50	
			i	22 34	Tremor.
10	Dehra Dun	N	i	01 28 31	
10	Shillong	Z	i	08 33 11	Slight.
			i	34 00	
10	Shillong	Z	e	10 59 42	Slight.
10	Shillong	Z	iP	17 28 29	
			iSg	29 59	Slight.
10	Shillong	Z	i?	18 07 47	
10	Shillong	Z	e(Sg)	23 58 14	Slight.
11	Shillong	Z	eP	05 53 24	
			e	53 59	Slight.
11	Shillong	Z	e	07 35 18	

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				h. m. s. km.	
11	Shillong	Z	e	09 40 13	Slight.
11	Shillong	Z	iPg	10 00 38	20 Slight.
			iSg	00 42	
11	Shillong	Z	e	12 56 47	Slight.
11	Shillong	Z	e(?)	13 00 39	400 Slight. 'Z' Component too faint for measure- ments
		N	eP	00 43	
			eS	01 27	
			L	01 46	
11	Shillong	Z	i	20 03 28	Slight.
	Dehra Dun	N	e	20 05 13	Tremor.
12	Shillong	Z	iP	05 07 54	230 Slight.
			e	08 16	
			eSg	08 27	
12	Dehra Dun	N	e	07 50 35	Tremor.
12	Shillong	Z	iP	11 45 52	Slight.
12	Epc:			2°N, 118°E. Off the East Coast of Borneo.	Magnitude = 5 $\frac{1}{2}$ -6 (Kiruna).
				- H = 23h 42m 32s (U.S.C.G.S.)	
	Shillong	Z	eP	23 49 25	Slight.
			e	49 32	
			eS	55 06	
			L	00 00 01	
	Calcutta	E	PP	23 51 02	Slight, distant.
			iS	55 18	
	Colombo	E	S	23 55 50	Amp. = 0.4mm.
			L	00 01 50	
			M	08 08	
13	Shillong	Z	i(Sg)	08 35 42	70 Slight.
13	Shillong	Z	iPg	19 59 18	Slight.
			iSg	59 26	
13	Shillong	Z	i(Pg)	20 38 57	180 Slight.
			i	38 59	
14	Shillong	Z	eP	02 55 17	Tremor.
			iSg	55 41	
			SS	55 48	
14	Dehra Dun	N	e	07 59 09	Slight.
14	Shillong	Z	i	14 32 21	Slight.

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14 Shillong Z e 17 02 05 Slight.

14 Shillong Z iP 17 28 59 210 Slight.
i 29 02
iSg 29 27

14 Shillong Z eP 19 53 04 450 Slight.
iS 53 52
iSg 54 10

14 Epc: Ceram Sea. - H = 22h 56m 08s (U.S.C.G.S).
3°S, 127 $\frac{1}{2}$ °E. -H = 22h 56m 08s (B.C.I.S).

Colombo E (P) 23 04 05
SSS 12 38
L 22 58
M 27 35

$\mu = 0.4\text{mm.}$

Shillong Z eP 23 04 28 4860 Slight.
i 04 30
N eP 04 30
iS 11 01

Madras E eP 23 05 06 6000 Very slight.

Kodai' anal E e? 23 05 48 Slight, tremor.

Poona Z eP 23 06 01 6330 Slight.
N PP 08 16
PPP 09 23
iS 13 55
PS 14 07
PPS 14 21
ScS 15 46
SS 17 48
Lq 20 19
Lr 23 09
M 28 04

New Delhi N,E eP 23 06 02 6370 Moderate.
N iS 13 58

Hyderabad N S 23 12 55
M 30 57

15 Dehra Dun N e 05 59 38 Per. = 18 Secs./ $\mu = 5$.

15 Shillong Z e(P) 06 48 34 Tremor.
e 49 15

15 Shillong Z iP 09 43 50 Feeble.

15 Shillong Z e 18 55 24 Slight.

15 Shillong Z i(Pg) 20 34 15 Slight.

Slight.

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16 Shillong Z iP 00 02 45 Slight.
N M 11 --

16 Shillong Z e 02 37 20 Slight.
e 37 22

16 Shillong Z e 04 59 42 Slight.
e 59 49
i 05 00 00

16 Dehra Dun N e 08 04 15 Feeble, phases not clear.

16 Dehra Dun N e 09 04 45 Feeble, phases not clear.
i 09 17

16 Shillong Z iP 09 06 58 Slight.

16 Shillong Z i 13 10 33 Slight.

16 Shillong Z i(Pg) 16 07 39 Slight.
i(Sg) 07 41

16 Shillong Z iPg 20 13 46 130 Slight.
iSg 14 01

16 Shillong Z eP 20 53 15 160 Slight.
iSg 53 35

16 Shillong Z eP 21 07 01 130 Slight.
i 07 02
i 07 15
i(Sg)? 07 17

16 Shillong Z e 21 55 06 Slight.

17 Dehra Dun N e 10 11 18 Slight. Phases not clear.
i 11 45
i 12 05

18 Shillong N,E e 03 37 07 Slight.

18 Epc: 21 $\frac{1}{2}$ °S, 176°W. Tonga Island. - h = 150 km. Ca. - H = 04h 42m 20S
(U.S.C.G.S) Felt - Nukualofa (VI), Apia (III). (Press report from Apia).
Magnitude = 7 $\frac{1}{2}$ (Wellington, Takubaya), 7 $\frac{1}{4}$ (Berkeley),
7 (Pasadena, Chihuahua).

Shillong N e 04 54 36 Moderate shock. 'P'
e 58 57 time not absolutely
PP 05 00 09 accurate for absence
e 01 34 of Benioff time.
e 02 45
e 03 59
i 06 20
SKS 07 24
SS

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18	Hyderabad	E	eP	04 56 40	12360	△ from PS - SKS.
Contd.			PP	05 01 11		
			iSKS	07 05		
			SKKS	08 03		
			iPS	10 28		
			SS	15 45		
		N	L	31 27		
		E	L	34 12		
		N	M	43 06		
		E	M	43 23		

Per. = 15 Secs./u = 4
Per. = 11 Secs./u = 3

Slight shock. 'P'
phase a little uncertain.

	Kodaikanal	E	eP?	05 00 00		
			i	06 03		

	Dehra Dun	N	ePKP	05 00 00	5280	Moderate.
			PP	01 52		
			SKS	07 06		
			SKKS	09 43		
			PS	11 16		
			SS	16 59		

	Calcutta	E	PP	05 00 18	4510	Moderate. First movement east.
			SKS	06 28		

	New Delhi	N,E	ePKP	05 00 46	4900	Slight.
		N	iSKS	07 20		
			i	08 28		
			PS	11 23		

	Poona	Z	PKP	05 00 50		
		Z,E	i	01 33		Slight shock.
		N,E	SKS	07 25		Phases not clear.
		N	i	09 23		
			PS	11 23		

	Bombay	E	PKP1	05 00 52	12600	Moderate, deep.
			PP	01 35		
		N,E	SKS	07 31		
		E	i	07 58		
		N	•	09 30		
		E	iS	09 52		
			PS	11 28		
		N	i	12 21		
		E	eP			
			SS	17 32		

	Madras	E	PP	05 00 54	4390	Moderate.
			SKS	06 30		

18	Shillong	Z	eP	18 07 58		Slight. Distant.
18	Shillong	Z	eP	19 02 45		Slight. Distant.
18	Shillong	Z	eP	19 17 09		Slight. Local.

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18	Shillong	Z	iP	20 36 23		Slight. Local.
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18	Shillong	Z	eP	20 56 11		Slight, near.
			e	56 22		
			e	57 30		
			e	59 03		

	Calcutta	N	eP	20 57 03	330	Slight. Felt at Bhagalpur at Bihar.
		E	iS	57 38		
		N	iS	57 40		

	New Delhi	E	eP	20 58 23	1090	Slight.
			P*	58 46		
			Pg	59 10		
			eS	21 00 15		
			SS	00 24		
			SSS	00 35		
		N,E	M	01 20		

	Shillong	N	e	20 59 03		Slight. Phases not clear.
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	Poona	Z	e	21 03 03		Tremor.
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18	Dehra Dun	N,E	e	22 31 14		Slight. Phases not clear.
			i	31 25		

18	Epc: 39°N, 72°E. Pamir.			- H = 23h 32m 06s (B.C.I.S.)		
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	Dehra Dun	N,E	eP	23 34 22	1170	Moderate.
		N	PP	34 30		
			PPP	34 37		
			Lq	36 12		
			iS	36 21		
			SS	36 33		
			Lr	36 40		
			SSS	36 44		
			Sg/M	37 30		

	New Delhi	N,E	eP	23 35 00	1280	Slight.
		E	PPP	35 14		
		N,E	iS	23 37 10		
		N	SS	37 22		
			Lr	37 31		
			M	38 35		

	Poona	Z	eP	23 36 55		Very feeble shock. Phases not clear.
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	Shillong	Z	eP	23 37 11		Slight.
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	Hyderabad	E	e	23 44 09		Slight.
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19	Shillong	Z	eP	00 51 01	Slight. Local.
			e	51 05	
			e	51 51	
			e	51 56	
	Dehra Dun	N	e	00 56 50	Tremor.
20	Dehra Dun	N	e	04 12 48	Slight. Phases not clear.
20	Shillong	Z	ePg Sg	10 17 48 18 01	Slight. Local.
20	Bombay	N	e	15 34 57	Slight.
			e	39 10	
	Poona	E	i	15 35 14	Faeble shock. Phases not clear.
		N	i	39 20	
	Dehra Dun	N	e	15 35 14	Slight. Phases not clear.
	Shillong	Z	e	15 37 14	Feeble. Distant.
	Calcutta	E	e	15 43 52	Slight. Distant.
			i	49 42	
20	Shillong	Z	eP	20 35 48	Slight. Distant.
21	Epc: 7°N, 126½°E. Off the East Coast of Mindanao, Phillipines. - H = 06h 38m 33s (U.S.C.G.S). 7°.5'N, 126°.10'E. (Manila). Felt Davo (V), Dadinagas & Hinatnan (III) Butnan (III). (Press report from Manila) Magnitude = 6¼ (Kiruna).				
	Colombo	E	e?	06 44 49	
			e	53 19	
	Shillong	Z	eP	06 45 54	Slight.
	Madras	E	iP	06 47 12	5150 Slight.
			PP	48 58	
			PPP	49 50	
			ScP	52 44	
			iS	54 00	
			PS	54 08	
			PPS	54 20	
			ScS	54 42	
			SS	57 22	
	Dehra Dun	N	eP	06 47 36	5440 Moderate.
			PcP	48 40	
			PP	49 12	
			PPP	50 19	
			PcS	52 26	

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21	Dehra Dun	N	e	06 54 39	
			eS	54 45	
			PS	54 53	
			ScS	57 08	
			SSS	59 44	
			M	07 06 06	
	Poona	Z	eP	06 47 58	Slight shock.
		N	iS	55 08	Phases not clear.
	Hyderabad	N	eS	06 54 06	Slight.
21	Shillong	Z	eP	09 54 50	Slight.
			Sg	55 08	
22	Dehra Dun	N,E N	eP	06 44 40	920 Moderate.
			PP	44 46	
			PPP	44 53	
			Lq	46 06	
			iS	46 16	
			SS	46 27	
			Lr	46 32	
			SSS	46 38	
			S*	46 46	
			Sg/M	47 12	
24	Epc: 39.5°N, 118.5°W. Nevada USA. - H = 05h 51m 31s (U.S.C.G.S). Felt: San Francisco, Oakland, Sacramento, Reno, Elko & Fallon. Magnitude = 7¼ (Skalnate Pleso), 7 (Praha) 6¾-7 (Hurvanovo, Kiruna), 6.8 (Pasadena), 6½-6¾ (Uppsala), 6½ (Berkeley, Takubaya).				
	Madras	E	e	06 08 50	Distant shock of moderate intensity. Phases not clear.
			e	29 36	
	Shillong	N	PP	06 10 02	Moderate. Distant.
			SKS	16 44	
			PS	20 03	
			SSS	29 53	
			e(Lr)	41 46	
			e(M)	50 56	
	Poona	Z	PKP	06 10 23	Probably a long distant shock. Phases not clear.
	Bombay	E	ePKP1	06 10 30	13550 Moderate.
			e	17 07	
			SKS	17 37	
		N	SKS	20 00	
		E	i	28 30	
		N	SS	28 36	
		E	eSS	33 03	
			SSS	37 33	
			Lq	07 00 56	
			M	07 54	
		N	M		
					Per. = 19 Secs./u = 11
					Per. = 21 Secs./u = 8

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24	New Delhi	N	iPP SKS SKKS PS SS M	06 10 43 16 47 17 53 20 06 26 02 50 39	12110	Moderate.
	Hyderabad	N	ePP e M	06 11 53 21 48 57 45		Per. = 21 Secs./u = 43 Per. = 21 Secs./u = 37
		E	M	58 53		
	Colombo	E	PP SS L M	06 13 05 30 30? 52 20 07 02 30		Amp. = 3.0mm.
	Calcutta	E	SKS e e i Mn	06 17 04 18 56 20 53 26 59 55 44		Moderate. Distant.
	Kodaikanal	E	e e	06 18 59 29 47		
24	Dehra Dun	N	e i	23 52 40 54 15		Slight. Phases not clear.
25	Shillong	E	eP* iSg	04 58 09 58 30	160	Slight.
25	Shillong	N	e e e	06 32 58 33 06 34 22		Slight. Near.
25	Shillong	Z	e	10 19 50		Tremor.
25	Shillong	Z	ePg/P* P eSg S*	17 38 59 39 03 39 08 39 12	80	Slight.
25	Shillong	Z	iP P* Pg Lq S iSg SSS	18 32 26 32 29 32 33 32 44 32 53 33 04 33 13	270	Slight.
26	Shillong	Z	iP P* Pg S S* eSg	06 33 10 33 12 33 17 33 39 33 41 33 45	240	Slight.

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26	Shillong	Z	e i i	08 38 03 38 12 38 16		Slight. Near.
26	Shillong	Z	iPg P* iSg S*	09 28 31 28 33 28 36 28 39	40	Slight.
26	Shillong	Z	iP P* Pg/PP PPP S* eSg SS	17 38 08 38 10 38 14 38 20 38 39 38 44 38 47	240	Slight.
26	Shillong	Z	iP i	18 51 14 52 24		Slight. Near.
	Poona	Z	eP	18 52 41		Tremor.
	Dehra Dun	N	e	18 53 04		Tremor.
26	Shillong	Z	iP i e	19 28 15 35 11 37 17		Slight. Distant.
	Dehra Dun	N	e	19 30 14		Tremor.
26	Shillong	Z	e	19 54 55		Tremor.
26	Shillong	Z	iP	21 01 46		Slight.
26	Shillong	Z	i	22 23 52		Tremor.
27	Shillong	Z	iPg iSg	06 39 49 40 00	100	Slight.
27	Shillong	Z	e	07 05 44		Tremor.
27	Madras	E	e	07 28 22		
27	Epc: 24°N, 143°E. South of Bonin Island. h = 100 km. - H = 10h 55m 00s (U.S.C.G.S). Magnitude = 6.7 (Pasadena), 6½ (Berkeley, Kiruna), 6¼ (Uppsala).					
	Shillong	Z	iP	11 03 18	5030	Moderate.
		N	eP	03 18		
		Z	PcP	04 53		
		N	iS	09 59		
			PS	10 10		
			PPS	10 25		
			SS	13 09		
			SSS	14 11		
			Lr	17 08		
			M	19 47		

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	km.

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27	Calcutta	E	eP	11	03	47	5450	Moderate.
Contd.			S		10	52		
			?		14	59		
			Lq		15	29		
	Dehra Dun	N	eP	11	04	46	6240	Moderate.
			eS		12	35		
	New Delhi	E	eP	11	04	49	6400	Moderate.
			iS		12	47		
			ScS		14	32		
			M		26	35		
	Madras	E	iP	11	05	01	6630	Moderate shock.
			PcP		05	34		
			PPP		08	40		
			PcS		09	32		
			iS		13	11		
			PS		13	26		
			PPS		13	38		
			ScS		14	43		
			SS		17	11		
			Lr		23	15		
	Hyderabad	E,N	P	11	05	11		
			iS		13	14		
			PS		13	40		
			SS		17	06		
		N	L		23	15		
			L		23	49		
		E	M		28	51		
		E	M		28	56		
	Colombo	E	P	11	05	24		
			S		13	41		
			L		27	--		
			M		31	03		
	Kodaikanal	E	eP	11	05	27	7000	Long distance earthquake of slight intensity.
			iS		13	57		
			f?		12	12	45	
	Poona	Z	iP	11	05	31	7000	Slight.
		N	iS		14	01		
			PS		14	15		
			PPS		14	35		
			SS		18	14		
			M		30	17		
	Bombay	N,E	iP	11	05	36	7420	Moderate, h = 120 km.
		N	pP		06	12		
		N,E	iS		14	13		
		E	i		15	14		
		N	i		15	20		
27	Shillong	Z	i	11	22	31		Slight.
27	Shillong	Z	i	11	53	33		Slight.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	km.

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27	Shillong	Z	e	15	18	11		Tremor.
			e		18	30		
27	Shillong	Z	e	19	34	03		Tremor.
27	Shillong	Z	e	20	48	39		Tremor.
27	Dehra Dun	N	e	21	58	20		Feeble.
			i		58	52		
28	Shillong	Z	e	01	23	56		Slight. Near.
			e		24	08		
28	Shillong	Z	i	03	56	21		Slight. Distant.
28	Shillong	Z	i	10	01	44		Feeble.
28	Epc: 37°N, 141°E. Off the East Coast of Hondo Japan. - H = 10h 01m 20s (U.S.C.G.S). 36.7°N, 141.1°E. h = 40 km Ca. - H = 10h 01m 24s Felt (GMO Japan).							
	Shillong	Z	i	10	09	21		Slight. Distant.
			i		11	11		Ground waves.
		N	e		27	35		Feeble. Phases not clear.
	Dehra Dun	N	e	10	10	40		Tremor.
	Poona	Z	iP	10	11	36		Feeble.
	Bombay	E	eP	10	11	40	7170	Feeble. Phases not clear.
			eS?		20	19		
28	Dehra Dun	N	i	14	18	25		200 Slight.
28	Shillong	Z	eP	16	29	51		200 Slight.
			eSg		30	18		
28	Shillong	Z	eP	16	57	39		Tremor.
			Pg		57	42		
			S/S*		58	02		
			eSg		58	06		
			SS		58	14		
			SSS		58	22		
28	Shillong	Z	e	21	15	45		30 Slight.
28	Shillong	Z	iPg	21	29	53		Slight. Distant.
			iSg		29	56		
28	Shillong	Z	iP	23	24	00		Slight. Tremor.
29	Kodsikanal	E	e?	14	29	44		Slight. Local.
29	Shillong	Z	i	16	09	14		

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Aug. 1954						km.	
29	Colombo	E	L M	16 31 30 35 55			Amp. = 0.8mm.
29	Shillong	Z	iPg/P* PP iSg S* S	19 57 01 57 08 57 12 57 14 57 17	90		Slight.
29	Shillong	Z	e i	20 10 31 10 38			Slight. Near.
30	Shillong	Z	iP P* Pg PP S iSg SS	01 42 28 42 29 42 31 42 36 42 52 42 55 43 03	200		Slight.
30	Dehra Dun	N	aP PP Pg Lq iS SS Lr S* Sg/M	02 45 43 45 48 46 21 47 05 47 15 47 27 47 29 47 45 48 06	890		Slight.
	New Delhi	N,E	P i i	02 45 54 47 32 47 58			Slight.
30	Shillong	Z	iPg P* iSg	02 48 08 48 10 48 15	60		Slight.
30	Epc: 44°N, 147½°E. Kurile Island. h = 60 km Ca.						
	44.5°N, 147.5°E. h = 60 km. - H = 07h 57m 23s (U.S.C.G.S).						
	43.6°N, 147.8°E. h = 60 km. - H = 07h 57m 24s (B.C.I.S).						
	Magnitude = 6-6¼ (Pasadena). - H = 07h 57m 23s Felt (CMO Japan).						
	Dehra Dun	N	e	08 05 59			Slight. Phases not clear.
	Shillong	Z	iP aP PP i eS PS SS SSS M	08 06 03 07 03 07 57 09 12 12 58 13 03 16 44 17 48 23 30	5280		Slight, compression.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Aug. 1954						km.	
30	New Delhi	N,E	aP i	08 07 08 07 19	6260		Moderate.
Contd.	Poona	Z N	aP PcP PP PPP eS PS PPS Lr M?	08 08 08 08 44 10 29 12 11 16 50 17 05 17 24 27 36 33 26	7220		Slight.
	Bombay	N,E E	aP PcP PP PPP eS i PPS i	08 08 10 08 41 10 36 12 07 16 59 17 11 17 32 18 19	7370		Slight.
	Hyderabad	E N	eS M	08 16 17 32 44			
	Colombo	E	S L M	08 17 41 36 51 47 01			Amp. = 0.5mm.
30	Dehra Dun	N,E N	aP PP P* PPP Pg iS Lr SS S* SSS Sg/M	08 41 27 41 36 41 39 41 42 41 49 42 24 42 27 42 37 42 41 42 48 42 52	530		Slight.
	New Delhi	N,E E N,E	aP Pg iS Lr S* SSS Sg	08 41 36 42 01 42 41 42 45 42 59 43 03 43 15	620		Slight.
	Shillong	Z	iP PP PPP iS SS SSS	08 41 53 41 59 42 06 43 16 43 26 43 38	800		Slight.

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DATE	STATION	COMPT.	PHASE	G. M. T. Δ			REMARKS
				h.	m.	s.	
<u>Aug.</u>							
1954							
30	Poona	Z	eP	08	43	26	1540 Slight.
Contd.			eS		46	02	
30	Shillong	Z	e	11	48	25	Tremor.
30	Shillong	Z	eP	17	44	19	230 Slight.
			P*		44	21	
			Pg		44	25	
			S		44	44	
			S*		44	49	
			eSg		44	52	
			SS		44	58	
			SSS		45	07	
30	Dehra Dun	N	e	18	27	31	Tremor.
30	Dehra Dun	N	e	19	08	09	Tremor.
30	Shillong	Z	e	19	58	13	Slight, local.
			i		58	16	
			i		58	24	
30	Shillong	Z	iP	21	25	23	Slight. Distant.
	Poona	Z	i	21	27	16	Tremor.
30	Shillong	Z	ePg	22	35	52	20 Slight.
			iSg		35	54	
30	Shillong	Z	e	22	38	05	Slight. Near.
			e		38	12	
			i		39	18	
31	Shillong	Z	iP	05	08	18	
			PP		08	25	
			P*		08	27	
			Pg		08	37	
			Sg		09	35	
31	Shillong	Z	iP	09	44	30	Tremor.
31	Shillong	Z	iP	11	14	29	

Earthquake Reports
 (Non Instrumental Reports)

The following table contains a list of earthquake that were reported by Voluntary Observers from various station during the month of August 1954.

Place at which felt	Date	Time in G. M. T. h. m.	Duration in Secs.	Intensity in R.F. Scale.	No. of shocks	Remarks
Srinagar	16	02 50	3	V	1	The sound resembling like of a heart



Published under the direction of
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 Director General of Observatories

Instruments and their constants

Station	Instrument	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/mt
Bombay	Milne-Shaw	N-S	12.0	350	18:1	16
	Milne-Shaw	E-W	12.0	350	9:1	16
	Sprengnether	E-W	To = Tg = 7.0	-	-	30
	Microseismograph					
Calcutta	Milne-Shaw	E-W	10.0	150	20:1	8
	Wood-Anderson	N-S	2.0	870	Critical	30
	Omori-Ewing	N-S	18.0	32	-	25
	Omori-Ewing	E-W	19.0	30	-	25
Chatra	Benioff	Z	To=0.72 Tg=0.45	-	Critical	60
	Wood-Anderson	N	1.0	1000	30:1	60
	Wood-Anderson	E	1.0	1000	40:1	60
	Milne-Shaw	E	12.0	250	20:1	16
Colombo	Milne-Shaw	E-W	12.0	250	20:1	-
Dehra Dun	Milne-Shaw	N-S	12.0	250	20:1	16
	Milne-Shaw	E-W	12.0	250	20:1	16
	Wood-Anderson	N-S	0.8	800	60:1	60
	Wood-Anderson	E-W	0.8	950	60:1	60
Hyderabad	Milne-Shaw	N-S	12.0	252	20:1	8
	Milne-Shaw	E-W	12.0	253	20:1	8
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8
Madras	Sprengnether Microseismograph	E-W	To = Tg = 7.2	-	-	30
New Delhi	Milne-Shaw	N-S	12.0	288	20:1	8
	Wood-Anderson	N-S	4.0	1070	20:1	16
	Wood-Anderson	E-W	2.0	1841	30:1	60
	Omori-Ewing	E-W	28.0	30	1	12
Poona	Sprengnether Microseismograph	Z	To=1.5 Tg=1.5	-	-	30
	Wood-Anderson	E-W	4.0	1100	20:1	16
	Milne-Shaw	N-S	12.0	250	20:1	8
Shillong	Milne-Shaw	N-S	12.0	250	20:1	8
	Benioff Short Period	Z	To=1.03 Tg=0.18	-	-	60
	Wood-Anderson	E-W	0.8	1000	-	30
	Wood-Anderson	N-S	0.8	1000	-	30
	Wood-Anderson	N-S	4.0	1120	-	30

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
Sept 1964	Shillong	Z	iP	14 13 50	Slight.
01	Shillong	Z	e	19 44 10	Tremor.
01	Shillong	Z	e	22 41 50	Feeble.
01	Shillong	Z	e	41 52	
02	Shillong	Z	e	00 13 52	Feeble.
02	Shillong	Z	e	01 02 12	Feeble.
02	Shillong	Z	e	02 14	
02	New Delhi	N,E	eP PPP Pg iS LR SS Sg	01 21 00 21 15 21 28 22 12 22 18 22 23 22 48	690 Slight.
	Dehra Dun	N,E N	eP PP PPP LQ iS LR SS SSS M PcP PcS ScS	01 21 18 21 21 21 30 22 31 22 44 22 54 23 00 23 07 23 39 27 51 31 18 34 49	830 Moderate.
	Shillong	Z	e	01 23 57	Feeble.
	Shillong	N	e	27 27	
	Shillong	N	e	30 20	
	Poona	Z	e?	01 24 39	Feeble.
	Hyderabad	E	M	01 28 30	Per. = 11 secs, /u = 2.
	Shillong	Z	e	04 25 25	Feeble, near.
02	Shillong	Z	e	26 00	Tremor, distant.
02	Shillong	Z	i	06 26 24	Slight, distant.
	Shillong	Z	e	28 18	Phases not clear.
02	Shillong	Z	ii	12 08 58	Feeble, near.
	Shillong	Z	e	11 15	
02	Shillong	Z	i	12 20 03	Slight.
	Shillong	Z	e	20 05	
02	Shillong	Z	i	14 36 11	Distant, slight.
02	Shillong	Z	iP	19 03 37	
	Shillong	Z	e	04 09	
	Shillong	N	e	13 27	

International
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Centre

DATE STATION COMPT. PHASE G. M. T. h. m. s. km. REMARKS

DATE	STATION	COMPT.	PHASE	G. M. T.	h. m. s.	km.	REMARKS
Sept. 1954	02 New Delhi	NE	eP	20 31 27	700	Slight.	
		E	Pg	31 55			
		NE	eS	32 40			
		E	SSS	33 02			
		NE	Sg	33 19			
	Dehra Dun	N	e	20 31 43		Slight, phases not clear.	
			e	32 57			
	Shillong	Z	e	20 34 12		Tremor, feeble.	
			e	38 03			
03	Epc: Assam, Shock Felt at Dibrugarh (Shillong).						
	Shillong	ZN	iP	02 16 18	290	Slight.	
		N	iS	16 51			
	New Delhi	NE	eP	02 19 12	1630	Slight.	
			eS	21 57			
			M	24 05			
	Dehra dun	N	eP	02 19 13	1550	Slight.	
			PPP	19 32			
			eS	21 49			
			SSS	22 15			
			LR	22 22			
			S*	22 43			
			M	23 21			
03	Shillong	Z	iP	06 56 39		Feeble, near.	
			e	56 48			
03	Shillong	Z	iP	07 05 14		Very feeble.	
			e	05 33			
03	Shillong	Z	e	11 20 49		Tremor.	
03	Shillong	Z	e	12 21 35		Tremor.	
03	Shillong	Z	e	16 13 30		Tremor.	
04	Epc: 3°S., 139½°E. New Guinea; h = 60 km. O = 03h 28m 32s (U.S.C.G.S.) 3.2°S., 139.5°E., h = 60 km; O = 03h 28m 32s (B.C.I.S.) Magnitude - 6½ (Kiruna, Uppsala); 6¼ (Pasadena, Praha).						
	Shillong	ZN	iP	03 37 59	5960	Moderate.	
		N	PPP	41 08			
			iS	45 32			
			ScS	47 55			
			LQ	51 12			
			LR	53 33			
	Calcutta	E	e	03 38 35		Slight.	
			iS	45 56			
04	Colombo	E	P	03 38 43	6580	'p' trace partially lost.	
			S	46 50			
			L	55 --			
			M	04 02 --			

DATE STATION COMPT. PHASE G. M. T. h. m. s. km. REMARKS

DATE	STATION	COMPT.	PHASE	G. M. T.	h. m. s.	km.	REMARKS
Sept. 1954	04 Madras		iP	03 38 46	6760	Moderate.	
			PcP	39 20			
			PP	41 00			
			iS	47 03			
			PPS	47 26			
			ScS	48 16			
			SSS	53 38			
			LQ	54 09			
			LR	56 56			
	Hyderabad	E	iP	03 39 01			
			PcP	39 37			
			e	43 02			
		EN	iS	47 33			
		E	ScS	48 49			
			SS	51 19			
			L	59 46			
			M	04 02 40			Per.=18 secs, /u = 5.
		N	M	03 55			Per.=18 secs, /u = 9.
	Kodaikanal	E	eP	03 39 25	6940	Long distance earthquake.	
			PP	41 35			
			S	47 29			
			SS	51 35			
			SSS	54 11			
			LQ	54 50			
			M	04 03 02			
	New Delhi	NE	eP	03 39 29	7440	Moderate.	
			iS	48 22			
	Dehra Dun	NE	iP	03 39 31		Slight, phases not clear.	
	Poona	Z	eP	03 39 33	7410	Slight.	
		N	PP	42 01			
			eS	48 24			
			PS	48 44			
			PPS	49 00			
			SS	52 41			
			SSS	55 40			
			LR	59 43			
			M	04 05 13			
	Bombay	E	eP	03 39 34	7665	Slight, h = 70 km.	
			pP	39 58			
			PP	42 15			
			PPP	43 59			
			i	45 04			
			eS	48 39			
		N	iS	49 03			
		E	PS	58 16			
		NE	LQ				
		E					
04	Shillong	Z	i	04 29 07		Tremor.	
04	Chatra	EZ	e	06 38 30		Slight, distant.	
		E	e	46 34		Surface phase.	
			e	07 00 36			



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h. m. s. km.

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04 Epc: 28°N., 83½°E., two shocks; 01 = 06h 43m 46s
02 = 06h 45m 14s
(U.S.C.G.S.)
27°50'N., 83°5'E.; 01 = 06h 43m 50s (Shillong)
Magnitude I - 6½ (Kiruna),
Magnitude II - 6½-6¾ (Uppsala, Kiruna).

STATION	COMPT.	PHASE	G. M. T.	REMARKS
			h. m. s. km.	
Chatra	Z	iP	06 44 43	380 Moderate.
	E	eP		
		PP	44 51	
		PPP	44 58	
		LQ	45 11	
		LR	45 21	
		iS	45 24	
		M	45 38	
Dehra Dun	NE	eP	06 45 12	580 Moderate.
		PP	45 20	
		P*	45 23	
		PPP	45 27	
		Pg	45 35	
		LQ	46 01	
		iS	46 14	
		LR	46 19	
		SS	46 26	
		S*	46 31	
		SSS	46 37	
		Sg	46 44	
New Delhi	NE	iP	06 45 18	600 Slight.
	N	PP	45 28	
	NE	Pg	45 45	
	N	iS	46 23	
		SE	46 59	
Calcutta	NE	iP	06 45 35	720 Moderate. First movement North.
	E	iS	46 50	
		S*	47 15	
		Sg	47 32	
Shillong	Z	iP	06 45 40	820 Moderate.
	N	iS	47 04	
		e	47 53	
Hyderabad	EN	iP	06 46 35	2030
		iS	48 04	
		L	50 01	
		M	51 10	
			52 40	
Poona	Z	eP	06 46 57	Per. = 9 secs, /u = 54.
	N	PP	47 04	
		PPP	47 16	1430 Moderate.
		LQ	49 22	
		eS	49 23	
		M	50 48	

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

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STATION	COMPT.	PHASE	G. M. T.	REMARKS
			h. m. s. km.	
Bombay	N	eP	06 47 01	1450 Slight.
		eS	49 28	
		M	51 11	
Contd.	E	M	51 28	
Madras	E	iP	06 47 27	1650 Moderate.
		PP	47 36	
		PPP	47 43	
		iS	50 14	
		SS	50 36	
		SSS	50 48	
		LR	50 58	
04 Madras	E	M	06 52 08	
		PcP	52 19	
		PcS	55 50	
		ScS	59 17	
Kodaikanal	E	iP?	06 50 53	Earthquake of moderate intensity.
		iS?	53 44	
		SS	53 54	
		SSS	54 11	
		LR	54 22	
		M	56 30	Per. = 7.5 secs, /u = 23.
04 Shillong	Z	iP	07 48 02	Slight, distant.
04 Shillong	Z	i	08 16 03	Slight.
		e	16 15	
04 Epc: 21½°N., 122½°E. Off the SE Coast of Formosa;				
			0 = 08h 53m 20s (U.S.C.G.S.)	
			0 = 08h 53m 22s (B.C.I.S.)	
			21°4'N., 122°E., 0 = 08h 53m 22s (B.C.I.S.)	
			Felt - Basco (Press report from Manila).	
			Magnitude - 5½ (Uppsala), 6 (Praha).	
Shillong	Z	iP	08 59 15	3030 Compression, Moderate.
	N	PP	09 00 03	
		eS	03 54	
		SSS	05 18	
		LR	06 04	
		M	08 14	
Chatra	EZ	e	08 59 54	Slight, distant.
Calcutta	E	ePP	09 00 30	Slight.
		e	02 00	
		iS	05 48	
		SS	07 32	
		LR	08 55	
		M	11 36	
Dehra Dun	N	eP	09 01 04	Feeble, phases not clear.
Poona	N	i?	09 05 13	Feeble, phases not clear.

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 . h. m. s. km.

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				. h. m. s.	km.
Sept. 1954					
04 Contd.	Hyderabad	N	L	09 12 41	Per. = 15 secs, /u = 4. Per. = 15 secs, /u = 6.
		E	M	15 03	
		N	M	16 41	
04	Shillong	Z	iP	09 02 28	Tremor, distant, rarefaction.
04	Shillong	Z	i	09 27 35	Tremor.
04	Shillong	Z	i	11 07 29	Tremor.
04	Shillong	Z	i	11 55 31	Very feeble.
			e	56 47	
04	Shillong	Z	i	13 24 11	Tremor.
04	Chatra	Z	i	13 24 33	Slight, distant.
04	Shillong	Z	e	17 16 35	Feeble, near.
04	Shillong	Z	i	21 18 06	Tremor.
04	Shillong	Z	i	22 08 14	Tremor.
05	Shillong	Z	i	05 31 31	Feeble.
			e	31 55	
05	Madras	E	eP	07 19 52	Distant shock of slight intensity.
			e	07 42 41	
05	Kodaikanal	E	e		Long distance earthquakes.
05	Epc: 190°S., 176°E. Fiji Island region; Magnitude - 6½ - 6¾ (Praha, 6¾ Pasadena), 6¼ (Kiruna) Shillong Z iP 07 58 50 9780 Slight. PP 08 02 25 S 09 33 PPS 11 00 e 11 18 i 16 35 e 07 59 08 08 01 49 7050 PP 03 55 iS 10 22 ScS 11 22 M 26 19 M 26 32				
05	Chatra	EZ	e		Slight, near.
05	Hyderabad	E	eP		
			PP		
			iS		
			ScS		
		N	M		
		E	M		
					Per. = 16 secs, /u = 7. Per. = 12 secs,

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05 Contd.	Colombo	E	PP (S)	08 03 --	
			L	17 20	
			M	39 20	
				44 50	
	Poona	Z	ep	08 04 08	6300 Slight.
		N	e	07 27	
			e(S)	12 00	
			LQ	20 52	
			M?	25 55	
	Bombay	NE	e	08 04 32	Distant shock, Feeble.
			e	12 12	
			e	14 01	
		E	e	19 23	
		NE	e		
05	Shillong	Z	i	09 41 35	Tremor.
05	Dehra Dun	N	e	10 49 12	Tremor.
05	Shillong	Z	i	17 33 04	Tremor.
05	Shillong	Z	i	19 04 48	Tremor.
05	Shillong	Z	e	19 50 42	Feeble, near.
			e	50 54	
05	Shillong	Z	i	20 59 08	Tremor.
05	Shillong	Z	i	22 23 05	Feeble, near.
			e	23 28	
06	Shillong	Z	i	04 19 05	Tremor.
06	Dehra Dun	N	e	08 41 45	Tremor.
06	Shillong	Z	i	11 19 20	Tremor.
06	Chatra	Z	i	11 31 49	Feeble, distant.
06	Chatra	Z	e	14 13 00	Feeble, distant. Surface waves. Period=15.0 sec, Δmp=0.5 m.m.
		E	e	27 30	Slight, distant.
	Calcutta	E	e	14 19 10	
			i	21 49	
			i	25 31	Slight.
	Shillong	N	e	14 23 39	Per.=15 secs, /u = 4.
	Hyderabad	N	M	14 31 38	Tremor.
06	Dehra Dun	N	e	15 54 39	

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				h. m. s.	km.
06	Epc: 21°N., 121°E. Off the North Coast of Luzon, Philippines;			0 = 16h 46m 58s (U.S.C.G.S.)	
	Magnitude - 6 (Praha), 5 3/4 - 6 (Kiruna), 5 1/4 (Uppsala)				
	Calcutta	E	eP iS LR M	16 53 17 58 13 17 01 08 04 19	3300 Slight.
	Chatra	Z E	iI eI e e	16 53 24 58 37 17 07 37	Slight, distant, Surface waves. Period=14.0 sec, Amp=1.7 m.m.
	Madras	E	eP PP PPP ScP iS	16 54 31 56 13 56 35 59 55 17 00 43	4540 Moderate.
	Hyderabad	E	iP PP iS SS L M	16 54 41 56 21 17 00 52 04 14 08 09 10 56	4520 Per. = 15 secs, /u = 9.
	Poona	Z N	i i i i	16 55 13 17 01 46 07 28 12 35	Feeble and distant, Phases not clear.
	Bombay	N	e e	16 55 45 17 02 40	Feeble.
	Shillong	N	e e e e	16 58 47 59 44 17 02 21 03 02	Slight.
	Kodaikanal	E	e	16 59 41	Tremor.
06	Dehra Dun	N	e	17 41 06	Tremor.
06	Kodaikanal	E	e	18 39 41	Tremor.
06	Epc: 51°N., 158°E. Off the SE Coast of Kamtchatka;			h = 60 km ca, 0 = 18h 30m 48s (U.S.C.G.S.)	
	52°N., 157 1/4°E., h=60 km ca; 0=18h 30m 51s (B.C.I.S.)				
	Magnitude - 6 3/4 (Skalnate Pleso), 6 1/2 (Pasadena, Praha), 6 1/4 (Kiruna, Uppsala, Jerusalem).				
	Shillong	N	iP e PPP iS e SS LQ LR M	18 40 25 40 44 44 44 48 00 49 37 52 24 54 22 56 56 19 02 09	6000 Moderate.

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				h.	m.	s.	
				△			
				km.			
<u>ept.</u>							
954							
06	Chatra	EZ	eP	18	40	38	6187 Slight.
ontd.		E	PcP		41	44	
			PP		42	52	
			PPP		44	07	
			PcS		45	30	
			eS		48	24	
			PS		48	33	
			PPS		48	48	
			LQ		54	24	
			LR		57	00	
			M	19	01	45	
	Calcutta	E	iP	18	40	52	7020 Slight. First
			PPP		44	48	movement East.
			iS		49	23	
			SKS ₁		50	35	
	New Delhi	N	iP	18	41	11	7190 Moderate.
			iS		49	51	
			PS		50	03	
			SKS		50	51	
			SS		54	01	
			LR	19	01	55	
			M		08	01	
	Hyderabad	EN	iP	18	42	00	7590
			PP		44	33	
			iS		51	01	
			PS		51	26	
		N	SS		54	34	
			L	19	03	14	
			M		08	10	Per. = 12 secs, /u = 12.
	Poona	Z	iP	18	42	13	7870 Moderate.
		N	PcP		42	33	
			PPP		46	43	
			iS		51	28	
			PS		51	59	
			PPS		52	10	
			SS		56	03	
			SSS		59	15	
			M	19	10	08	
	Bombay	N	iP	18	42	14	7890 Moderate, h=80 km.
			pP		42	41	Phases not clear.
			e		46	20	
			eS		51	30	
			i		51	45	
			PPS		52	08	
			i		52	38	
			M	19	17	26	Per. = 15 secs, /u = 6.
	Medras	E	iP	18	42	15	7870 Moderate shock.
			PcP		42	27	
			PP		44	55	
			PPP		46	40	
			iS		51	30	
			SKS		51	50	
			PPS		52	14	



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				h.	m.	s.	
<u>Sept.</u> 1954							
07	Epc: 21° N., 121° E. Off the North Coast of Luzon, Philippines; Felt = Basco (Press report from Manila).			0 = 00h 08m 23s (U.S.C.G.S.)			International Seismological Centre
	Chatra	EZ	e	00	14	14	Slight, distant.
	Calcutta	E	eP	00	14	39	3590 Slight.
			eS		19	53	
			SS		21	41	
			?		22	33	
	Madras	E	eP? iS?	00	15	27	4980 Slight.
					22	05	
	Poona	Z	iP	00	16	37	Feeble, phases not clear.
	Shillong	N	e	00	18	07	Slight, distant.
			e		23	02	
			e		24	37	
			e		26	12	
	Kodaikanal	E	e	00	19	41	Tremor.
	Bombay	N	e	00	20	41	Feeble.
			e		26	49	
			e		27	34	
	Hyderabad	N	M	00	33	54	Per.=12 secs, /u =12.
07	Epc: 21° N., 121½° E. Off the North Coast of Luzon, Philippines; Felt at Basco (Press report from Manila) Magnitude - 5½ - 6 (Praha).			0 = 00h 35m 13s (U.S.C.G.S.)			
	Shillong	Z	e	00	41	13	Distant, Slight.
			e		50	32	
	Chatra	Z	e	00	41	38	Slight, distant.
	Madras	E	P	00	42	47	4530 Slight.
			S?		48	59	
	Poona	Z	iP	00	43	37	Tremor.
07	Shillong	Z	e	07	47	19	Slight.
07	Shillong	Z	iP	07	59	23	Slight.
07	Shillong	Z	iP	10	05	20	
07	Shillong	Z	iP	10	23	58	970 Slight, rarefaction probably deep.
			LQ		25	29	
			iS		25	38	
			SS		25	52	
			LR		25	59	
			SSS		26	13	
08	Epc: 29° N., 95½° E. China Assam Frontier;			0 = 02h 39m 49s (U.S.C.G.S.)			

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08 Contd.	Shillong	ZN	iP	02	41	00	390 Moderate, felt at Dibrugarh.
			LQ		41	30	
			LR		41	40	
			S		41	43	
			SS		41	49	
	Chatra	Z	iP	02	41	44	820 Slight.
			PP		41	51	
			PPP		41	57	
			LQ		43	00	
			iS		43	09	
			SS		43	21	
			M		44	00	
	Shillong	ZN	Sg	02	41	54	
			SSS		42	03	
	Bombay	N	e	02	49	14	Earlier phases lost due to overlapping of record.
			e		52	02	
08	Dehra Dun	N	e	09	32	35	Tremor.
08	Shillong	Z N	iP	09	41	17	390 Slight.
			S		41	59	
			Sg		42	12	
			SSS		42	21	
08	Shillong	Z	eP	12	57	01	Slight, trace faint.
08	Shillong	Z	eP	13	22	19	Feeble.
08	Shillong	Z	e	17	54	27	Slight, local.
09	Epc: 36° N., 1½° E North Algeria; 0 = 01h 04m 37s (U.S.C.G.S.) 36° 17' N., 1° 28' E.; 0 = 01h 04m 37s (B.C.I.S.) 35° N., 0°, 0 = 01h 04m 35s (Shillong) Algerian town of Orleansville shattered. About 1000 people killed.						
	New Delhi	N	iP	01	15	07	7030 Moderate.
			PcP		15	41	
			PP		17	24	
			PPP		18	54	
			iS		23	40	
			PS		23	57	
			SKS		25	02	
			SS		28	05	
			SSS		30	49	
			M		40	31	
	Kodaikanal	E	iP	01	15	11	9330 Earthquake of moderate intensity
			PcP		16	29	
			PP		18	59	
			iS		25	35	
			PS		25	11	
			SS		30	17	
			LQ		35	38	
			LR		39	08	
			M		45	17	

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09	Dehra .Dun	NE	eP	01 15 17	7220	Moderate.
Contd.		N	PP	15 52		
			PPP	16 15		
			LQ	23 21		
			iS	23 59		
			SS	24 50		
			SSS	25 31		
			LR	25 41		
			M	29 16		

Bombay	NE	iP	01 15 18	7185	Moderate.
	E	PcP	15 34		
		i	20 04		
		eS	23 58		
		PS	24 24		
		PPS	24 38		

E	ScS	01 24 52			
N	M	45 12			
E	M	48 10			

Per. = 21 secs,
/u = 23.
Per. = 20 secs,
/u = 8.

Poona	Z	eP	01 15 22	7370	Moderate.
	N	PcP	15 38		
		PP	17 45		
		PPP	19 21		
		iS	24 11		
		PPS	24 51		
		SS	28 25		
		SSS	31 11		
		LQ	32 39		
		M	41 19		

Hyderabad	EN	iP	01 15 48	7750	
	N	PP	18 24		
	EN	iS	24 57		
	N	PS	25 27		
		SS	29 06		
		L	38 00		
		M	44 06		

E	M	45 31			
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Per. = 18 secs,
/u = 33.
Per. = 18 secs,
/u = 8.

Chatra	E	eP	01 16 00	7890	Moderate.
		PP	18 25		
		PPP	20 29		
		eS	25 16		
		PS	25 56		
		PPS	26 09		
		LR	39 00		
		M	46 00		

Per. = 11.5 secs,
Amp. = 1.5 m.m.

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09	Madras	E	iP	01 16 14	8250	Moderate shock.
Contd.			PcP	16 24		
			PP	19 01		
			PPP	20 57		
			iS	25 48		
			SKS	26 01		
			ScS	26 09		
			*SS	30 48		
			LQ	36 36		
			*PS	26 20		

Calcutta	E	iP	01 16 18	8130	Slight. First movement West.
		iS	25 46		

Shillong	ZN	iP	01 16 27	8380	Compression, Moderate.
		PP	19 17		
		S	26 07		
		SKS	26 20		
		PS	26 44		
		LQ	36 46		

Colombo	E	S	01 26 21		'P' trace lost.
		L	43 --		Amp. = 2.0 mm.
		M	48 05		

09	Shillong	Z	iP	03 04 11		Rarefaction.
09	Dehra Dun	N	e	03 32 21		Feeble, phases not clear.
			i	32 51		

09	Shillong	Z	e	03 33 31		Feeble.
09	Shillong	Z	iP	09 25 31	145	Compression. Near, Slight.
09	Shillong	Z	Pg	10 20 16		
			Sg	20 33		

09	Dehra Dun	NE	eP	18 57 10	840	Moderate.
		N	PP	57 17		
			PPP	57 24		
			P*	57 27		
			Pg	57 44		
			LQ	58 25		
			iS	58 37		
			LR	58 45		
			SS	58 47		
			SSS	58 58		
			S*	59 01		
			Sg; M	59 22		

Chatra	Z	e	18 58 34		Slight, distant.
Poona	Z	eP	18 58 49		Feeble, phases not clear.

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09 New Delhi NE eP 19 12 02 970 Slight.
Contd. PPP 12 15
LQ 13 32
iS 13 42
SS 13 53
SSS 14 03
S* 14 17
Sg 14 42

10 Shillong Z Pg 03 10 59 30 Local.
Sg 11 03

10 Kodaikanal E e 05 54 41 Tremor.
Dehra Dun N e 05 54 53 Tremor.

Poona NZ i 05 55 00 Slight, phases
N i 06 03 48 not clear.
Madras E iP 05 55 52 7930 Slight shock.
iS 06 05 10
SKS 05 34
ScS 05 38

Shillong Z iP 05 55 56 Rarefaction, slight.
Hyderabad N S 06 04 32
M 25 28

10 Shillong Z i 12 05 17 Per.=15 secs,/u=4.
10 Shillong ZN P 17 32 36 Tremor.
N S 36 34 2440

10 Shillong Z i 20 44 20 Other phases
10 Shillong N e 22 20 55 doubtful, local.
11 Shillong Z iP 01 31 01 Tremor.

12 Poona Z iP 00 08 01 Rarefaction,
phases doubtful.
12 Shillong Z iP 07 52 09 Tremor.
58 53 5060 Moderate.

Epc: 41°N., 143°E. Off the South Coast of Hokkaido, Japan.
0 = 07h 43m 50s (U.S.C.G.S.)
40°9'N., 143°6'E. h = 20 km ca; 0 = 07h 43m 47s
Felt (C.M.O., Japan).
Magnitude - 6½ (Uppsala, Praha); 6¼ (Kiruna, Pasadena).
Shillong Z P 07 52 09 Tremor.
N S 58 53 5060 Moderate.



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12 Chatra Z iPI 07 52 32 5335 Slight.
Contd. E ePI
E PcP 54 09
PP 54 24
PPP 55 11
PcS 57 58
eS 59 30
PPS 59 54
SS 08 02 47
LR 06 00
M 10 30

Dehra Dun N eP 07 53 15 6000 Slight, phases
i 53 36 not clear.
i 54 17
i 54 30
i(S) 08 00 34

New Delhi NE eP 07 53 20 6000
N eS 08 00 55
ScS 03 12

Hyderabad E iP 07 54 03 6510
EN S 08 02 07
N SS 06 07
M 17 47
E M 19 35
Per. = 15 secs,
/u = 6.
Per. = 15 secs,
/u = 2.

Madras E eP 07 54 06 7020 Slight.
PcP 55 34
eS 08 02 37
PS 02 51
PPS 03 01
ScS 03 50

Poona Z iP 07 54 18 6980 Slight.
N eS 02 47
M? 18 13

Bombay NE eP 07 54 25 7020 Slight.
E PP 56 54
NE eS 08 02 56
N PS 03 08
ScS 05 26
SS 07 09
M 29 51
Per. = 20 secs,
/u = 6.

Kodaikanal E e 07 54 41 Tremor.
Colombo E e 08 01 32
e 29 10
e 39 50
amp : 0.6 mm.

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13 Epc: 21°S., 175½° W. Tonga Island, h = 150 km.
O = 02h 09m 55s (U.S.C.G.S.)
Magnitude - 7 - 7¼ (Wellington), 6¾ (Pasadena).

Colombo E (e) 02 22 01
S 34 21
L 03 54 --
M 04 07 11

Amp = 09 mm, End
trace overlapping
Feeble.

Shillong Z P 02 23 33

Kodaikanal E e 02 26 41

Tremor.

Calcutta E e 02 27 40
i 27 53
i 28 52
i 34 02
i 37 55

Moderate, distant

Bombay E ePKP₁ 02 28 01 12955
NE PP 29 32
E PPP 31 38
NE SKS₁ 35 05
PPS₁ 40 08
E SS(?) 45 12
SSS 49 32
i 57 30

Moderate, surface
wave not developed

Dehra Dun N e 02 28 16
i 29 19

Feeble, phases
not clear.

Poona Z e 02 28 27

Slight.

Madras E i 02 28 35

Moderate.

Hyderabad N SKS 02 34 36
M 03 07 21

Per. = 12 secs,
/u = 3.

13 Chatra EZ e 18 19 04

Slight, distant.
Surface phase.

E e 25 42
e 33 30

Per. = 14.0 secs,
Amp = 0.75 mm.

Tremor.

13 Epc: 21°N., 121½° E. Off the North Coast of Luzon,
Philippines; O = 18h 12m 37s G.M.T. (U.S.C.G.S.)
Magnitude - 5¾ (Kiruna, Uppsala).

Calcutta E e 18 23 57
e 27 35
i 28 26

Slight, distant.

Kodaikanal E e 18 24 41

Colombo E P 18 26 20
M 42 --

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13 Dehra Dun N e 18 26 51 Tremor.
Poona Z e 18 27 31 Tremor.

Bombay N ePI 18 27 39 5075 Feeble, appears
E iPI to be a double
E i 28 21 shock.
E eS 34 22

Hyderabad N H 18 37 25 Per. = 15 secs,
/u = 6.

14 Epc: 21° N., 121½° E. H = 00h 48m 18s (U.S.C.G.S.)
Magnitude - 5¾ (Kiruna, Uppsala).

Kodaikanal E e 00 54 41 Tremor.

Chatra EZ e 00 54 44 Slight, distant,
E e 01 09 00 Surface waves,
Per. = 15.0 secs,
Amp = 1.25 mm.

Madras E iP 00 55 56 4410 Slight shock,
PP 57 35
PcP 57 50
PPP 58 01
iS 01 02 03
LR 48 54

Poona Z eP 00 56 31 Feeble, phases
not clear.

Bombay N e 00 57 36 Phases not clear.
E e 01 03 40 Per. = 13 secs,
E H 19 46 /u = 3.

Hyderabad N L 01 12 20 Per. = 15 secs,
/u = 9.

Colombo E H 01 16 20 Amp = 0.6 mm.
Very feeble.

14 Shillong Z eP 04 39 08

14 Shillong Z eP 07 01 55
e 10 28
e 11 58
e 15 13

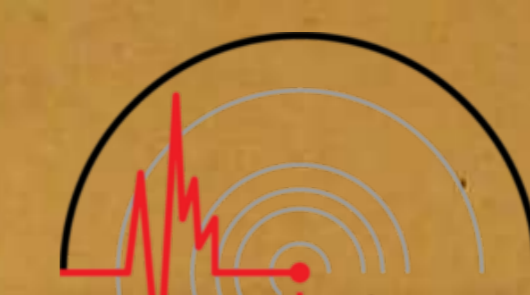
Chatra EZ e 07 02 33 Slight, distant.

Calcutta E e 07 15 07 Slight, distant.

Poona N e? 07 21 50 Very feeble.

Bombay N e 07 22 26
E e 23 38 Tremor.

Kodaikanal E e 07 24 41



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DATE	STATION	COMPT.	PHASE	G. L. T.	REMARKS
				h. m. s. km.	
14	Shillong	Z	eP	07 26 26	Very feeble,
Contd.		N	e	34 13	
			e	34 41	
			i	36 02	
			i	39 55	
			i	41 32	
			i	42 47	
	Dehra Dun	N	e	07 28 10	Tremor.
	Bombay	N	e	07 30 14	Feeble, phases unidentifiable,
			e	36 15	
			e	38 46	
			e	47 --	
	Hyderabad	N	M	07 44 24	Per. = 15 secs, /u = 7.
	Poona	N	e?	07 47 44	
14	Dehra Dun	N	e	17 07 05	Tremor.
	Shillong	Z	eP	17 07 34	Very feeble,
14	Dehra Dun	N	e	18 26 59	Tremor.
14	Shillong	Z	eP	20 13 01	280 Slight.
			SS	13 40	
14	Shillong	Z	eP	22 22 44	280 Slight.
			PP	22 52	
			S	23 16	
			SS	23 25	
15	Shillong	Z	ePg	12 04 47	80 Feeble, local,
			SS	04 56	
15	Dehra Dun	N	e	13 33 27	Feeble, phases not clear.
			i	33 50	
15	Shillong	Z	iP	18 08 45	Slight, distant.
		N	eP	08 45	
			e	12 50	
			i	18 27	
			i	19 23	
			i	26 03	
	Chatra	EZ	e	18 09 02	
	Calcutta	E	i	18 13 07	Slight, distant.
			i	18 33	Slight, distant.
			i	19 37	
			i	22 38	
			i	26 53	

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				h. m. s. km.	
15	Madras	E	eP	18 13 14	5540 Slight shock.
Contd.			iS	20 24	
			PS	20 32	
			PPS	20 47	
			ScS	22 41	
			SS	23 52	
			LQ	25 35	
			LR	27 59	
	Dehra Dun	N	e	18 13 43	Slight. Phases not clear.
			i	15 07	
			i	21 19	
	Colombo	E	eP	18 15 24	3090
			S	20 07	
			L	23 --	Amp = 0.4 mm.
			M	25 58	
	Kodaikanal	E	e	18 17 42	Short distance shock.
	Hyderabad	N	iP	18 20 39	5940
			iS	28 11	Per. = 15 secs, /u = 4.
			M	42 30	
	Poona	N	i	18 21 22	Distant, feeble. Phases not clear.
	Bombay	NE	i	18 21 39	
			e	29 42	Distant and deep.
16	Shillong	Z	iP	01 15 25	520 Slight, near.
			PP	15 31	
			SS	16 47	
17	Epc: 42° S., 153° E.	H = 01h 13m	08s (U.S.C.G.S.)		
	Shillong	Z	iP	01 24 05	Slight, not near.
	Chatra	Z	iP	01 24 32	Slight, distant.
		E	el	33 4-	
			e		
	Colombo	E	P	01 26 01	7980
			S	34 21	Amp = 0.3 mm.
			L	48 26	
			Li	54 06	
	Poona	ZE	eP	01 25 32	3870 Slight. Other phases not clear.
		NE	eS	35 35	
	Hyderabad	N	S	01 34 46	Slight, local.
17	Shillong	Z	iP	05 15 21	
			e	15 39	

DATE STATION COMPT. PHASE G. L. T. REMARKS
h. m. s. mm.

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1954

17 Epc: $24\frac{1}{2}^{\circ}$ N., 122° E. H = 07h 33m 21s (U.S.C.G.S.)
 $24\frac{1}{2}^{\circ}$ N., $121\frac{1}{2}^{\circ}$ E. H = 07h 33m 23s (B.C.I.S.)
Shillong Z IP 07 39 11 3550 Moderate, distant
E eP 39 18
S 41 23

Chatra Z IP 07 39 48 2534 Slight.
E ePI
PP 40 56
PPP 41 17
PcP 42 32
IS 44 53
PcS 46 04
LQ 48 09
M 50 45

Dehra Dun N

IP 07 40 54 4720 Moderate.
PcP/PP 42 45
PPP 43 21
PcS 46 21
IS 47 17
PS 47 23
PPS 47 29
SS 50 13
ScS 50 34
LQ 50 43
SSS 51 07
LR 52 37
M 56 12

Per. = 7.5 secs,
Amp = 1.75 mm.

New Delhi ME
N

eP 07 41 00 4350 Slight.
PPP 43 00
IS 47 01
i 47 19
SS 50 01
LQ 50 14
M 55 01

Madras E

iP 07 41 08 4540 Moderate shock,
i 43 07 phases not
eS 47 20 identified.
e 50 48

Colombo E

P 07 41 21 4930
S 47 59
L 56 21
M 08 01 04

Poona Z
N

eP 07 41 40 Amp = 0.1 mm.
i 48 42 Phases not clear.
i 52 05
i 58 10

DATE STATION COMPT. PHASE G. L. T. REMARKS
h. m. s. mm.

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17 Bombay NE eP 07 41 48 4970 Slight.
i 42 09
PP 43 37
i 44 02
PPP 44 28
iS 48 25
eS(?) 48 42
PPS 48 55
LQ 52 06
SS 52 15
SSS 52 30
SSS 53 09
LR 55 22

Contd.

Hyderabad N i 07 43 06
S 47 15
SS 50 40
M 58 09

Per. = 15 secs,
/y = 4.

17 Shillong Z eP 09 02 19 110 Local, feeble.
Sg 02 32

17 Shillong Z iP 09 10 03 Slight shock.

17 Epc: $21\frac{1}{2}^{\circ}$ S., $176\frac{1}{2}^{\circ}$ W. h = 250 km ca
-H = 11h 03m 14s (U.S.C.G.S.)
Magnitude = $7\frac{1}{4}$ (Berkeley), $7 - 7\frac{1}{2}$ (Pasadena).

Colombo E P 11 13 50 Tremor.
Kodaikanal E e 11 14 42 Moderate, long
Shillong ZN eP 11 16 39 distance shock.
M e 17 07 (appears to be a
e 18 10 considerably deep
e 20 50 focus shock.
i 21 09
i 26 54
iS 28 47
eS

Chatra Z,E 11 17 01 Slight, distant.
Z 11 21 14 Very prominent.
E 27 20 Moderate, distant.

Calcutta E e 11 18 38
e 21 01
e 27 08
i 31 03

Bombay ME 11 20 14 Distant and deep.
E 28 06 Moderate.
ME 30 06
E 31 56
E 32 00
E 32 32
E 33 30
E 38 18
N

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

Sept.
1954

17 DehraDun N oP 11 21 17 Slight
Contd. e 21 28
e 21 39
e 22 19
i 22 33
LR 22 44
SSS 23 02
PcP 23 17
PcS 23 03
31 43

17 New Delhi NE N eP 11 21 27 Moderate shock,
e 23 46
e 27 52
e 30 54
e 31 38

Poona Z N eP 11 21 31 Slight, phases
i 27 52 not clear.
i 29 54
i 31 43
i 38 00

Madras E iP 11 21 34 Moderate shock,
e 23 28
e 23 38
e 27 08
e 27 30
e 30 38
e 30 53
e 31 03
e 32 15

Hyderabad N P 11 21 56
e 29 11
e 43 02
e 12 03 05

17 Shillong Z Per. = 18 secs,
17 Shillong Z amp. = 13 mm.

17 Shillong N eP 12 00 23 Very feeble.
eP 14 53 07 Very feeble,
e distant.

17 Shillong Z e 14 59 36 Very feeble,
17 Shillong Z eP 19 21 27 distant.

17 Shillong Z eP 19 40 13 Very feeble.
17 Shillong Z eP 19 56 03 Very feeble.

17 Shillong Z eP 20 10 41 Tremor.
17 Shillong Z eP 20 38 51 Tremor.

17 Shillong Z iP 20 41 40 Very feeble.
e 41 58 Slight, near.

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

17 Shillong Z iPg 21 23 14 Slight, local.
Contd. Sg 23 21
18 Shillong Z iP 00 19 37 Slight, local.
e 19 40
c 20 14

18 Dehra Dun N NE e(P) 01 09 34 1130 Feeble, phases
S 11 30 not clear.

18 Shillong Z eP 01 11 51 Slight, distant.
18 Shillong Z eP 15 40 14 Slight, distant.

18 Dehra Dun N e 15 41 57 Slight, phases
i 50 16 not clear.

18 Poona Z e 15 42 12 Tremor.
18 Madras E e 15 49 26 Tremor.

18 Shillong Z eP 18 34 24 Slight.

18 Shillong Z cP 19 56 42 Feeble, local.
e 56 56 Slight, local.

18 Shillong Z iP 20 27 14 Slight, local.
e 27 20
i 27 28
i 27 35 Tremor.

18 Shillong Z eP 22 14 09 Tremor.
19 Shillong Z e 02 43 49 Very feeble.

19 Shillong Z cP 03 15 03 Feeble, local.
i 15 16 Feeble, distant.

19 Shillong Z e 16 04 22 Slight, local.

19 Shillong Z e 17 52 00 Slight, local.

19 Shillong Z iP 18 21 57 Very feeble.
ZN 22 04

19 Shillong Z e 20 22 16 Tremor.

20 Epc: 0°, 123° E. Colobes Island Region;
H = 00h 39m 34s (Shillong)
1½° S., 120½° E., H = 00h 39m 28s (U.S.C.G.S.)
6 (Kiruna, Uppsala), 5 3/5 - 6 (Pasadena, Praha).

Magnitude - 6 (Kiruna, Uppsala), 5 3/5 - 6 (Pasadena, Praha). Tremor.

Kodaikanal E e 00 44 41 Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Sept. 1954	Shillong	NZ	eP	00	46	57	4400 Slight, distant.
Contd.			PP		48	28	
			S		53	01	
			SS		55	45	
			LQ		55	57	
			SSS		56	25	
			M	01	01	01	
							Per. = 24.7 secs Amp. = 20 mm.
	Calcutta	E	eP	00	47	10	4450 Moderate.
		N	eP		47	11	
		E	iS		53	16	
			SS		56	14	
			?		57	14	
			LR		58	14	
	Madras	E	iP	00	47	30	4780 Moderate shock.
			PcP		49	03	
			PP		49	12	
			ScP		52	49	
			iS		53	56	
			PS		54	09	
		E	PPS	00	54	13	
			ScS		57	14	
			SS		57	19	
			LQ		58	02	
	Chatra	EZ	eP	00	47	33	4720 Slight.
		E	PP		49	10	
			PcP		49	20	
			PcS		53	11	
			iS		53	56	
			SS		56	47	
			LQ		57	17	
			LR		59	20	
			M	01	03	-	
	Hyderabad	EN	iP	00	47	51	5050 Suppressed.
		N	PP		49	45	
			iS		54	33	
			L	01	00	45	
			M		05	51	
	Colombo	E	M	01	06	58	Per. = 18 secs, Amp = 10 mm.
	New Delhi	NE	eP	00	47	52	6460 Moderate.
		N	PcP		49	12	
			iS		55	53	
			ScS		57	46	
			SS		59	54	
			SSS	01	02	12	
			M		09	08	

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Sept. 1954	Poona	Z	iP	00	48	28	5520 Moderate.
		NS	PP		50	20	
			eS		55	37	
			PS		55	49	
			PPS		55	57	
			SSS	01	00	34	
			LR		02	48	
			M		06	57	
	Bombay	E	iP	00	48	35	5700 Slight. 'M' has not developed possibly deep.
			PP		50	35	
		NE	iS		55	54	
		E	SS		59	36	
		NE	SSS	01	01	14	
		E	LQ		03	12	
	Dehra Dun	NE	eP	00	48	45	
			PcP		49	58	
			PPP		51	30	
			PcS		53	51	
			iS		55	59	
			PS		56	03	
			PPS		56	12	
			SS		59	11	
			LQ	01	00	34	
			LR		02	48	
			M		06	31	
	20 Shillong	Z	iP	10	03	06	Slight, local.
	20 Shillong	Z	iP	17	55	58	Slight, near.
	20 Shillong	Z	ePg	21	21	02	110 Slight, local.
			Sg		21	15	
	20 Calcutta	N	eP	22	09	45	380 Slight, Felt at Table Island in the Bay of Bengal.
		E	eP		09	51	
		N	iS		11	15	Slight, distant.
	20 Shillong	Z	eP	22	10	11	Slight, phases not clear.
	20 Poona	E	e	22	12	15	950 Slight. Felt at Table Island in the Bay of Bengal.
	20 Calcutta	N	eP	22	25	11	Slight, not clear.
		NE	ia		26	48	
	20 Shillong	Z	eP	22	25	37	Slight, near.
	21 Shillong	Z	eP	00	16	08	
			e		16	18	
			e		16	26	
			e		16	38	
			e		16	55	
			i		17	12	
	21 Shillong	Z	e	03	48	11	
		Z	ia		48	56	
		N	el				

DATE STATION COMPT. PHASE G. L. I. h. m. s. km. REMARKS

Sept. 1954

DATE	STATION	COMPT.	PHASE	G. L. I.	h. m. s.	km.	REMARKS
21	Shillong	Z	iP		05 03 24		
21	Shillong	Z	i		09 50 55		Slight.
21	Shillong	Z	i		14 59 51		Slight, near.
21	New Delhi	NE	Pg iSg		20 17 36 17 45	80	Slight, near. Slight, P may be earlier due to time mark.
21	Dehra Dun	NE	e i i		20 17 37 17 45 17 53		Feeble, phases not clear.
22	New Delhi	E NE	eP Pg iS s Sg		22 33 56 34 24 35 08 35 27 35 46	700	Slight.
	Dehra Dun	NE	e i		22 34 26 35 19		Slight, phases not clear.
	Shillong	Z	e		22 36 51		Slight, distance.
23	Shillong	Z	e		40 23		
			iP/P*01 P PP eSg s SS		44 45 44 46 44 53 44 58 45 03 45 18	110	
23	Dehra Dun	N	e		10 46 07		Tremor.
Epc: 49° N., 156° E. Kurile Islands Region. - H = 21h 43m 36s (U.S.C.G.S.) 50° N., 156° E. - H = 21h 43m 38s (B.C.I.S.) Magnitude - 5.4 (Praha, Skalnaté Pleso), 6.2 (Pasadena, Kiruna, Uppsala).							
	Shillong	ZN N	iP PcP PP PPP iS ScS SS LQ LR M eP		21 53 05 21 54 04 55 09 56 15 22 00 48 02 42 04 26 07 30 09 22 13 20	6140	Moderate.
	Chatra	E Far	PcP PP PPP PcS eS ScS SS LQ LR M		21 53 23 54 19 55 29 56 53 58 17 01 22 03 08 05 08 07 45 10 33 15 30	6420	Moderate.

DATE STATION COMPT. PHASE G. L. I. h. m. s. km. REMARKS

DATE	STATION	COMPT.	PHASE	G. L. I.	h. m. s.	km.	REMARKS
23	Calcutta	E	iP		21 53 39	6590	Moderate, First movement West.
		N	eP		53 41		
		E	iS		22 01 47		
			ScS		03 25		
			SS		05 39		
			SSS		08 03		
			M		16 57		
			Mn		22 07		Amp = 47 mm.
	New Delhi	NE N	eP i PcP eS ScS LQ LR M		21 53 59 54 17 54 35 22 02 26 03 48 09 40 12 36 17 13	6950	Moderate.
	Hyderabad	EN E N	iP PP iS SS L M M		21 54 45 57 13 22 04 01 08 20 17 46 22 10 22 13		
	Madras	E	iP PcP iS SKS ScS PS SS SSS		21 54 58 55 10 22 04 22 04 45 04 54 05 09 09 25 12 31	8060	Moderate.
	Bombay	NE N E E	iP PP iS M M M		21 55 01 57 44 22 04 23 24 33 24 33 24 33		Moderate. Per. = 13 secs, Amp. = 18 mm. Per. = 16 secs, Amp. = 10 mm.
	Poona	ZN N	iP PcP PP PPP iS PS PPS SS SSS LR M		21 55 01 55 19 57 58 59 26 22 04 30 04 51 05 20 09 13 12 11 17 44 23 49	8143	Moderate.
	Kodaikanal	E	eP eS M		21 55 21 22 05 36 29 21	9140	Long distance earthquake.



DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
Sept. 1954					
23	Shillong	Z	iPg iSg	21 57 28 57 33	40 Slight.
Contd.					
24	Shillong	Z	e i	00 25 18 25 34	Slight, near.
24	Dehra Dun	NE	e	01 16 54	Slight, phases not clear.
24	Shillong	Z	eP P* S. eSg SS	16 23 08 23 10 23 32 23 36 23 43	210 Slight.
24	Shillong	Z	iP Pg iSg SS	16 23 16 23 18 23 39 23 51	180 Slight.
24	Shillong	Z	eP iSg	17 37 47 38 34	320 Slight.
25	Shillong	Z	eP PP P* PPP eS SS S*	00 48 56 48 53 49 07 49 08 49 59 50 09 50 16	Slight.
25	Shillong	Z	iPg P* iSg S*	01 45 06 45 07 45 12 45 15	50 Slight.
25	Shillong	Z	i e	07 16 26 16 59	Slight, near.
25	Shillong	Z	eP iSg	07 37 43 38 06	180 Slight.
25	Poona	Z	iP	11 26 47	Slight, distant.
25	Colombo	E	iP	11 27 00	Slight. Other phases not clear.
25	Hyderabad	N	P L M	11 34 19 48 49 52 19	'p' uncertain.
25	Bombay	N	M	11 55 38	Amp. = 03 mm.
26	Shillong	Z	e	12 00 00	Per. = 18 secs, Amp. = 0.6 mm.
26	Shillong	Z	eP P* Pg S*	04 05 21 05 22 05 26 05 47 05 50	Very feeble surface waves recorded in the Milne-Show. 220 Slight.

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
Sept. 1954					
26	Shillong		iSg SS SSS	05 52 05 56 06 06	
Contd.					
26	Shillong	Z	eP Pg S S* iSg SS	10 53 34 53 40 54 00 54 03 54 07 54 13	240 Slight.
26	Shillong	Z	e i i	21 08 49 09 41 10 17	Tremor.
27	Shillong	Z	eP	09 57 17	Slight, distant.
27	Poona	Z	e	15 48 39	Tremor.
27	Dehra Dun	N	e	16 46 28	Tremor.
27	Shillong	Z	iP	16 46 29	Slight, distant.
27	Chatra	Z	i	16 46 53	Slight, distant.
27	Shillong	Z	e	17 26 31	Tremor.
27	Shillong	Z	e e e	18 07 07 07 24 08 01	Slight, near.
27	Shillong	Z	eP* Pg/P	21 23 23 23 27	60 Slight.
27	Shillong	Z	PPP iSg/S* SS SSS	23 39 23 42 23 51 24 03	Tremor.
27	Shillong	Z	e e	22 22 03 22 37	Slight.
28	Shillong	Z N Z N	iP eP i eS M	00 34 47 41 04 42 41 56 00	6330 Slight.
28	Chatra	Z E	i e	00 35 03 59 19	Slight, distant. Surface waves. Per. = 15.0secs, Amp. = 0.5 mm.
28	Poona	N	eP e? i	00 46 27 57 01 01 04 38	Feeble shock. Phases not clear.
28	Bombay	N E	e e	01 06 00 17 00	Feeble surface waves of a shock recorded.

DATE	STATION	COMPT.	PHASE	G. L. T.		REMARKS
				h. m. s.	km.	
<u>Sept. 1954</u>						
28 Contd.	Shillong	N	e	13 17 16		Very feeble.
				18 23		
				19 20		
29	Shillong	Z	eP	03 13 19		Feeble, local.
		N	eP	13 21		
			e	13 23		
30	Shillong	Z	eP	17 12 18		Feeble.

Earthquake Reports
(Non Instrumental Reports)

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations.

Place at which felt	Date	Time at which felt G.L.T.	Duration in secs	Intensity in R.F. scale	No. of shocks	Remarks
Shillong	10th Sept. 1954	18 30	5	III	1	
Along	21st Sept. 1954	00 15	-	-	1	



GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



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Shri S. Basu, M.Sc., F.N.I.,

Director General of Observatories

Instruments and their constants

Station	Instrument	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/sec
Bombay	Milne-Shaw	N-S	12.0	350	18:1	16
	Milne-Shaw	E-W	12.0	350	9:1	8
	Sprengnether	E-W	To = Tg = 7.0	-	-	30
	Microseismograph					
Calcutta	Milne-Shaw	E-W	10.0	150	20:1	8
	Wood-Anderson	N-S	2.0	870	Critical	30
	Omori-Ewing	N-S	18.0	32	-	25
	Omori-Ewing	E-W	19.0	30	-	25
Chatra	Benioff	Z	To=0.72 Tg=0.45	-	Critical	60
	Wood-Anderson	N	1.0	1000	30:1	60
	Wood-Anderson	E	1.0	1000	40:1	60
	Milne-Shaw	E	12.0	250	20:1	16
Colombo	Milne-Shaw	E-W	12.0	250	20:1	-
Dehra Dun	Milne-Shaw	N-S	12.0	250	20:1	16
	Milne-Shaw	E-W	12.0	250	20:1	16
	Wood-Anderson	N-S	0.8	800	60:1	60
	Wood-Anderson	E-W	0.8	950	60:1	60
Hyderabad	Milne-Shaw	N-S	12.0	252	20:1	8
	Milne-Shaw	E-W	12.0	253	20:1	8
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8
Madras	Sprengnether Microseismograph	E-W	To = Tg = 7.2	-	-	30
New Delhi	Milne-Shaw	N-S	12.0	288	20:1	8
	Wood-Anderson	N-S	4.0	1070	20:1	16
	Wood-Anderson	E-W	2.0	1841	30:1	60
	Omori-Ewing	E-W	28.0	30	1	12
Poona	Sprengnether Microseismograph	Z	To=1.5 Tg=1.5	-	-	30
	Wood-Anderson	E-W	4.0	1100	20:1	16
	Milne-Shaw	N-S	12.0	250	20:1	8
Shillong	Milne-Shaw	N-S	12.0	250	20:1	8
	Benioff Short Period	Z	To=1.09 Tg=0.18	-	-	60
	Wood-Anderson	E-W	0.8	1000	-	30
	Wood-Anderson	N-S	0.8	1000	-	30
	Wood-Anderson	N-S	4.0	1120	-	30

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

Oct. 1954

01 Ep: 11°S, 166°E; Santacruz Island.
- P = 02h 55m 31s (U.S.C.G.S).
Magnitude = 6 $\frac{1}{4}$ -7 (Skalnate Pleso, Hurbanovo);
6.8 (Pasadena); 6 $\frac{1}{4}$ (Praha, Dehilt);
6 $\frac{1}{2}$ -6 $\frac{1}{2}$ (Berkeley); 6 $\frac{1}{2}$ (Kiruna).

Shillong	Z	eP	03 07 46	8980	Moderate.
	N	iS	17 54		
		SKS ₁	17 58		
		ScS	18 03		
		PS	18 28		
		PPS	18 58		
		SS	22 58		
		SSS	26 13		
		Lq	28 58		
		Lr	32 24		
		M	39 35		
Calcutta	E	iP	03 08 08	9130	Moderate. First movement East.
		iS	18 23		
		SS	23 34		
Colombo	E	P	03 08 30	9210	
		S	18 50		
		L	44 20		Amp. = 0.6mm
		M	52 00		
Madras	E	iP	03 08 33	9700	Moderate.
		PP	12 00		
		PPP	13 59		
		SKS	18 53		
		SKS	19 03		
		S	19 16		
		S	19 20		
		ScS	20 18		
		PS	20 44		
		PPS	25 26		
		SS			
Hyderabad	E, N	eP	03 08 43	9700	Moderate.
	N	iS	19 23		
		L	26 13		Amp. = 1.2mm
		M	42 14		
Kodaikanal	E	P	03 08 46	9530	Slight.
		PP	12 01		
		PPP	13 55		
		S	19 19		
		S	20 19		
		PS	32 22		
		Lq	36 25		
		Lr	43 37		
		M			

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Oct. 1954						km.	
01 Contd.	New Delhi	N,E N	e iSKS iS PS PPS	03 19 19 20 21	09 00 37 51 11 24	9780	Moderate.
	Poona	Z	eP	03	09 08		Slight.
	Bombay	N,E E N E N N,E E N,E E N E N	eP i PP PP PPP e SKS ₁ SKS ₁ SKKS ₁ iS iS PS PS Lq Lr M	03 12 13 13 15 15 17 19 19 20 20 21 21 37 41	09 12 10 06 12 00 34 28 40 52 16 35 38 50 54 07 --	10940	Moderate.
01	Shillong	Z	eP PP S M	11 08 08 09	01 01 07 56 17	510	Slight, near. Amp. = 4mm
02	Shillong	Z	eP Pg S S* Sg/M	04 26 26 26 27 27	01 01 21 51 08 19	470	Feeble
02	Shillong	Z	eP Pg Lq S S* Sg/M	05 28 28 28 28 28 29	15 15 29 37 44 53 02	170	Feeble.
02	Poona	Z N E N	eP PP PPP e(?) PS	10 10 12 13 17 18	16 16 23 33 58 08	6120	Slight.

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				h.	m.	s.	
Oct. 1954						km.	
02 Contd.	Shillong	E,Z N Z	iP eP Sg	11 30 30	20 22 25	60	Feeble.
02	Shillong	Z	iPg Sg	21 30	04 15	90	Feeble, local.
Epc: 10°S, 165½°E; Santacruz Island. - H = 02h 47m 17s (USCGS) Magnitude = 7.2 (Skalnate Pleso), 7 (Praha, Hurbanovo), 6½-7 (Pasadena), 6½ (Uppsala, Kiruna).							
	Shillong	Z	eP	02	59 33		Moderate, other phases not clear.
	Calcutta	E	eP iS PS SS SSS M	02 03 11 15 19 33	59 53 13 13 28 28	9250	Moderate. Amp. = 136mm
	Chatra	E,Z	e	02	59 58		Slight distant. Other phases not clear.
	Colombo	E	P iS L M	03 10 32 40	00 00 49 06	9930	'P' approximate lost in hour mark. Trans overlapping. Amp. = 1.5mm.
	Madras	E	eP e e S e e	03 00 04 06 10 12 13	15 13 24 53 41 21	9660	Moderate.
	Hyderabad	E E,N E N E	eP S PS L M M	03 00 11 28 34 35	28 09 31 45 36 07	9728	Moderate. Amp. = 18mm. Amp. = 6mm.
	Kodaikanal	E	P PP S PS PPS SS SSS Lq Lr M	03 00 03 11 12 12 16 20 24 28 37	31 52 01 01 28 49 13 01 13 10		Moderate. Amp. = 9.6mm.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
03 Contd.	Poona	Z N	e(P) PP PPP eS PS PPS SS SSS Lq Lr M	03 00 48 04 18 06 06 11 31 12 32 13 06 17 26 21 00 25 13 29 30 36 51		Slight, beginning doubtful.
	Bombay	N,E	e(P) PPP SKS ₁ i iS PS SS SS SSS Lr M	03 01 03 07 02 11 38 12 03 12 25 13 37 18 52 18 58 22 37 32 03 55 01	10840	Moderate. Amp. = 7mm.
	New Delhi	N	e i e i	03 05 21 11 15 11 53 13 11		Moderate, phases not well developed.
03	Poona	Z	e	09 02 44		Tremor.
03	Shillong	Z N,E N Z N Z,N N	iP i i i i i i	10 42 07 42 17 42 20 42 50 43 02 43 11 43 20 43 39		Local, slight.
	Chatra	Z	e	10 42 49		Slight, near.
	Dehra Dun	N,E	e	10 47 01		Tremor.
	Bombay	N,E N	e e i	10 50 09 50 34 52 42		Feeble, tremor.
	Poona	Z	e	10 50 19		Tremor.
03	Poona	Z	e	10 52 16		Tremor.

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				h. m. s.	km.	
Oct. 1954						
03						Epc: 60 $\frac{1}{2}$ °N, 151°W; Kenai Peninsula, Alaska. - h = 100 km Ca. - H = 11h 18m 46s (U.S.C.G.S). Magnitude = 6 $\frac{3}{4}$ -7 (Pasadena); 6 $\frac{3}{4}$ (Takubaya, Kiruna, Uppsala) 6 $\frac{1}{2}$ (Berkeley, Praha); 6-6 $\frac{1}{4}$ (Hurbanovo).
	Shillong	Z N	eP eS	11 30 50 40 46	8980	Moderate. Time doubtful.
	Dehra Dun	N,E	e(P) e e(S)	11 30 52 32 53 40 57		Moderate, phases not clear.
	Chatra	Z E	iP eP PP PPP iS Lq Lr M	11 30 55 34 00 36 00 41 01 52 07 56 06 12 03 30	8930	Slight.
	New Delhi	N,E N	eP i PP i i iS ScS PS PPS i SS	11 31 07 33 49 34 34 35 16 38 01 41 17 41 34 41 55 42 19 42 57 46 11	9020	Moderate.
	Calcutta	N,E E	eP iS PS	11 31 18 41 33 42 15	9130	Moderate.
	Hyderabad	N N,E	eP PP S PS SS M M	11 31 50 35 37 42 19 44 13 48 58 12 09 59 10 01	9430	Moderate. Amp = 8mm. Amp = 18mm.
	Bombay	N,E N N,E E N E N N,E N	eP pP e i PP PP e i iS PS	11 31 54 32 32 33 35 34 29 35 31 35 42 40 20 42 23 42 50 43 23	10110	Moderate.

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				h. m. s.	km.	

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03 Contd.	Poona	Z	eP	11 31 56	9420	Slight.
		E	PP	35 27		
		E	PPP	37 25		
		N	eS	42 24		
			PS	43 24		
			PPS	43 54		
			SS	48 05		
			SSS	51 32		
			Lq	55 09		
			Lr	59 17		
	M	12 06 30				

Madras	E	eP	11 32 09	9590	Moderate shock.
		SKKS	42 03		
		PS	44 11		

Colombo	E	P	11 36 03
		e	47 19
		e	12 06 --
		M	14 31

03	Shillong	Z	iP	12 14 55	Amp. = 1.2mm.
			e	15 05	

03 Epc: $1^{\circ}S, 127\frac{1}{2}^{\circ}E$; - H = 23h 21m 36s (U.S.C.G.S)
 $1^{\circ}S, 127\frac{1}{2}^{\circ}E$; - H = 23h 21m 35s (B.C.I.S).
 Magnitude = $6\frac{1}{4}$ (Kiruna), 6 (Praha).

Shillong	Z	eP	23 29 43	4640	Moderate.
		eS	36 02		

Calcutta	N,E	eP	23 29 59	4890	Slight.
		iS	36 32		
		iS	36 34		

Madras	E	iP	23 20 27	5250	Moderate.
		eS	37 21		

Chatra	Z	i(P)	23 30 20	5220	Slight, other phases not clear.
		e	37 12		
		i(S)	48 --		

Colombo	E	P	23 30 36	Amp. = 0.5mm.
		e	37 11	
		M	50 06	

Hyderabad	Z	eP	23 30 48	5640	Amp. = 3mm.
		iS	38 04		
		L	48 05		
		M	51 04		

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				h. m. s.	km.	

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03	Poona	Z	eP	23 31 23	6120	Slight.
		E	PP	35 25		
			PPP	37 24		
			eS	39 05		
			PS	39 16		
			PPS	39 29		
			ScS	41 16		
			SS	42 45		
			SSS	44 37		
			Lq	44 55		
			Lr	47 27		
			M	32 42		

New Delhi	N,E	eP	23 31 24	6180	Moderate.
		iS	3 09		
		ScS	41 22		
		SS	42 55		

Dehra Dun	N,E	eP	23 31 27	6190	Moderate, phases not clear.
		e	32 14		
		e	32 31		
		eS	39 13		

Bombay	E	eP	23 31 48	6280	Slight.
		PPP	34 56		
		iS	39 19		
		ScS	41 09		

04 Epc: $25^{\circ}N, 122^{\circ}E$; Formosa. - H = 01h 33m 21s (U.S.C.G.S).
 Magnitude = $5\frac{1}{2}$ - $5\frac{3}{4}$ (Uppsala).

Shillong	Z	eP	01 39 03	Slight.
		e	43 40	
		e	45 25	
		e	50 40	

Chatra	Z	i	01 39 43	Slight, distant.
		e		


Poona	Z	eP	01 41 40	Feeble, phases not clear.

Bombay	E	e	01 48 15	Feeble.
		e	52 09	

04	Shillong	Z	i	09 45 09	8150
			eP	55 05	

Colombo	E	P	09 46 51	Amp. = 0.2mm.
		S	56 26	
		L	10 19 21	
		L	25 36	
		M		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1954						
04	Shillong	Z	eP S S* Sg/M	11 43 08 43 33 43 36 43 41	220	Feeble.
04	Shillong	Z	eP	16 48 01		Very feeble.
04	Shillong	Z	eP PP S S* Sg/M	20 17 19 17 28 18 14 18 22 18 33	620	Slight.
05	Shillong	Z N	P e e e	04 17 03 17 05 17 08 17 15		Slight, near.
05	Shillong	Z N	P eS Lr M	04 26 16 32 32 36 09 41 51	4610	Slight.
05	Shillong	Z	e	04 31 54		Compression, distant, slight.
05	Shillong	Z	e	11 34 47		Compression, distant, slight.
05	Chatra	Z	i	11 34 48		Slight, distant.
05	Shillong	Z	e	14 44 36		Distant, slight.
06	Shillong	Z	e	04 19 58		Tremor.
06	Shillong	Z	e	05 06 58		Tremor,
06	Dehra Dun	N	e	05 07 21		Tremor.
06	Dehra Dun	N, E	eP PP IS SS SSS	05 20 52 20 56 21 06 21 16 21 27	110	Slight.
06	New Delhi	E N, E	eP IS S* Sg SS	05 21 18 21 54 21 58 22 04 22 05	320	Slight.
06	Shillong	Z	eP Pg Lq S* Sg	06 30 42 31 03 31 33 32 00 32 13	600	Slight.



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				h. m. s.	km.	
Oct. 1954						
06	Shillong	Z	e e e e e e	08 02 42 03 05 03 45 03 55 04 00 04 16		Slight.
06	Shillong	Z Z	e e e e	08 29 58 08 37 36 38 06 50 01		Feeble, near. Distant, slight.
06	Poona	N	e?	09 09 12		Feeble.
06	Shillong	Z	e e e e	18 26 28 26 38 26 56 27 07 27 18		Slight, near.
06	Dehra Dun	N, E	eP Lq eS SS&Lr SSS S* Sg/M	19 59 03 20 00 21 00 32 00 43 00 53 00 58 01 20	860	Slight.
06	New Delhi	N, E	eP IS SS Lr SSS	19 59 07 20 00 49 01 02 01 08 01 16		Tremor, distant.
06	Shillong	Z	e	20 01 25		Tremor, distant.
06	Shillong	Z	e	23 45 03		Distant, compression, slight.
07	Shillong	Z	e	02 58 25		
07						Epc: Chagos Island Region, Indian Ocean. - H = 07h 57m 23s (U.S.C.G.S) 5.4°S, 68.5°E; - H = 07h 57m 21s (B.C.I.S) 6°S, 69°E; - H = 07h 57m 19s (Shillong) Magnitude = 5 $\frac{1}{4}$ (Kiruna).
06	Colombo	E	P S L M	07 55 50 08 01 08 05 22 07 33	3660	Amp. = 1.5mm.

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h. m. s. km.

07 Contd.	Kodaikanal E		P	08 01 28	2950	Slight.
			S	06 01		
			Lq	07 01		
			SS	07 17		
			SSS	07 38		
			Lr	08 28		
			M	10 37		
	Madras E		iP	08 02 12	2590	Moderate.
			PP	02 43		
			PPP	02 54		
			iS	06 21		
			Lq	06 49		
			SS	07 02		
			Lr	07 50		
			ScP	09 29		
			M	09 52		
	Hyderabad E,N		iP	08 02 40	2790	
			iS	07 03		
			SS	08 34		
			L	09 34		
			M	10 09		
			M	12 19		Amp. = 10mm Amp. = 3mm
	Poona N		eP	08 02 42	2790	Slight.
			PP	03 25		
			PPP	03 34		
			iS	07 05		
			Lq	08 05		
			SS	08 24		
			SSS	08 41		
			Lr	09 25		
			M	11 37		
	Bombay E		iP	08 02 45	2780	Slight.
			PPP	03 36		
			iS	07 07		
			Lq	07 48		
			Lr	09 18		
			M	11 22		
	New Delhi N		eP	08 04 13	3870	Slight.
			PP	05 29		
			PPP	05 47		
			eS	09 44		
			M	16 19		
	Chatra Z		i	08 04 03		Slight, distant.
	Shillong Z		iP	08 04 43	4230	Slight, compression.
			iS	10 37		
			e	14 50		
			M	18 22		
	Calcutta E		eS	08 09 38		Slight.

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Oct. 1954	Bombay E		e	14 02 22		Tremor.
07	Shillong Z		e	18 01 38		Feeble.
07	Shillong Z		i	19 29 17		Slight, distant.
07	Shillong N		e	38 27		
	Bombay E		iP	19 30 44	9440	Slight.
			PP	34 13		
			e	38 00		
			e	38 37		
			eS	41 13		
			PS	42 05		
07	Shillong Z		e	19 57 30		Tremor, distant.
08	Shillong Z		e	05 14 28		Tremor.
08	Shillong Z		e	05 26 39		Tremor.
08	Shillong Z		e	09 34 49		Tremor.
08	Shillong Z		e	10 33 05		Slight, compression.
08	Shillong Z		i	10 54 48		Slight, compression.
08	Shillong Z		i	13 40 22		Feeble, near.
08	Shillong Z		e	14 23 55		Slight, near.
08	Shillong Z		i	16 23 49		Compression.
			e	25 12		
			e	25 18		
08	Dehra Dun N,E		eP	18 36 53	370	Slight.
			PP	37 00		
			Pg	37 04		
			PPP	37 06		
			Lq	37 22		
			iS	37 34		
			S*	37 39		
			SS	37 44		
			Sg	37 47		
			SSS	37 55		
08	Shillong Z		i	21 38 20		Feeble, compression.
			e	40 14		
08	Shillong Z		e	23 52 41		Near, feeble.
			e	58 57		
			e	59 46		
09	Shillong Z		e	01 36 57		Distant, tremor.
	Shillong Z		e	04 52 26		Near, feeble.
			e	52 42		
			e	53 16		
			e	53 35		

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				h. m. s.	km.	
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09	Shillong	Z	i	11 17 40		Feeble, near.
09	Shillong	Z N	i i	21 19 25 19 37		Feeble, near.
09	Dehra Dun	N, E	e i	23 08 09 08 16		Feeble, phases not clear.
10	Shillong	Z	e e e e	04 51 00 51 02 51 08 51 14		Slight, near.
10	Shillong	Z	e e e	05 21 09 21 19 21 22		Feeble, near.
10	Shillong	Z	e e	05 39 07 39 16		Feeble, near.
10	Shillong	Z	i	06 46 25		Tremor, distant.
10	Dehra Dun	N	e	08 22 19		Tremor.
10	Shillong	Z	e e	08 23 23 23 29		Feeble, near.
10	Shillong	Z	e	11 37 56		Tremor, distant.
10	Shillong	Z	e e	20 21 21 22 12		Feeble, near.
10	Shillong	Z	e	23 41 21		Tremor, distant.
11	Shillong	Z	i e	23 44 23 44 52		Feeble, near. Compression.
11	Shillong	Z	e e e e	06 25 28 25 39 26 05 26 26		Feeble, near.
11	Shillong	Z	e	08 50 04		Tremor, distant.
11	Shillong	Z	e e e	15 30 49 30 53 31 21		Feeble, near.
11	Shillong	Z N	e i e	16 21 43 29 46 43 03		Slight, rarefaction, distant.
11	Chatra	Z	i	16 21 56		Slight, distant.
11	Shillong	Z	e	17 05 52		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
11	Shillong	Z	e	17 11 10		Tremor.
11	Shillong	Z	e e e	17 28 52 24 35 34 03		Slight.
11	Shillong	N	i i	18 08 55 09 04		Feeble, rarefaction.
11	Shillong	Z	e e	19 58 42 58 56		Feeble, near.
11	Shillong	Z	e e	20 01 32 01 35		Tremor.
11	Shillong	Z	e e e	22 10 13 10 56 11 07		Tremor.
12	Shillong	Z	Pg Sg	05 54 57 55 10	110	Tremor.
12	Dehra Dun	N	e	11 49 20		Tremor.
13	Poona	Z	e	19 15 19		Tremor.
13	Epc: 38°N, 70°E; Afganistan. - H= 22h 11m 45s (Shillong) - H= 22h 11m 44s (Quetta)					
	Data discordant (B.C.I.S).					
	Dehra Dun	N, E	eP PPP P* Pg Lq iS SS Lr SSS Sg/M	22 14 15 14 29 14 44 15 12 16 10 16 20 16 22 16 44 16 47 17 37	1220	Moderate.
	New Delhi	N, E E N, E N N, E E N, E N, E	iP PP PPP i Lq eS i SS Lr M	22 14 25 14 33 14 40 15 17 16 19 16 28 16 36 16 41 16 48 17 37	1200	Slight.
	Chatra	E, Z Z	e i	22 15 59 19 13		Slight, near.

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				h. m. s.	km.					
13 Contd.	Bombay	N E	eP	22 16 07	2090	Slight.				
			eP	16 12						
			PP	16 26						
			iS	19 39						
			eS	19 43						
			SS	20 05						
			Lr	20 40						
			M	24 05						
			Amp. = 3mm							
			Hyderabad	N E,N N			iP	22 16 36	2420	
iS	20 33									
L	23 15									
M	25 12									
Amp. = 6mm.										
Poona	N,Z,E E	eP	22 16 16	2220	Slight.					
		PP	16 36							
		PPP	16 44							
		eS	19 56							
		Lq	20 06							
		SS	20 25							
		SSS	20 35							
		Lr	20 56							
		M	22 34							
		Calcutta	E			eP	22 16 40	2600	Slight, time approxi- mate due to failure of time-marking clock.	
Shillong	Z N	iP	22 16 45	2780	Slight, probably deep.					
		eP	16 46							
		iS	20 48							
		Lq	21 20							
		M	22 22							
Madras	E		24 20	4530	Supressed.					
		eP?	22 17 57							
Kodaikanal	E	iS	25 41							
		PS	25 56							
		ScS	27 26							
		SS	29 15							
		SSS	31 25							
Kodaikanal	E	P	22 22 23		Slight.					
		e	24 53							
		Lr	25 20							
		M	26 23							
14 Dehra Dun	N,E	eP	01 31 58	900	Slight.					
		PP	32 04							
		PPP	32 11							
		Pg	32 36							
		Lq	33 18							
		iS	33 31							
		SS	33 41							
		Lr	33 43							
		SSS	33 52							
		S*	34 00							
		Sg/M	34 25							

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DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
14 Contd.	New Delhi	N,E E N,E N,E	iP	01 32 04	980	Slight.
			PPP	32 18		
			iS	33 45		
			Lr	34 02		
			SSS	34 06		
			S*	34 16		
Shillong	Z	P	01 34 32	5220	Moderate.	
14	Banda Sea;	Epc;	7°S, 128°E.	- H = 01h 35m 00s (U.S.C.G.S)	5700	Moderate.
			7.5°S, 127.5°E.	- H = 01h 35m 01s (B.C.I.S)		
			6°S, 130°E.	- H = 01h 35m 03s (Shillong).		
Shillong	Z N	iP	01 43 43	5220	Moderate.	
		iP	43 44			
		PP	45 38			
		PPP	46 23			
		iS	51 00			
		PS	55 38			
		SSS	57 23			
		Lr	02 00 38			
		M				
		Madras	E			P
PcP	45 14					
iPP	46 12					
PPP	47 11					
iS	51 31					
Chatra	Z E	iP	01 44 16	5800	Slight.	
		e	51 40			
		eS	02 03 45			
Kodaikanal	E	P	01 44 22	7060	Long distance earthquake of slight intensity.	
		PP	46 40			
		S	47 58			
		Lq	02 00 07			
		Lr	02 55			
Hyderabad	N,E E E,N N	iP	01 44 33	6020		
		PcP	45 36			
		PP	46 33			
		iS	52 09			
		SS	55 57			
Poona	Z E	eP	01 45 03	6560	Moderate.	
		PcP	45 43			
		PP	47 17			
		PPP	48 46			
		PcS	50 41			
		iS	53 09			
		PS	53 26			
		PPS	53 31			
		SS	56 57			
		Lq	02 00 00			
Lr	02 51					
M	07 42					

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
14 Contd.	Bombay	N E	eP iP PP PPP iS ScS? SS i	01 45 12	6690	Slight. 'M' has not developed.
				47 21		
				48 29		
		N,E E		53 25		
				54 31		
				57 25		
				58 47		
	New Delhi	N,E N	eP PPP iS SS	01 45 14	6670	Moderate.
				48 51		
				53 26		
				57 27		
	Dehra Dun	N,E N	eP PcP PP PPP PcS iS PS PPS ScS SS SSS Lq Lr M	01 45 18	6660	Moderate.
				45 53		
				47 23		
				48 58		
				49 45		
				53 30		
				53 44		
				53 58		
				54 56		
				57 40		
				02 00 27		
				00 57		
				03 38		
				08 46		
14	Shillong	Z	Pg Sg	17 59 57 18 00 04	60	Slight, local.
15	Shillong	Z	i	03 29 13		Slight, local.
15	Shillong	Z	P	03 47 25		Feeble
15	Shillong	Z	P	03 47 25		Slight.
15	Shillong	Z	P	07 02 49		Slight.
15	Shillong	Z	i i	08 17 07 17 26		Local.
15	Shillong	Z	i	20 28 12		Very feeble.
16	Shillong	Z	i i	23 13 58 14 04		Slight, local.
16	Shillong	Z	P	00 39 33		Feeble.
16	Shillong	Z	P	07 28 14		Slight.
16	Shillong	Z	e	09 48 10		Slight.
16	Dehra Dun	N,E	P	18 09 36		Slight.
			e	18 23 15		Slight.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
16	Shillong	Z	e i	19 38 18 38 41		Feeble.
16	Shillong	Z	P	20 24 16		Slight.
16	Shillong	Z	P	22 34 49		Slight.
17	Shillong	Z	P	19 38 44		Slight.
17	Shillong	Z	e	19 39 50		Slight.
17	Shillong	Z	e	19 42 27		Slight.
17	Dehra Dun	N,E	e	19 43 08		Tremor.
17	Shillong	Z	e e e	21 21 18 21 50 21 57		Slight.
17	Bombay	E N,E	e e	23 12 20 20 05		Long distance shock feebly recorded.
17	Shillong	Z N	PKP M	23 17 23 00 01 38	40	Slight, very distant.
17	Shillong	Z	Pg Sg	23 26 29 26 34		Local
18	Hyderabad	E	M	00 06 50		/u = 6mm.
18	Shillong	Z	i e	02 03 03 03 14		Slight, local.
18	Shillong	Z	e	11 06 36		Local.
18	Shillong	Z	e	13 36 18		Feeble, time uncertain.
18	Shillong	Z	e	14 38 39		Slight.
18	Shillong	Z	e	19 52 49		Local.
18	Shillong	Z	e	20 03 09		Tremor.
18	Dehra Dun	N	i	16 37 11		Slight, local.
19	Dehra Dun	Z	i	17 17 08		Slight distant.
19	Dehra Dun	Z	e	17 36 03		Tremor.
19	Dehra Dun	Z	eP	18 00 51		Slight distant.
19	Shillong	Z	i	23 37 02 37 14		Tremor.
19	Shillong	Z	i	23 48 28 48 30 48 32 48 49	40	Slight.
19	Shillong	Z	iPg P iSg SS			

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1954						
20	Kodaikanal	E	P S SS Lq Lr M	00 19 25 26 42 30 09 31 49 34 09 38 19	5670	Moderate.
20	Shillong	Z	iP	05 50 34		Slight distant.
20	Shillong	Z, E	eP eS M	1 00 27 05 10 10 52	3100	Slight.
20	Chatra	Z E	iP eP e	14 01 07 15 --		Slight distant.
	Bombay	E	e e e	14 03 07 03 19 09 31		Shock not recorded on Milne-Shaw. Charts feeble, not clear.
20	Shillong	Z E	iP eP PP PPP PcS eS Lq M	23 49 51 51 26 52 11 55 27 56 18 59 48 00 06 33	4800	Slight.
	Calcutta	E	e	23 50 04		Slight, distant.
	Chatra	Z E	i e	23 50 21 00 13 --		Slight, distant surface waves. Per. = 16 Secs. Amp. = 0.75mm.
	New Delhi	N, E	eP eS PS ScS	23 51 19 58 59 59 07 00 01 13	6090	Slight.
	Hyderabad	E	e L M	23 51 44 00 28 13 38 38		
	Bombay	N E E	eP iP PcP PPP	23 52 10 52 41 56 05 00 00 36	6930	Slight.
		N E E E	eS iS PS PPS	00 00 36 00 55 01 09		Surface waves have not been developed.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	

Oct. 1954

21

Epc: 42.5°S, 81°E; South Indian Ocean
41°S, 81°E; - H = 00h 10m 08s (Shillong)
- H = 00h 10m 10s (U.S.C.G.S.)
Magnitude = 7 (Pasadena); 6 $\frac{3}{4}$ (Kiruna); 6 $\frac{1}{4}$ (Praha).

Colombo	E	P S L M	00 18 48 25 50 30 36 33 48	5420		Amp. = 3.5mm.
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Moderate.

Madras	E	eP PcP PP PPP iS PS PPS ScS SS SSS Lq	00 19 41 20 34 21 43 23 04 27 22 27 35 27 42 29 25 31 00 32 57 33 03			
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Poona	N, E N	eP PP PPP iS PS PP SS Lq Lr M	00 20 18 22 31 23 50 28 26 28 38 28 48 32 28 35 13 38 01 43 03	6590		Moderate.
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Bombay	N	iP PP PPP iS SS Lr M M	00 20 20 22 34 24 04 28 38 32 32 38 35 41 34 44 46	6700		Moderate.
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Calcutta	E N, E	eP iS PKKP1 M Mn	00 20 47 29 22 41 06 45 03 47 27	7090		Moderate.
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Shillong	Z E	iP eP iS SKS SS Lq Lr M	00 21 07 30 03 31 06 34 40 38 33 42 13 44 55	7500		Moderate.
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DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
21 Contd.	Chatra	Z	i(P) e i(S)	00 21 11	7590	Slight, distant.
		E		30 12		
	New Delhi	N	aP	00 21 19	7690	Moderate.
		N,S	PcP	21 52		
		N,S	PP	23 57		
		N,S	iP	30 25		
		N,S	PS	30 55		
		N,S	SS	35 01		
		N,S	SSS	38 04		
21	Shillong	Z	i	01 45 15		Tremor.
21	Shillong	Z	e	03 11 38		Slight, near.
			i	12 35		
			i	13 34		
21	Shillong	Z	i	07 14 46		Slight, distant.
		N	e	08 10 45		
21	Shillong	Z	iP	10 28 06	250	Slight.
			Px	28 08		
			Pg	28 11		
			iSg	28 42		
			SS	28 45		
21	Dehra Dun	N,E	e	19 15 57		Feeble, phases not clear.
			i	16 27		
21	Shillong	Z	i	20 22 49		Slight, distant.
			i	24 02		
22	Shillong	Z	e	02 58 08	170	Slight.
			iSg	58 30		
			e	58 36		
22	Shillong	Z,N,E	iPg	04 38 37	20	Slight.
		N,E	iSg	38 39		
22	Shillong	Z,N,E	i	04 39 51		Slight, local.
22	Shillong	Z	e	06 13 15		Slight, near.
			i	14 10		
22	Shillong	Z	ePg/Px	07 57 14	100	Slight.
			P	57 18		
			PP	57 22		
			eSg	57 26		
			S	57 29		
			SS	57 36		
22	Shillong	N	eP	14 14 59	130	Slight.
			PP	15 06		
			iSg	15 14		




DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1954						
22	Shillong	Z	i	16 36 56		Slight, distant.
			i	38 51		
			i	42 05		
22	Shillong	Z	e	17 22 06		Tremor.
22	Shillong	Z	e	18 04 53		Slight.
22	Shillong	Z	i	00 53 45		Slight, distant.
			i	55 08		
23	Shillong	Z	e	06 34 21		Slight, tremor.
23	Shillong	Z	e	07 33 21		Slight.
23	Shillong	Z	P	11 36 22	280	Slight.
			Pg	36 28		
			S	36 52		
			e	36 58		
23	Shillong	Z	iP	18 00 19		Feeble.
23	Shillong	Z	Pg	21 05 33	20	Slight.
23	Shillong	Z	e	21 30 32		Feeble.
23	Shillong	Z	iP	23 22 42		Slight.
23	Shillong	Z	iP	05 22 23		Slight.
24	Shillong	Z	e	06 56 01		Feeble, phases not clear.
			i	56 08		
			e	56 31		
24	Dehra Dun	N,E	e	09 32 06	640	Slight.
			eP	09 32 29		
			PP	32 37		
			Pg	32 59		
			Lq	33 26		
			eS	33 37		
			Lr	33 43		
			SS	33 48		
			Sg	34 13		
			e	09 34 41		Tremor.
24	Shillong	Z	e(M)	10 55 30	210	Slight.
24	Shillong	N	eP	16 18 29		
			eSg	18 59		
24	Shillong	Z	e	16 29 59		Tremor.
			i	30 20		
24	Shillong	Z	iP	17 21 47		Slight.
24	Shillong	Z				

DATE STATION COMPT. PHASE G. M. T.  REMARKS
h. m. s. km.

Oct.
1954

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
24	Shillong	Z	e	22 44 22	Tremor.
24	Shillong	Z	e	23 46 48	Slight, distant.
25	Shillong	Z	iP	00 19 21	Slight, distant.
25	Shillong	Z	ePx Pg/P PP eSg SS	00 34 37 34 38 34 45 34 52 35 04	120 Slight.
25	Shillong	Z	i	00 37 33	Slight, near.
25	Shillong	Z	e i i	01 03 58 04 27 04 40	Tremor.
25	Shillong	Z	e e e e	04 50 38 50 47 51 14 51 28	Slight, near.
25	Shillong	Z	i	06 22 58	Slight.
25	Dehra Dun	N	e	06 58 49	Tremor.
25	Shillong	Z	e i i	06 58 57 59 07 59 56	Slight.
25	Shillong	Z	iPg iSg	09 43 35 43 37	20 Slight.
25	Shillong	Z	i	10 45 10	Slight, local.
25	Shillong	Z	i	19 28 40	Feeble.
26	Shillong	Z	e i	00 44 55 45 12	Tremor.
26	Shillong	Z	eP PP S* Sg	07 13 22 13 29 14 17 14 23	510 Slight.
26	Shillong	Z	ePg S Sg	10 19 30 19 48 19 51	140 Feeble.
26	Shillong	Z	eP	10 43 25	Feeble.
26	Shillong	Z	eP	10 43 58	Feeble.
26	Shillong	Z	eP	18 28 04	Feeble.
26	Shillong	Z	eP	20 39 33	Feeble.

DATE STATION COMPT. PHASE G. M. T.  REMARKS
h. m. s. km.

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DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s. km.	
26	Shillong	Z	eP Sg	22 37 16 37 38	170 Slight.
27	Shillong	Z	ePg Sg	03 30 49 31 04	130 Feeble.
27	Shillong	Z	eP	03 34 17	Slight.
27	Shillong	Z	eP	08 26 59	Feeble.
27	Shillong	Z	eP	10 41 07	Very feeble.
27	Shillong	Z	eP Sg	16 13 28 14 06	260 Feeble.
27	Shillong	Z	eP	16 46 59	Very feeble.
27	Shillong	Z	eP	17 31 23	Very feeble.
27	Shillong	Z	ePg Sg	17 46 31 46 47	130 Slight, local.
27	Shillong	Z	eP Sg	18 02 13 02 30	140 Slight, local.
27	Dehra Dun	N,E	e i	20 27 54 29 18	Slight, phases not clear.
27	New Delhi	N,E E	eP e i	20 28 03 28 22 28 34	1010 Slight.
		N,E N,E	eS Lr	29 47 29 51	
		N,E	SS	29 59	
			SSS	30 10	
27	Shillong	Z	eP	20 30 14	Slight, distant.
27	Epc:			40°N, 77.5°E. Sinkiang province, China. - H = 2lh 48m 45s (Shillong & B.C.I.S). 40°N, 77°E. - H = 2lh 48m 41s (U.S.C.G.S).	
	Dehra Dun	N,E	eP PP PPP P* Pg Lq iS SS Lr SSS S* Sg/M	21 51 06 51 15 51 20 51 27 51 52 52 39 52 52 53 03 53 08 53 15 53 26 53 51	1020 Moderate.

DATE STATION COMPT. PHASE G. M. T. Δ REMARKS
h. m. s. km.

Oct.
1954

27 Contd.	New Delhi	N N,E N	iP PPP i iS Lr	21 51 28 51 52 52 11 53 34 53 54	1230	Slight.
	Chatra	Z E	i e	21 52 19 58 12		Slight, near. Surface waves.
	Calcutta	E	e e Mn	21 52 36 57 10 22 03 54		Slight, distant. Amp. = 23mm.
	Shillong	Z N E	eP eP eS	21 53 05 53 08 56 35	2120	Slight.
	Bombay	N,E E N,E	eP eS e	21 53 36 57 30 57 41	2380	Slight.
	Poona	Z	eP PP PPP eS Lq SS SSS Lr M	21 53 37 54 06 54 17 57 39 58 06 58 24 58 37 59 10 22 00 57	2480	Slight.
	Madras	E	eP	21 54 16		Tremor.
	Hyderabad	E	e M	22 00 51 02 54		Amp. = 2mm.
28	Shillong	Z	eP	06 29 25		Slight.
28	Shillong	Z	eP	06 35 09		Very feeble.
28	Shillong	Z	iP e e	07 09 58 10 55 11 23		Slight.
28	Dehra Dun	N,E	i	07 12 10		Tremor.
28	Shillong	Z	eP	09 44 12		Very feeble.
28	Epc: 35°N, 70°E. Afganistan. - H = 14h 36m 33s (Shillong) 36°N, 69½°E. - h = 100 km. Ca. - H = 14h 36m 28s (U.S.C.G.S).					
	Dehra Dun	N,E	eP PP PPP Px Lq	14 38 35 38 43 38 49 38 56 39 59	910	Moderate.

DATE STATION COMPT. PHASE G. M. T. Δ REMARKS
h. m. s. km.

Oct.
1954

28 Contd.	Dehra Dun	N,E	iS SS Lr SSS S*	14 40 10 40 20 40 23 40 31 40 38 41 01		
	New Delhi	N,E E	iP PP Pg Lq iS SS Lr SSS S*	14 38 44 38 52 39 01 39 29 40 25 40 37 40 44 40 49 40 58 41 22	980	Slight.
	Chatra	Z	iP PP PPP iS SS SSS Lr M	14 40 23 40 40 40 49 43 22 43 43 43 54 44 04 45 24	1790	Slight.
	Poona	Z	eP PP eS SS SSS Lr M	14 40 32 40 45 43 38 44 00 44 12 44 25 45 48	1860	
	Shillong	Z E	eP eS e	14 41 10 45 00 14 46 10	2330	Slight. Tremor.
	Madras	E	eP	15 11 16		Very feeble.
28	Shillong	Z	eP	15 20 39	280	Feeble.
28	Shillong	Z	eP Sg	21 19 16 53 19 53 31		Very feeble.
28	Shillong	Z	eP e	18 30 15 30 34		Feeble.
28	Shillong	Z	eP e	07 52 15 52 31		Very feeble, local.
29	Shillong	Z	eP e	11 22 05 32 57		Slight, distant.
29	Shillong	Z	eP i	11 26 00 28 16 33 53		Distant and feeble.
29	Bombay	E	e e i			

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Oct. 1954						km.	
29	Shillong	Z	ePg Sg	18	03	21	40 Local, slight.
						03 26	
29	Shillong	Z	iP Sg	18	40	36	230 Slight, local.
						41 07	
29	Shillong	Z	i	19	55	53	Very feeble.
29	Shillong	Z	iP	20	12	50	Slight.
29	Shillong	Z	ePg Sg	20	59	04	140 Slight, local.
						59 21	
29	Shillong	Z	eP	21	46	51	Slight, distant.
29	Shillong	Z	eP P* Sg/M	22	38	06	360 Feeble.
						38 09	
						38 59	
30	Bombay	E	e i	00	20	35	Surface waves only.
						28 15	
30	Shillong	Z N,Z	iPg Sg	00	20	56	130 Slight, local.
						21 12	
30	Shillong	Z	eP PP P* S Sg	05	39	56	370 Slight.
						40 02	
						40 06	
						40 51	
						41 21	
30	Shillong	Z	iP	16	14	34	Slight.
30	Shillong	Z	eP	16	47	51	Very feeble, distant.
30	Shillong	Z	eP	16	59	41	Very feeble, distant.
30	Shillong	Z	iP	18	12	15	Local, slight.
30	Shillong	Z	eP	18	39	21	Slight, distant.
30	Shillong	Z,E	eP	19	41	02	Slight, distant.
		E	e e	19	42	29	Local, slight.
						45 39	Phases not clear.
						46 41	
30	Shillong	Z	eP e e	22	00	40	Slight, distant.
		N				00 47	
						07 20	
30	Shillong	Z	eP	22	37	05	Feeble, distant.
30	Poona	Z	e	23	03	30	Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Oct. 1954						km.	
	Shillong	Z	eP	23	51	12	Slight, distant.
30	Bombay	E	i	23	55	12	Surface waves.
30	Shillong	N,E	ePg Sg	02	21	40	70 Strong, local shock felt.
						21 52	
31	Shillong	Z	eP	04	53	41	Slight, distant.
31	Shillong	Z	eP	08	13	03	Slight, distant.
31	Bombay	E	e	09	59	45	Slight, distant.
31	Shillong	Z N	eP eP i	23	25	46	
						25 47	
						36 33	
31	Colombo	E	P e e M	23	26	03	Amp. = 0.4mm.
						37 21	
						58 21	Distant and slight.
						00 05 21	
31	Bombay	E	e e e	23	26	56	
						33 56	
						37 44	Feeble, distant.
31	Shillong	Z	eP	23	46	46	

Earthquake Reports
(Non Instrumental Reports)

The following is the list of earthquakes as reported by the Voluntary Observers from different places during the month of October 1954.

Place at which felt	Date in G. M. T.	Time in G. M. T.	No. of Shocks	Duration of shocks in Secs.	Intensity in R.F. scale	Remarks
Shillong	09 Oct.	21 18	1	3	V	-
Shillong	22 Oct.	04 42	1	4	III	-
Gauthati	22 Oct.	14 15	1	15	V	Appeared coming from NE direction

SEISMOLOGICAL BULLETIN



Published under the direction of

Shri S. Basu, M.Sc., F.N.I.,

Director General of Observatories

Instruments and their constants

Station	Instrument	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/sec
Bombay	Milne-Shaw	N-S	12.0	350		
	Milne-Shaw	E-W	12.0	350	18:1	
	Sprengnether Microseismograph	E-W	To = Tg = 7.0	-	9:1	16
						30
Calcutta	Milne-Shaw	E-W	10.0	150		
	Wood-Anderson	N-S	2.0	870	20:1	
	Omori-Ewing	N-S	18.0	32	Critical	8
	Omori-Ewing	E-W	19.0	30		30
Chatra	Benioff	Z	To=0.72 Tg=0.45	-	Critical	25
	Wood-Anderson	N	1.0	1000		60
	Wood-Anderson	E	1.0	1000	30:1	60
	Milne-Shaw	E	12.0	250	40:1 20:1	60 16
Colombo	Milne-Shaw	E-W	12.0	250	20:1	
Dehra Dun	Milne-Shaw	N-S	12.0	250	20:1	16
	Milne-Shaw	E-W	12.0	250	20:1	16
	Wood-Anderson	N-S	0.8	800	60:1	60
	Wood-Anderson	E-W	0.8	950	60:1	60
Hyderabad	Milne-Shaw	N-S	12.0	252	20:1	8
	Milne-Shaw	E-W	12.0	253	20:1	8
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8
Madras	Sprengnether Microseismograph	E-W	To = Tg = 7.2	-		30
New Delhi	Milne-Shaw	N-S	12.0	288	20:1	8
	Wood-Anderson	N-S	4.0	1070	20:1	16
	Wood-Anderson	E-W	2.0	1841	30:1	60
	Omori-Ewing	E-W	28.0	30	1	12
Poona	Sprengnether Microseismograph	Z	To=1.5 Tg=1.5	-		30
	Wood-Anderson	E-W	4.0	1100	20:1	16
	Milne-Shaw	N-S	12.0	250	20:1	8
Shillong	Milne-Shaw	N-S	12.0	250	20:1	8
	Benioff Short Period	Z	To=1.05 Tg=0.18	-		60
	Wood-Anderson	E-W	0.8	1000		30
	Wood-Anderson	N-S	0.8	1000		30
	Wood-Anderson	N-S	0.8	1000		30
				4.0	1120	

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov 01 1954	Shillong	Z	eP	00 39 11		Very feeble.
01	Shillong	Z	eP	06 04 21		Feeble, near.
01	Shillong	Z	eP	06 09 00		Very slight, distant.
01	Dehra Dun	N	e	11 13 53		Tremor.
01	Dehra Dun	N	e	18 22 47		Tremor.
01	Dehra Dun	N,E	e	21 14 21		Feeble, phases not clear.
	Bombay	E N E	eP eP eS	21 15 09 15 13 19 18	2590	Feeble.
	Poona	Z	eP PP PPP eS Lq Lr	21 15 19 15 59 16 11 19 45 20 15 21 23	2850	Slight.
	Shillong	Z	eP	21 16 44		Slight, distant.
01	Dehra Dun	N	e	23 40 35		Tremor.
02	Shillong	Z N,E	iP P* eS S* Sg	02 40 27 40 29 40 58 41 02 41 07	270	Slight.
	Dehra Dun	N	e	02 46 07		Tremor.
02	Shillong	Z	iP P* Pg S* Sg	03 15 52 15 56 16 01 16 28 16 23	270	Feeble.
02	Epc:	7°S, 121.5°E.	In the Floris Sea.			
			- H = 08h 24m 09s (Shillong)			
		7.5°S, 119°E.	- H = 08h 24m 08s (U.S.C.G.S)			
		8°S, 119°E.	- H = 08h 24m 10s (B.C.I.S);			
	Colombo	E	P S L M	08 32 00 38 30 47 50 52 46	4830	Amp. = 14.8mm.

DATE	STATION	COMPT.	PHASE	C. M. T.	△	REMARKS
				h. m. s.	km.	

Nov.
1954

02 Contd.	Shillong	Z N,E	iP	08 32 08	4720	Moderate compression, first ground movement west.
			PP	33 54		
			PPP	34 30		
			iS	38 31		
			PS	38 38		
			PPS	38 39		
			N SS	42 01		
			E SS	42 05		
			N Lq	42 30		
			N Lr	44 00		
M	46 35					

Madras	E	P	08 32 20	5060	Moderate.
		e	32 39		
		PcP	34 18		
		PPP	34 59		
		ScP	38 01		
		eS	39 02		
		PPS	39 19		
		SS	42 10		
		ScS	42 19		
		Lq	42 54		
		Lr	45 03		
		M	48 36		

Kodaikanal	E	iP	08 32 36	4850	Earthquake of moderate intensity.
		PP	34 21		
		PPP	35 09		
		S	41 39		
		SS	44 51		
		Lq?	45 39		
		Lr	47 54		
		M?	51 36		

Chatra	E	eP	08 32 42	5190	Great.
		PcP	34 19		
		PP	34 30		
		PPP	35 19		
		PcS	38 11		
		iS	39 32		
		SS	42 53		
		Lq	43 35		
		Lr	45 53		
		M	50 20		

Hyderabad	E,N	iP	08 32 51	5220	Per. = 15mm $\lambda = 9$
		PP	32 51		
		iS	39 43		
		ScS	42 22		
		SS	43 35		
		L	47 40		
		M	50 29		
		M	51 04		

Amp. = 89mm.
Amp. = 127mm.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	

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02 Contd.	Poona	Z N	eP	08 33 20	5700	Great shock.
			PcP	34 35		
			PP	35 24		
			iS	40 39		
			PS	40 47		
			PPS	40 55		
			ScS	43 03		
			SS	44 21		
			Lq	45 57		
			Lr	48 31		
M	52 55					

Bombay	N,E E N,E N	eP	08 33 29	5930	Moderate.
		iP			
		PcP	34 28		
		PP	35 49		
		PPP	36 46		
		PcS?	38 27		
		e	40 16		
		eS	41 00		
		iS			
		ScS	43 18		
		SS	44 42		
		e	45 19		
		SSS(Lq)	46 42		
e	47 41				
Lr?	50 30				
i	53 08				
M	56 34				
M	57 48				

Another shock
is mixed up with
this shock in the
beginning and
later it is a case
of multiple shock.Amp. = 86mm
Amp. = 53mm.

Dehra Dun	N,E	eP	08 33 44	6110	Moderate.
		PcP	34 38		
		PP	35 49		
		PPP	37 03		
		PcS	38 25		
		iS	41 25		
		PS	41 33		
		PPS	41 42		
		ScS	42 56		
		SS	44 58		
		SSS	47 27		
		Lq	47 32		
		Lr	50 09		
		M	54 47		

New Delhi	N,E N	eP	08 33 39	5950	Great.
		PP	35 39		
		PPP	36 45		
		PcS	38 46		
		eS	41 11		
		i	41 51		
		i	43 30		
		ScS	44 32		
		SS	45 10		
		i	45 50		

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Nov. 1954						km.	
02	New Delhi	N	SSS	08	46	07	
Contd.	Contd.		Lq		46	12	
			Lr		48	20	
			M		53	00	
	Bombay	E	i	08	37	06	Moderate shock super imposed on the preceding shock. Amp. = 59mm Amp. = 25mm.
			i		46	16	
			M		59	16	
		N	M	09	03	34	
02	Shillong	Z	i	08	46	40	Tremor.
02	Shillong	Z	iP	09	16	31	240 Feeble.
			P*		16	33	
			Pg		16	36	
			S*		16	59	
			Sg		17	04	
02	Shillong	Z	i	09	26	09	Very feeble, rarefaction.
02	Shillong	Z	e	09	52	07	Tremor.
02	Shillong	Z	e	10	09	14	Feeble.
		E	e		10	24	
			e		15	05	
	Poona	Z	eP	10	12	05	Feeble shock, phases not clear.
		N	e?		23	29	
02	Shillong	Z	i	10	29	00	Very feeble, rarefaction.
02	Shillong	Z	i	10	34	46	Very feeble. Compr- essions. Distant.
02	Shillong	Z	i	10	47	47	Feeble rarefaction. Distant.
02	Poona	Z	e	15	48	58	Tremor.
02	Shillong	Z	e	16	12	34	Tremor.
02	Dehra Dun	N	e	16	19	41	Tremor.
02	Shillong	Z	e	16	45	43	Tremor, near.
			e		46	24	
02	Shillong	Z	e	20	57	31	Tremor, near.
			e		57	33	
			e		57	42	
02	Shillong	Z	e	21	52	48	Tremor, near.
			e		53	31	

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Nov. 1954						km.	
02	Shillong	Z	e	22	39	08	Tremor, near.
			e		39	11	
03	New Delhi	E N,E	eP?	00	25	12	680 Slight.
			Lq		26	12	
			iS		26	23	
			S*		26	40	
	Dehra Dun	N	e	00	26	21	Tremor.
	Shillong	Z	e	00	31	06	Tremor.
			e		10	13	
03	Shillong	Z	i	03	25	32	Very feeble compression.
	Poona	Z	e	03	26	36	Tremor.
03	Shillong	Z	e	04	32	16	Tremor, near.
03	Shillong	Z	eP	07	42	18	470 Very feeble, near.
			Pg		42	36	
			S		43	09	
			S*		43	20	
			Sg		43	30	
03	Shillong	Z	i	09	00	43	Compression, tremor distant.
03	Shillong	Z	iP	10	54	02	240 Slight, near.
		N	Sg		54	35	
	Dehra Dun	N	e	10	59	45	Tremor.
03	Dehra Dun	N	e	12	24	50	Tremor.
03	Shillong	Z	i	16	30	33	Tremor, distant.
03	Shillong	Z	e	16	16	01	Tremor, distant.
03	Shillong	Z	Pg	18	33	46	Tremor.
			Sg		33	56	
03	Dehra Dun	N	e	23	19	56	Tremor, distant.
04	Shillong	Z	e	01	08	35	Near, tremor.
	Shillong	Z	i	10	39	41	Tremor.
					40	19	
04	Shillong	Z	e	04	05	16	Tremor, distant.
04	Shillong	Z	i	04	07	40	Tremor, distant.
	Shillong	Z	e	16	14	14	Compression, tremor.
			i	19	23	47	

DATE	STATION	COMPT.	PHASE	G. M. T.			Δ	REMARKS
				h.	m.	s.		
Nov. 1954								
04	Shillong	Z	i e	23	12	43 13 13		Tremor, near.
05	Shillong	Z	i e	04	11	26 11 45		Very feeble, near.
5	Shillong	Z	e	01	11	21		Tremor, near.
05	Shillong	Z	e	09	19	21		Very feeble, distant.
	Bombay	E	e e	09	20	57 49 00		Very fe ble
05	Shillong	Z	e	15	45	11		Tremor, distant.
05	Shillong	Z	i	19	24	26		Tremor.
05	Shillong	Z	i	22	56	37		Feeble.
	Bombay	E	eP eS M	22	58	24 23 07 56 34 23	8220	
06	Dehra Dun	N,E	e i i	07	36	02 38 03 38 53		Slight, phases not clear.
	New Delhi	N,E E N,E E N,E	eP i PPP i iS SS Lr S*	07	36	06 36 17 36 26 37 00 37 52 38 06 38 12 38 26	1030	Slight.
	Shillong	Z	i e	07	38	27 38 35		Feeble, distant.
	Shillong	Z	i	07	52	08		Tremor
06	Bombay	E	e e	13	14	09 18 31		Very feebly reco- rded in Milne-Shaw N-S component.
06	Shillong	Z	iP P* S* Sg	21	02	28 02 31 02 59 03 08	280	Very feeble, near.
06	Shillong	Z	e e	21	28	48 29 35		Tremor.
06	Shillong	Z	i	21	44	10		Tremor.
06	Poona	Z	e	22	58	23		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.			Δ	REMARKS
				h.	m.	s.		
Nov. 1954								
06	Shillong	Z	e e e	23	00	13 00 57 01 15		Tremor.
06	Shillong	Z	P S S* Sg	23	44	10 44 34 44 37 44 39	210	Very feeble, near.
	Shillong	Z	i	00	23	19		Tremor, distant.
07	Shillong	Z	e e	00	36	57 37 33		Tremor.
07	Shillong	Z	e	05	32	46		Tremor.
07	Shillong	Z	i	07	15	52		Very feeble. Comp- ression. Distant.
07	Shillong	Z	e	07	17	37		Tremor.
07	Poona	Z	i	07	27	40		Tremor. Rarefaction.
07	Shillong	Z	e i i	07	40	35 42 06 42 09		Feeble, phases not clear.
07	Dehra Dun	N,E	i i	07	43	10		Very feeble. Compression.
07	Shillong	Z	i	08	49	19		Tremor. Rarefaction.
07	Shillong	Z	e	10	58	24		Feeble.
07	Bombay	E	e	16	38	27		Tremor.
07	Shillong	Z	e	19	49	49		Tremor.
07	Shillong	Z	i	19	59	34		Very feeble. Compression.
07	Shillong	Z	e	21	52	16		Very feeble. Distant.
07	Shillong	Z	iP P* S* Sg	22	47	53 47 56 48 24 48 34	290	Very feeble.
07	Shillong	Z	i	23	01	09		Tremor. Compression.
07	Shillong	Z	e e	23	44	56 45 37		Tremor.
07	Shillong	Z	e	05	44	20		Very feeble.
08	Shillong	Z	e	07	23	29		Tremor.
08	Dehra Dun	N						

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Nov. 1954							
08	Shillong	Z	e	15	34	45	Tremor, near.
			e		35	00	
08	Shillong	Z	e	15	43	47	Tremor.
08	Shillong	Z	e	16	01	41	Tremor, near.
			e		01	21	
08	Shillong	Z	e	16	53	48	Tremor.
08	Shillong	Z	e	17	39	35	Tremor.
			e		40	06	
08	Shillong	Z	e	21	19	13	Tremor.
08	Shillong	Z	e	21	50	57	Tremor.
08	Shillong	Z	i	22	14	21	Tremor, near.
			e		14	27	
08	Shillong	Z	e	22	20	09	Tremor.
08	Shillong	Z	i	22	59	12	Tremor, distant.
08	Shillong	Z	i	23	19	27	Tremor.
09	Shillong	Z	iP	09	53	08	Slight.
09	Shillong	Z	eP	14	46	24	Feeble.
09	Shillong	Z	i	22	15	05	Near.
10	Shillong	Z	e	06	38	22	Feeble.
10	Shillong	Z	e	07	33	30	Feeble.
10	Shillong	Z	e	10	24	06	Near, slight.
			e		24	35	
10	Shillong	Z	iP	11	04	44	550 Slight.
			PP		04	58	
			S/Lr		05	42	
			M/SSS		06	06	
10	Shillong	Z	iP	11	08	55	800 Slight.
			S		10	18	
10	Shillong	Z	eP	13	38	22	Near.
10	Shillong	Z	eP	15	34	14	
			i		34	20	
10	Shillong	Z	iP	15	45	02	Feeble.
10	Shillong	Z	e	20	30	38	Feeble.

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Nov. 1954							
11	Bombay	N,E	iP	05	18	58	2350 Slight.
		E	i		20	05	
		N,E	eS		22	50	
		E	Lq		23	10	
			SS		23	17	
			L		24	06	
	New Delhi	N,E	iP	05	19	14	2020 Slight.
		N	PP		19	38	
		N,E	PPP		19	49	
			eS		23	09	
		N	Lq		23	18	
			SS		23	35	
	Dehra Dun	N,E	e	05	19	29	Slight, phases not clear.
	Madras	E	iP	05	20	24	Slight.
			eS?		24	37	
	Shillong	Z	iP	05	21	12	Slight.
11	Shillong	Z	eP	05	57	44	Near.
11	Shillong	Z	iP	06	29	11	
11	Shillong	Z	Pg	06	59	37	160 Tremor.
			Sg		59	55	
11	Shillong	Z	e	07	43	43	Tremor.
11	Shillong	Z	e	10	46	17	Tremor.
11	Shillong	Z	eP	15	17	15	1480 Slight.
			iS		19	45	
			Lq		19	48	
			SS		20	06	
			M		21	36	
	Bombay	E	e	15	27	38	Surface waves in Milne-Show (N-S) also there are some surface movements.
	Madras	E	e	15	30	00	Phases not clear.
11	Shillong	Z	iP	19	38	37	Slight.
11	Shillong	Z	eP	19	57	21	Slight.
11	Shillong	Z	iP	20	31	44	Slight.
11	Shillong	Z	iP	23	32	20	Tremor.
11	Shillong	Z	e	00	45	01	Near.
12	Shillong	Z	i	04	27	08	
			i		27	47	
12	Shillong	Z	i				

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15	Dehra Dun	N, E	eP	16 36 47	6550	Moderate.
Contd.			PcP	37 23		
			PP	38 58		
			PPP	40 17		
			PcS	40 56		
			iS	44 53		
			PS	45 02		
			PPS	45 20		
			ScS	46 07		
			SS	49 35		
			SSS	52 01		
		N	Lr	55 35		
			M	17 00 56		
	New Delhi	E	eP	16 36 50	6610	Moderate.
		N	PcP	37 34		
			iS	44 59		
			ScS	46 16		
	Madras	E	iP	16 36 52	7110	Moderate shock.
			PcP	37 30		
			PP	39 04		
			PPP	40 41		
			PcS	41 30		
			S	45 08		
			PS	45 29		
			i	45 58		
			ScS, SS	46 24		
			SSS	48 59		
	Hyderabad	E	eP	16 36 56	6800	
			iS	45 16		
			ScS	46 28		
			L	56 12		
			M	17 01 47		$\mu = 3\text{mm.}$
	Poona	Z	eP	16 37 21	7140	Slight.
		N	PP	39 50		
			PPP	41 13		
			PcS	41 31		
			iS	45 59		
			ScS	46 59		
			SS	50 20		
			SSS	53 24		
			Lq	54 35		
			Lr	57 47		
			M	17 03 36		
	Bombay	N, E	eP	16 37 27	7610	Moderate.
			PP	38 15		
			iS	46 11		
			ScS	47 04		
			sS	47 27		
	Kodaikanal	E	e?	16 45 43		Tremor.



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15	Shillong	Z	P	19 43 30	250	Near.
			P*	43 33		
			Pg	43 37		
			S	43 59		
			Sg	44 05		
15	Shillong	Z	eP	22 51 57		Slight.
16	New Delhi	E	eP	11 05 11	9780	Slight.
			PPP	05 25		
			Pg	05 56		
			eS	06 52		
		N, E	SS	07 03		
		E	Lr	07 07		
			S*	07 26		
			Sg	07 59		
	Dehra Dun	N, E	e	11 06 22		Feeble, phases not clear.
17	Shillong	Z	e	16 23 41		Tremor.
17	Epc:	19°N, 145°E.				Mariana Islands Region. - h = 600 km Ca. - H = 17h 18m 15s (U.S.C.G.S).
	Chatra	Z	i	17 18 48		Slight distant.
		E	e	33 23		
	Shillong	Z, E	iP	17 26 16	4620	Slight.
		Z	i	27 26		
		E	PPP	28 12		
		Z, E	eS	32 33		
			PS	32 37		
			PPS	32 44		
		E	SS	35 38		
			SSS	36 28		
	New Delhi	N, E	i	17 27 44		
			i	35 21		
			e	36 31		
	Poona	Z	eP	17 28 15	6500	Slight.
		E	PP	30 25		
			PPP	31 52		
			iS	36 18		
			PS	36 29		
			PPS	36 41		
			SS	40 02		
			SSS	42 27		
			Lq	42 53		
			M	50 19		
	Bombay	N, E	eP	17 28 22	6610	Slight, deep.
			iS	36 31		
	Dehra Dun	E	e	17 28 41		Tremor.

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17	Shillong	Z	iP	17 30 22		Slight.
17	Dehra Dun	N,E	e	18 05 11		Tremor.
18	Shillong	Z,N	iPg Sg	00 13 25 13 29	40	Slight.
18	Dehra Dun	N,E	e i	00 48 37 50 40		Feeble. Phases not clear.
	New Delhi	E	eP P* Pg eS Lr SS S* Sg	00 48 49 49 02 49 13 49 57 50 03 50 08 50 15 50 29	650	Slight.

18 Shillong Z iP 05 12 17 Slight.

18 Epc: 49°N, 155°E; In Kurile Islands Region. -h = 100 km Ca.
49°N, 155°E; -h = 100 km Ca. -H = 05h 20m 04s (U.S.C.G.S)
Magnitude = 6½ (Pra' a, Skalnate Pleso); 6 (Kiruna).
-H = 05h 20m 00s (MO. Japan)

Shillong Z,E iP 05 29 17 5810 Slight.

N	iP	29 41
	eP	30 33
	i	32 46
	PP	36 42
	PcP	36 53
	iS	37 06
	eS	40 42
E	PS	45 47
	PPS	52 03
	SS	
	Lr	
	M	

Chatra

Z	e	05 29 34
E	e	-- 52 --

Hyderabad

N	eP	05 30 56	7400
	S	39 47	
	M	57 51	

Madras

E	iP	05 31 11	7710	Slight shock.
	PcP	31 23		
	PPP	35 41		
	iS	40 18		
	SKS	40 37		

/u = 8mm

Slight, distant.
surface waves.

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18	Poona	Z	iP	05 31 13	7750	Slight.
		E	PP	33 51		
			PPP	35 31		
			iS	40 21		
		N	PS	40 44		
			PPS	40 59		
			SS	44 53		
			SSS	47 49		
			Lq	49 49		
			Lr	52 30		
			M	58 04		

	Bombay	N,E	iP	05 31 14	7730	Moderate. Probably deep.
		N	eS	40 22		
		E	iS			
		N	e	41 36		

	Colombo	E	P	05 41 09		Amp. = 0.2mm.
			L	06 00 00		
			M	10 34		

18 Shillong Z iP 06 09 36 Tremor.

18 Shillong Z e 06 40 17 Tremor.

18 Shillong Z e 07 51 47 70 Slight.

18 New Delhi N,E iP 10 21 58 Tremor.
iSg 22 06

Dehra Dun N i 10 22 46 Slight, near.

18 Shillong Z i 11 06 46 Slight.

18 Shillong Z i 16 50.34 Feeble.
50 43

18 Shillong Z e 17 57 15 Feeble.

18 Shillong Z e 18 00 01 Feeble.

18 Shillong Z e 18 17 55 200 Slight.

18 Shillong Z eP 18 49 55

18 Shillong Z P* 49 56

18 Shillong Z Pg 49 59

18 Shillong Z S 50 19

18 Shillong Z iSg 50 23

18 Shillong Z e 50 25

18 Epc: 39°N, 142°E; -H = 20h 44m 55s (U.S.C.G.S)
38.9°N, 142.3°E; -H = 20h 44m 57s (CMD Japan & B.C.I.S.)
Magnitude = 6½ (Uppsala); 6½ (Kiruna, Rome & Skalnate Pleso).

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				h. m. s.	km.	
18 Contd.	Shillong	Z,E N	iP eP	20 53 03	4740	Moderate.
		E	PcP/PP PPP	54 44 55 25		
		N,E	iS PS	59 27 59 31		
		N	PPS SS SSS M	59 40 21 03 27 04 18 08 44		
	Chatra	Z E	iP eP PP eS M	20 53 29	5150	Slight.
				55 15 21 00 17 10 10		
						Per. = 15 Secs $\mu = 0.5\text{mm.}$
	Dehra Dun	N	eP	20 54 09		Feeble. Phases not clear.
	New Delhi	N,E N	iP i eS ScS SS	20 54 18 54 34 21 01 51 04 01 05 22	5960	Slight.
	Madras	E	iP PcP iS PS	20 55 05 55 42 21 03 16 03 34	6640	Slight shock.
	Poona	Z N	iP PP PPP iS PS PPS SS SSS Lq Lr M	20 55 15 57 33 58 59 21 03 31 03 44 03 56 07 29 10 03 10 30 13 22 18 33	6720	Slight.
	Bombay	N,E E	iP iS PPS?	20 55 19 21 03 43 04 19	6890	Moderate. Somewhat deep.
18	Shillong	Z	eP	20 58 37		Slight, distant.
18	Shillong	Z	iP	21 01 22		Slight, distant.
19	Shillong	Z	e i	04 57 58 58 19		Slight. Local.

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DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
19						Epc: In Sea of Japan. - h = 570 km Ca. - H = 05h 56m 04s (Shillong) 41°N, 131½°E; - h = 600 km Ca. - H = 05h 56m 03s (U.S.C.G.S) 41.2°N, 131.8°E; - H = 05h 56m 00s (GMO, Japan) Magnitude = 6¼ (Kiruna); 6¼-6½ (Uppsala).
	Shillong	Z,N,E E	iP i PP pP sP iS sS	06 02 21 02 55 03 20 04 01 04 54 07 19 13 10	4020	Moderate.
	Chatra	Z,E E	iP PP iS e? Lr M	06 02 46 03 56 08 06 10 48 11 48 15 --	3700	Slight. Deep focus. Suppressed.
	Dehra Dun	N,E N	eP PP PPP PcP PcS iS Lq SS SSS ScS Lr M	06 03 25 04 57 05 23 05 29 09 10 09 20 11 55 12 20 12 30 13 11 13 47 17 21	4260	Moderate.
	New Delhi	N,E N	iP pP i iS isS i i	06 03 36 05 13 05 31 09 39 12 27 14 05 15 29	4380	Moderate. Deep focus. Direction of first motion south and west.
	Hyderabad	E N E	iP iS iS SS L M M	06 04 15 10 48 10 53 13 59 17 15 20 52 21 05	1410	Amp. = 5mm. Amp. = 3mm.
	Madras	E	P pP S sS	06 04 20 06 14 11 18 14 35	5890	Deep shock. Moderate.



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h. m. s. km.

19 Poona Z iP 06 04 36 5280 Slight.
Contd. N PP 06 20
PPP 07 07
iS 11 30
PS 11 37
PPS 11 45
SS 14 49
Lq 15 37
SSS 15 52
Lr 17 52
M 21 39

Bombay N,E iP 06 04 41 6090 Moderate.
pP 06 27
iS 11 39
sS 13 27

Colombo E P 06 04 51 7480
S 13 46
L 22 00
M 26 04

Kodaikanal E iP 06 04 53 5690 Slight.
S 12 00

19 Hyderabad E iP 06 05 56 5440
iS 13 00

19 Dehra Dun N e 17 50 53 Tremor.

20 Epc: $30.5^{\circ}N, 82^{\circ}E$; Nepal—Tibet Frontier.
- H = 13h 09m 25s (Shillong).

Dehra Dun N,E eP 13 10 26 350 Slight.
P* 10 30
PP 10 33
Pg 10 37
PPP 10 39
Lq 10 54
iS 11 06
S* 11 13
SS 11 16
Sg 11 20
SSS 11 27

New Delhi N,E eP 13 10 37 480 Slight.
E PP 10 44
N,E Pg 10 53
Lq 11 18
iS 11 28
S* 11 39
Sg 12 49
SSS 12 52

Chatra Z iP 13 10 57 670 Slight.
E eP
Z,E iS 12 07
M 12 40

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20
Contd.

Shillong Z,E iP 13 11 47 1120 Slight.
E PP 11 52
Lq 13 33
eS 13 42
Lr 14 00
M 14 41

Poona N,E iP 13 12 39 1430 Slight.
Z eS 15 05
N SS 15 17
E SSS 15 27

Bombay E eP 13 12 47 1480 Slight.
N,E Lq 15 08
E eS 15 17
e 16 17
i 17 00
e 17 10

Madras E eP 13 16 25 Tremor.

Hyderabad E eP 13 16 27 Tremor.

20 Dehra Dun N e 16 59 25

20 Epc: $27.5^{\circ}N, 82.5^{\circ}E$. India—Nepal Border
- H = 19h 06m 18s (Shillong).

Dehra Dun N,E eP 19 07 02 370 Slight.
N P* 07 07
PP 07 10
Pg 07 14
PPP 07 16
Lq 07 32
Lr 07 40
iS 07 42
S* 07 48
SS 07 51
Sg 07 55
SSS 08 02

Chatra Z i(P) 19 07 32 670 Slight.
i(S) 08 42
M 09 15

Shillong Z eP 19 08 15 940 Slight.
PP 08 24
P* 08 45
Lq 09 50
eS 10 02
Lr 10 17

Poona Z iP 19 09 17 1410 Slight.
PPP 09 33
eS 11 40
SS 11 54
M 13 13

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Nov. 1954							
20	Bombay	E	e	19	12	04	Feeble.
Contd.			e	13	23		
			e	13	36		
			e	13	52		
20	Shillong	Z	e	20	06	13	Slight, local
			e	6	24		
21	Shillong	Z	iP	04	56	36	Slight.
21	Shillong	Z	iP	05	12	40	Slight.
21	Dehra Dun	N	e	07	22	38	Tremor.
21	Shillong	Z	iP	07	23	27	Slight.
21	Shillong	Z	iP	07	31	14	Slight.
21	Shillong	Z	iP	07	33	47	Slight.
21	Shillong	Z	iP	07	37	16	Slight.
21	Shillong	Z	e	07	54	46	Slight, distant.
			e	55	42		
			e	08	02	12	
	Bombay	E	e	07	56	00	Distant shock. Feebly recorded.
			e	08	03	09	
			e	05	41		
			e	07	06		
	Kodaikanal	E	e	07	56	24	Probably a long distant, Tremor.
21	Shillong	Z	e	07	59	09	
			e	59	34		Feeble.
	Poona	Z	eP	07	59	46	Slight distant shock. Phases not clear.
21	Hyderabad	E	e	08	05	18	Amp. = 6mm. Amp. = 3mm.
		N	M	40	01		
		E	M	43	04		
21	Colombo	E	L	08	32	00	Amp. = 0.8mm.
			M	44	00		
21	Shillong	Z	iP	08	49	02	Slight.
21	Madras	E	M	09	10	47	Moderate shock. Other phases not clear.
21	Shillong	Z	eP	10	57	31	
			e	57	51		Slight, local.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Nov. 1954							
21	Shillong	Z	iPg iSg	15	15	15	120 Slight.
				15	29		
21	Shillong	Z	iP	16	25	11	Slight.
21	Poona	Z	e	16	27	01	Tremor.
21	New Delhi	N,E	eP	19	07	12	470 Slight.
		E	P*	07	21		
		N,E	Pg	07	28		
		N	Lq	07	52		
		N,E	iS	08	02		
			S*	08	13		
			Sg	08	24		
21	Dehra Dun	N,E	e	19	21	05	Tremor.
			i	19	22	14	Feeble.
21	Shillong	Z	i	21	03	40	Slight, local.
21	Shillong	Z	e	07	25	56	
22	Shillong	Z	e	26	20		Slight.
22	Shillong	Z	e	09	41	37	Feeble.
			e	41	50		
			e	42	49		
22	Shillong	Z	iP	15	20	55	Slight.
22	Shillong	Z	i	17	00	10	Slight.
22	Shillong	Z	e	17	05	09	90 Slight.
22	Shillong	Z	ePg/P*	17	37	49	Feeble.
			PP	37	58		
			eSg	38	00		
			S	38	03		
22	Shillong	Z	e	17	56	7	Slight.
22	Dehra Dun	N	e	18	46	32	930 Slight.
			i	47	57		
	New Delhi	E	eP	18	46	45	930 Slight.
			PPP	46	58		
			P*	47	04		
			Lq	48	09		
			eS	48	27		
		N,E	Lr	48	34		
		E	S*	48	52		
		N,E	i	49	07		
			Sg	49	18		
		E					

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22	Shillong	Z, N, E E	eP P* Pg i Lq iS SS Sg/M	21 33 52 34 02 34 12 34 29 34 38 34 39 34 58 35 23	540	Slight.
22	Poona	Z	e	21 37 23		Tremor.
	Bombay	N, E E	i e	21 37 35 41 40		Feeble, tremor.
	Dehra Dun	N	e	21 39 29		Tremor.
23	Shillong	Z	e i e i	02 25 13 25 19 26 15 27 05		Slight, local.

23 Epc: 28.8°N, 94.6°E; India -- China Border
- H = 02h 30m 59s (Shillong).
29°N, 95½°E; - H = 02h 30m 48s (U.S.C.G.S).

Shillong	Z N	iP eP	02 32 02	480	Moderate.
		P*/PP Pg Lq iS/Lr S*/SS Sg	32 10 32 20 32 41 32 53 33 06 33 19		

Chatra	Z	iP eP	02 32 44	860	Moderate.
		PP Lq iS Lr SSS M	32 52 34 00 34 13 34 22 34 35 34 59		

Dehra Dun	N, E	eP PPP Lq iS SS SSS Lr M PcP PcS ScS	02 34 29 34 49 37 00 37 10 37 22 37 31 37 42 38 59 39 42 43 12 46 46	1600	Moderate.
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1954

23
Contd.

New Delhi	E	eP i iS i SS SSS M	02 34 34 34 42 37 25 37 37 37 46 37 57 39 22	1700	Slight.
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Hyderabad	E	P S L	02 35 29 38 57 41 03	2100	
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Madras	E	iP PP PPP eS PcP Lq SS M	02 35 39 35 59 36 10 39 25 39 34 39 41 40 00 42 45	2290	Moderate shock.
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Poona	Z	iP eS Lq SS Lr M	02 35 50 39 39 39 54 40 15 40 50 42 41	2320	Moderate.
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Bombay	N E	eP iP PPP iS eS e Lq M	02 36 00 36 27 40 07 40 11 40 21 40 37 43 23	2610	Slight.
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Dehra Dun	N, E	eP PPP Lq iS SS Lr M PcP PcS ScS	02 34 29 34 49 37 00 37 10 37 31 37 42 38 59 39 42 43 12 46 44	1600	Moderate.
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New Delhi	E	eP i iS i SS SSS M	02 34 34 34 42 37 25 37 37 37 46 37 57 39 22	1700	Slight.
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DATE STATION COMPT. PHASES G. M. T. Δ REMARKS

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1954

23 Contd.	Kodaikanal	E	iP S	02 36 15 40 15		Tremor.
23	Poona	Z	iP	06 01 55		Tremor.
23	Bombay	N,E E	e e	10 11 14 21 01		Very feeble.
	Chatra	Z E	i e(M)	10 27 30 55 --		Per. = 15. /u = 0.75
	Bombay	E N E N E	eP eP PP eS eS PS PPS M	10 29 06 29 10 31 48 38 52 38 58 39 31 39 52 11 05 02	8510	Slight.
	Poona	Z N,S	iP PP PPP eS ScS SSS Lr M	10 29 06 32 20 34 05 39 27 39 32 48 17 55 35 11 02 42	9270	Slight.
23	Madras	E	eP	10 29 07		Tremor.
<p>Epc: 52°N, $160\frac{1}{2}^{\circ}$E; Off South-East coast of Kamchatka. - h = 60 km. - H = 21h 12m 55s (U.S.C.G.S). 50°N, 160°E; - H = 21h 12m 36s (Shillong). Magnitude = $6\frac{1}{2}$-$6\frac{3}{4}$ (Uppsala), $6\frac{1}{2}$ (Kiruna). 6-$6\frac{1}{4}$ (Pasadena, Hurbanovo); 6 (Praha, Skalnaté Pleso).</p>						
	Chatra	Z E	i e(M)	21 22 55 50 --		Slight, distant surface waves Per. = 15.0 /u = 2.0
	Poona	Z N,E N	iP eS PS PPS	21 24 27 33 56 34 29 34 51	81600	Slight.
	Bombay	E N E N	iP iP eS eS M M	21 24 28 24 30 33 59 34 03 22 00 29 00 29	8250	Slight.
	Madras	E	eP	21 24 30		Amp. = 2mm Amp. = 3mm Tremor.



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23 Contd.	Colombo	E	L M	21 53 -- 22 08 36		Amp. = 0.3mm Tremor.
23 Contd.	Kodaikanal	E	e	21 57 48		Tremor.
	Dehra Dun	N	e	04 42 56		Tremor.
25	Dehra Dun	N,E	eP PPP Lq iS SS Lr SSS S* Sg/M	06 34 13 34 27 35 31 35 45 35 56 35 58 36 07 36 13 36 35	890	Moderate.
	New Delhi	N,E E N,E E	eP PPP Pg eS SS SSS S* Sg	06 34 32 34 57 35 12 36 08 36 20 36 30 36 43 37 05	930	Slight.
	Poona	Z	i	06 39 37		Tremor.
25	Poona	Z	i	09 19 41		Tremor.
25	Dehra Dun	N	i i i i	11 34 54 35 18 40 08 45 54		Slight. Phases not clear.
	Shillong	N	PP SKS	11 35 11 41 19	11970	Slight, distant surface waves.
	Chatra	E	e e	11 35 12 12 09 30		Distant. Moderate.
	New Delhi	N	e i i i e i i i i i	11 35 23 38 16 41 38 44 57 45 29 45 57 45 38 51 10 54 48 58 57		
	Poona	N,S	PP PS PPS SS Lr M	11 36 43 46 24 47 58 53 27 12 14 23 14 40	12670	Moderate

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25 Contd.	Bombay	N,E	ePKP	11 36 46	7000	Moderate shock. Identification of phases not clear.			
			e	46 33					
			e	53 34					
			SS?	12 02 31					
Madras	E	1P	11 37 08	7000	Moderate shock.				
		PPP	42 33						
		SKS	46 58						
		SKKS	47 19						
		ScS	47 41						
		PS	43 16						
		PPS	49 16						
		SSP	53 50						
		SSS	57 06						
		Hyderabad	E,N			eP	11 37 41	8580	
						PP	40 23		
						iS	47 31		
SS	54 08								
SS	54 11								
Colombo	E	M	12 17 10		Amp. = 30mm				
		P	11 37 50						
25	Shillong	Z	S	54 52	8240	Slight.			
			L	12 09 55					
			M	19 35					
			Amp. = 2.0mm						
Chatra	E	eP	21 46 10	8240	Slight.				
		iS	55 44						
Poona	Z	e	21 50 30		Slight, distant.				
		e	56 08						
Bombay	N,E	i?	21 51 06		Feeble shock. Phases not clear.				
		i?	56 47						
Madras	E	e	21 51 53		Long distance, deep.				
		e	54 2						
		i	56 55						
27	Chatra	Z	iS	21 56 19		Moderate shock. Phases not clear.			
			Epc: Very near to Calcutta; - H = 16h 21m 18s (Shillong). Felt at Calcutta, Burdwan, Midnapore and Krishnagar.						
Shillong	Z	i	16 22 14	450	Slight.				
		Appears to be an earlier milder movement.							
New Delhi	E	eP	16 22 15	1160	Slight.				
		eS	23 03						
N,E	E	eP	16 24 04						
		eS	26 06						
		i	26 08						
		SS	26 17						
		Lr	26 25						
		M	27 16						

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27 Contd.	Poona	Z	eP	16 24 42	1610	Slight.
			S	27 24		
			i?	28 35		
Dehra Dun	N,E	e	16 26 05		Feeble. Phases not clear.	
		i	27 37			
28	New Delhi	N,E	iP	20 25 56	680	Slight.
			Pg	26 23		
			iS	27 07		
			Lr	27 15		
			SS	27 19		
			SSS	27 29		
			Sg	27 46		
28	Dehra Dun	N,E	eP	21 26 07	1220	Moderate.
			P*	26 34		
			Pg	27 03		
			Lq	28 00		
			iS	28 11		
			SS	28 22		
			Lr	28 34		
			SSS	28 37		
			S*	28 58		
			Sg/M	29 34		
			Poona	Z		
e	21 30 00					
30	Hyderabad	E	eP	21 31 22	1090	Amp. = 2mm Slight.
			eS	33 14		
			M	34 11		
30	Shillong	Z	eP	22 41 56		
			i	43 10		

Earthquake Reports
(Non Instrumental Reports)

The following is the list of earthquakes
that were reported by Voluntary Observers from
different places during the month of November
1954.

Place	Date in G. M. T.	Time in G. M. T. h. m.	Duration of shocks in secs	Number of shocks	Intensity in R.F. scale
Shillong	02	02 40	2	1	III
Srinagar	02	11 03	10	3	IV
Sheo (Dt. Barmar)	03	00 30	5	1	-
Tezpur	05	04 08	2	1	VI
Tezu	23	02 30	30	1	-
Mohanbari	23	02 33	5	1	-
Gusar (NEFA)	23	02 30	-	-	-
Krishnanagar	27	16 28	10	3	V
Baburbag (Burdwan)	27	16 15	2	2	IV
Dum Dum	27	16 20	5	1	V
Alipore (Calcutta)	27	16 21	3	2	III



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Director General of Observatories

DATE	STATION	COMPT.	PHASE	G. M. T.			△ km.	REMARKS
				h.	m.	s.		
Dec. 1954	01 Shillong	Z,E N N,E	iP eP iS	01	58	59	190	Slight. Felt at Goalpara
						59	22	
	New Delhi	E N,E E N,E	eP PP i Lq iS SSS M	02	01	12	1270	Slight
						01	21	
						02	07	
						03	11	
						03	21	
						03	44	
						04	42	
	Bombay	E N N,E	e e e	02	06	06		Tremor
						06	15	
						07	24	
	01 Shillong	Z	i	18	27	29		Slight
	01 Shillong	Z N E N E	iP eP eP i iSg iSg	23	17	18	230	Slight
						17	19	
						17	22	
						17	22	
						17	50	
						17	51	
	New Delhi	E	eP Lq iS Lr	23	19	55	1450	Slight
						22	15	
						22	22	
						22	50	
	Dehra Dun	N,E	i	23	22	04		Tremor
	Poona	Z	e	23	24	44		Tremor
	Bombay	E N,E	e i	23	25	37		Local. Tremor
						27	23	
	02 Shillong	Z	iP iSg	03	57	00	220	Slight
						57	29	
	02 Shillong	Z	iP iSg	03	59	39	200	Slight
						04	00	07
	02 Shillong	Z N	iP i	06	40	49		Slight
						41	24	
	02 Shillong	Z	i	08	23	30		Slight
	02 Shillong	Z	iP iSg	16	54	11	210	Slight
						54	40	
	02 Shillong	Z	e	17	24	48		Slight
	02 Shillong	Z	e	18	39	47		Slight
	02 Shillong	Z	e	23	32	56		Slight

DATE	STATION	COMPT.	PHASE	G. M. T.			△	REMARKS
				h.	m.	s.		
Dec. 1954								
03	Dehra Dun	N	i	08	51	51		Tremor
03	Shillong	Z N,E	eP iSg	10 17	17 51	15	250	Slight
03	Shillong	Z	e e	15	42 42	05 56	220	Slight
03	New Delhi	E N,E	eP Lq eS SS Sg	19	13 14 15 15 15	42 53 03 13 50	780	Slight
03	Epc: 41° N, 75° E; Kirgiz (U.S.S.R). - H = 21h 38m 15s (Shillong) 41½° N, 74½° E; - H = 21h 38m 12s (U.S.C.G.S) 41¼° N, 75¼° E; - H = 21h 38m 11s B.C.I.S) Magnitude = 6 (Kiruna); 5½-6 (Praha).							
	Dehra Dun	N,E	eP PP PPP P* Pg Lq iS SS Lr SSS S* Sg/M	21	40 41 41 41 41 42 43 43 43 43 43 44	59 09 14 27 54 52 03 15 23 27 42 12	1220	Moderate
	New Delhi	N,E N	eP PP Lq iS SSS M	21	41 41 43 43 43 45	16 26 28 26 58 05	1380	Slight
	Chatra	Z,E E Z E	eP PP PPP iS eS SS Lr M	21	42 42 42 45 45 45 46 48	19 37 43 34 54 28 09	1960	Slight

Per. = 9.0 Secs
Amp. = 2.25mm

DATE	STATION	COMPT.	PHASE	G. M. T.			△	REMARKS
				h.	m.	s.		
Dec. 1954								
03 Contd.	Shillong	Z N E	iP eP eP eS eS M	21	43	01	1730	Slight
	Bombay	N,E N E N,E E N E N	eP PP PPP iS eS Lq Lr i M	21	43	17	2590	Slight
	Poona	Z E	iP PP PPP iS Lq SS SSS PcS M ScS	21	43	20	2580	Slight
	Hyderabad	N E N	P iS SS L M	21	43	36	2570	Per. = 12 Secs /u = 8
	Madras	E	eP? eS Lq SS Lr M	21	43	42	3510	Moderate
	Kodaikanal	E	eP eS M	21	50	56	1860	Slight Per. = 6 Secs /u = 4.1
03	Shillong	Z	iP	22	13	17		Slight
03	Shillong	Z	eP	22	18	54		Slight
03	Shillong	Z	iP	22	38	05		Slight

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s.	km.

Dec.
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04 Epc: 21° N, 88° E; Bay of Bengal.
- H = 03h 08m 17s (Shillong).

Shillong	Z	e	03 09 32		
		iP	09 35		
	E	PP	09 41		Slight
		Lq	10 15		
		S/Lr	10 21		
		SS	10 42		
		SSS	10 52		
		M	11 25		

Chatra	Z	i	03 09 55		
New Delhi	N,E	eP	03 11 29	1430	Slight. Near
	N	eS	13 55		Slight
		SSS	14 19		
		M	15 28		

Poona	Z	iP	03 11 45	1550	Slight
	E	PP	11 53		
	Z,E	PPP	12 00		
	E	eS	14 21		
		SS	14 36		
		SSS	14 45		
		M	16 03		

Bombay	E	eP	03 11 58	1670	Feeble
		eS	14 46		

Dehra Dun	N	iS	03 14 02		
		i	14 28		Slight. Phases
		i	14 42		not clear
		i	15 06		
		i	16 00		
		i	17 14		

04 Epc: 5° S, $152\frac{1}{2}^{\circ}$ E. New Britain Region.
- H = 07h 00m 29s (U.S.C.G.S.)
- H = 07h 00m 32s (B.C.I.S.)
 7° S, $151\frac{1}{2}^{\circ}$ E; - H = 07h 00m 32s (Shillong).
Magnitude = $6\frac{1}{4}$ (Pasadena, Praha); $6\frac{1}{4}$ (Kiruna)
 6.2 (Roma).

Shillong	Z,E	iP	07 11 22	4550	Compression.
	E	PcP	11 47		Slight. First
	N	PP	13 49		movement west.
		PPP	15 14		
		iS	20 09		
		PS	20 21		
		PPS	20 27		
		ScS	21 16		
		SS	24 16		
		SSS	26 39		
		Lr	30 50		
		M	36 31		

DATE	STATION	COMPT.	PHASE	G. M. T.	REMARKS
				h. m. s.	km.

Dec.
1954

04 Chatra	Z,E	eP	07 11 48	7810	Slight
	E	PP	14 31		
Contd.		PPP	16 10		
		eS	21 00		
		PS	21 28		
		PPS	21 43		
		SS	25 49		
		Lq	30 17		
		M	40 --		

Per. = 18.0 Secs
Amp. = 0.3mm

Madras	E	iP	07 12 11	8200	Moderate
		PcP	12 24		
		PP	14 57		
		PPP	16 40		
		iS	21 42		
		SKS	21 54		
		ScS	22 02		
		PS	22 18		
		PPS	22 36		

Kodaikanal	E	eP	07 12 23	8350	Slight
		eS	22 05		
		PPS	23 05		
		M	42 17		

New Delhi	N,E	eP	07 12 40	8710	Moderate
	N	eS	22 36		

Poona	Z,E	iP	07 12 43	8960	Moderate
	E	PcP	12 55		
		PP	15 51		
		PPP	17 42		
		eS	22 56		
		ScS	23 03		
		PS	23 39		
		SS	28 07		
		M	45 51		

Dehra Dun	N	eP	07 12 46	8590	Feeble. Phases
		i	13 21		not clear
		i	14 34		
		iS	22 34		

Bombay	N,E	eP	07 12 53	9070	Moderate (Some- what deep)
	E	PP	16 11		
	N,E	iS	23 05		
	N	e	23 43		
	E	PS	23 51		
	N,E	PPS	24 10		
	E	SS	28 27		
		SSS	31 48		

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Dec. 1954						km.	
04 Contd.	Colombo	E	e	07	20	00	Trace overlapped
			e		40	--	
			e		40	06	
	Hyderabad	N	M	07	39	40	
04	Poona	Z	iP	18	50	14	Per. = 20 Secs. /u = 7
	Bombay	E	PKP ₁	18	50	15	Slight. Distant Phases not clear
		N,E	PP		52	02	Slight. Distant
			eSS	19	09	06	
	Chatra	Z	e	18	50	22	
	Shillong	Z	ePKP	18	50	24	Slight. Distant
		E	iPKP		50	28	Slight. Other phases not clear
	Colombo	E	e	18	51	52	
			e		35	--	
			e		43	22	
	Madras	E	i	18	53	05	Slight
	Kodaikanal	E	e	18	53	58	Tremor
	Hyderabad	E	M	20	05	31	Per. = 25 Secs. /u = 12
04	Shillong	Z	P	22	44	19	Slight
			Sg		44	45	
05	Shillong	Z	eP	00	34	25	Very feeble
	Chatra	Z	i	00	35	03	Slight. Distant
06	Shillong	Z	eP	03	02	20	7200 Slight
		N	iS		11	01	
			PPS		11	34	
			SS		14	56	
			Lq		18	41	
			Lr		21	41	
			M		27	55	
	Poona	Z	iP	03	03	52	Tremor
	Bombay	E	e	03	03	59	Feeble
			e		10	35	
			e		14	15	

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Dec. 1954						km.	
06	Shillong	Z	eP	15	52	16	Slight
			e	18	34	45	Feeble
06	Shillong	Z	iP	23	58	05	Slight. Rarefaction
06	Shillong	Z	iP	06	33	29	Slight
07	Shillong	Z	iP	13	49	45	Slight. Probably near. Phases not identifiable.
07	Shillong	Z	e	14	49	49	Very feeble.
07	Epc: $3\frac{1}{2}^{\circ}$ N, $125\frac{1}{2}^{\circ}$ E; Celebes Sea Region. - H = 14h 48m 30s; - h = 100 km (U.S.C.G.S) Felt at Mambajao (Manila Press). Magnitude = $5\frac{3}{4}$ (Kiruna).						
	Shillong	Z	iP	14	55	51	4300 Compression. Probably deep.
		N	PP		57	25	
		E	iS	15	01	49	
			sS		02	50	
	Chatra	Z	i	14	56	29	Slight. Distant.
		E	e	15	02	52	
	Madras	E	iP	14	56	50	5110 Moderate
			PcP		58	05	
			PP		58	42	
			iS	15	03	35	
			PPS		03	53	
			SS		06	58	
			Lq		08	10	
	Colombo	E	P	14	56	51	4860
			S	15	03	22	
	Hyderabad	E	iP	14	57	06	5280 L & M Merged.
			PP		58	44	
		N,E	iS	15	04	02	
		E	SS		07	44	
	Kodaikanal	E	eP	14	57	07	5220 Slight
			eS	15	03	59	
			M		14	47	
	Poona	Z,E	iP	14	57	39	5840 Moderate
		E	PcP		58	27	
			PP		59	40	
			PPP	15	00	50	
			iS		05	05	
			PS		05	18	
		N,E	PPS		05	23	
		E	Lq		10	56	
					19	--	
			M?				

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1954						
07	Bombay	E	iP	14 57 49	5910	Slight. Deep.
Contd.			i	58 25		
		N,E	PP	15 00 03		
		E	iS	19		
			PPS	05 35		
07	Shillong	Z	i	15 07 40		
07	Shillong	Z	eP	22 14 01		Ne r.
			iP	14 03		Slight
07	Dehra Dun	N,E	e	23 20 23		
08	Poona	Z	e	00 19 31		Tremor.
08	Dehra Dun	N	e	02 42 59		Tremor.
08	Shillong	Z	eP	06 10 51	200	Slight
			Pg	10 56		
			Sg	11 20		
08	Dehra Dun	N,E	i	08 48		Tremor.
08	Shillong	Z	i	13 48 52		Slight.
09	Poona	Z	iP	14 33 27		Tremor
09	Shillong	Z	P	14 39 29		
10	Hyderabad	E	M	14 17 38		Per. = 15 Secs /u = 1
11	Poona	Z	e	03 45 11		Tremor.
11	Hyderabad	E	M	04 23 52		Per. = 16 Secs /u = 3
	Colombo	E	L	04 17 --		P & S indistinct.
			M	30 40		Amp. = 0.5mm
11	New Delhi	N	iPg	05 32 41	450	Slight.
		N,E	iSg	32 46		
11	Dehra Dun	N,E	e	12 09 11		Tremor
11	Epc:					

$52\frac{1}{2}^{\circ}$ N, 32° W; North Atlantic Ocean.
 - H = 12h 57m 07s (U.S.C.G.S)
 52.8° N, 31.7° W; - H = 12h 57m 08s (B.C.I.S)
 Magnitude = 6.7 (Roma); $6\frac{1}{2}$ - $6\frac{3}{4}$ (Jerusalem);
 $6\frac{1}{2}$ (Pasadena, De Bilt, Kiruna); 6.4 (Praha);
 $6\frac{1}{2}$ (Skalnate Pleso).

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1954						
11	New Delhi	N,E	eP	13 09 13	6610	Moderate
Contd.		N	PP	12 11		
			eS	19 04		
			PS	19 44		
			SS	24 03		
			Lr	34 34		
			M	41 37		
	Bombay	E	eP	13 09 45	9350	Slight
			iS	20 10		
	Chatra	Z	iI	13 09 47		Slight. Distant.
		E	eI	20 12		
			e			
	Poo na	Z	iP	13 09 46	9490	Moderate.
		N	PP	13 04		
			PPP	15 01		
			SKS ₁	20 04		
			eS	20 17		
			PS	21 09		
			PPS	21 37		
			SS	25 52		
			Lq	33 01		
			Lr	37 13		
			M	44 27		
	Shillong	Z	iP	13 10 03	10330	Rarefaction.
		E	PP	13 15		Moderate.
			PPP	15 33		
			SKS	20 29		
			S	20 52		
			PS	22 00		
			PPS	22 32		
			SS	27 38		
			SSS	29 46		
			M	46 12		
	Hyderabad	E	eP	13 10 09	9680	
		N	PP	13 36		
			SKS	20 36		
			eS	20 48		
		N,E	SS	26 36		Per. = 16 Secs /u = 6
			L	40 03		Per. = 14 Secs /u = 5
		N	M	45 42		
		E	M	45 42		
	Colombo	E	eP	13 19 50		Amp. = 0.5mm
			M	14 57 38		
	11	Shillong	Pg	17 16 04	20	Slight. Local
		Z	Sg	16 06		

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Dec. 1954							
12	Shillong	Z	iP	01	09	59	160 Feeble
			PP		10	07	
			eS		10	18	
			Sg		10	20	
12	Shillong	Z	eP	03	18	58	130 Slight
			Sg		19	14	
12	Shillong	Z	eP	04	28	11	730 Slight
			P*		28	23	
			Pg		28	35	
			S		29	27	
			Sg		29	41	
12	Shillong	Z	iP	17	21	52	
12	Shillong	Z	e	18	32	04	Distant. Rarefaction
12	Shillong	Z					Earlier movement feebly recorded. Beginning uncertain. Feeble.
			e	22	48	12	
			i		48	19	
12	Shillong	Z	iP	21	07	02	Slight. Compression
12	Shillong	Z	iP	23	42	53	Slight. Compression
13	Shillong	Z	P	09	28	30	
13	Shillong	E	eP	13	17	08	860 Slight
			PP		17	17	
			P*		17	30	
			eS		18	37	
			SSS		18	58	
			M		19	23	
Poona		Z	eP	13	17	57	720 Slight
			PP		18	05	
			PPP		18	16	
			Lq		19	01	
			eS		19	12	
			SS		19	25	
			SSS		19	33	
			M		19	42	
Bombay		N	e	13	18	17	
		E	i		18	32	Surface waves.
Dehra Dun		N,E	eP	13	19	37	490 Slight. Other phases not clear.
			iS		20	29	

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Dec. 1954							
13	Hyderabad	N	M	13	20	51	Per. = 8 Secs /u = 2
13	Shillong	Z	P	20	39	30	270
			S		40	00	
13	Poona	Z	e	20	42	01	Tremor
13	Dehra Dun	N	e	20	44	59	Tremor.
13	Bombay	N	e	20	46	24	Feeble
			e		48	14	
13	Shillong	Z	r	22	46	29	
13	Poona	Z	e	22	48	12	Tremor
14	Shillong	Z,N	iSg	04	40	44	120 Slight
					40	59	
14	Shillong	Z	iP	06	12	07	Slight. Distant.
			e		19	28	
			e		29	37	
14	Colombo	E	L	06	15	36	Amp. = 0.7mm
			M		19	41	
14	Shillong	Z	e	09	14	46	Slight. Near.
			e		15	38	
14	Shillong	Z	e	19	42	48	Slight. Near
			e		43	46	
14	Shillong	Z	i	19	49	16	Feeble.
14	Shillong	Z	e	22	40	01	Slight. Local
			e		40	41	
14	Shillong	Z	e	22	52	21	Slight. Local
			e		52	55	
15	Shillong	Z	i	00	27	24	Slight.
15	Shillong	Z	e	03	53	21	Slight.
15	Dehra Dun	N,E	e	04	04	52	Tremor
15	Dehra Dun	N,E	e	05	54	40	Tremor.
15	Shillong	Z	e	08	15	45	Slight.
15	Shillong	Z	e	08	31	19	Slight. Near.
			e		32	07	
			e		33	10	
15	Shillong	Z	i	14	00	11	Slight.

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS
				h.	m.	s.	
Dec. 1954							
15	Shillong	Z	e	14	47	03	Feeble
15	Shillong	Z	e	16	36	56	Feeble
15	Poona	Z	e?	19	10	50	Tremor
15	Shillong	Z	i	19	11	54	Slight
15	Chatra	Z,E	e	21	19	31	Slight. Near
	Shillong	Z	eP	21	19	33	640
		E	P*	19	51		
			Pg	20	02		
			Lq	20	33		
		N,E	eS	20	41		
			S*	21	09		
			Sg	21	18		
	Bombay	N	e	21	29	19	Slight
		E	e	29	41		
			i	32	46		
15	Shillong	Z	e	21	53	15	Feeble
15	Shillong	Z	e	23	46	06	Slight
16	Shillong	Z	e	05	26	53	Slight
16	Shillong	Z	e	06	29	36	Slight. Near.
			i	29	50		
			e	29	58		
16	Shillong	Z	e	07	11	56	Slight.
16	Shillong	Z	e	07	15	29	Feeble.
16	Shillong	E	e	07	22	17	Slight. Near.
16	Shillong	Z	e	10	34	40	Feeble
16	Epc:						

39.3° N, 118° W; near Fallon, Nevada.
 - H = 11h 07m 10s (U.S.C.G.S). Moderate property
 damage. Felt at Pasadena, Los Angeles;
 Magnitude = 7½ (Praha, De Bilt); 7.4 (Pasadena);
 7¼ (Hurbanovo); 7.2 (Takubaya)
 7-7¼ (Skalnate Pleso); 7 (Roma, Kiruna,
 Uppsala); 6¾ (Berkeley, Mt. Hamilton).

Shillong
 Z,N,E
 Z,N
 N

e(P) 11 21 32 12140 Moderate.
 PP 26 06
 PPP 27 53
 SKS₁ 31 28

DATE	STATION	COMPT.	PHASE	G. M. T.			REMARKS	
				h.	m.	s.		
Dec. 1954								
16	Shillong	N	e(S)	11	32	54	Contd. Contd.	
			PS	33	53			
			PPS	34	47			
			SS	40	51			
			SSS	44	45			
			SKKKS ₁	46	32			
			Lq	50	00			
			Lr	55	45			
			M	12	02	08		
	Chatra	Z	e	11	21	46		Slight. Distant.
	Poona	Z	PKP ₁	11	26	07	13500 Great.	
		Z,N	PP ₁	27	43			
		N	PPP	30	08			
			SKS ₂	33	18			
			SKKKS ₂	34	44			
			PS	37	39			
			PPS	39	02			
			PKKS ₁	40	17			
			SKKS ₁	43	52			
			SS	44	25			
			SSS	49	08			
			Lr	12	04	38		
			M	14	14	05		
	Dehra Dun	N	eP	11	26	19		Moderate.
			e	26	50			
			e	27	08			
			e	29	38			
			i	30	41			
			e	31	24			
			e	31	50			
			e	32	02			
			e	32	36			
			e	33	18			
			e	34	28			
			M	36	56			
	New Delhi	N	ScS	11	26	25	1220 Moderate.	
			PP	27	33			
			i	28	43			
			PPP	32	20			
			iSKS	33	33			
			i	34	25			
			i	35	50			
			PS	37	25			
			i	38	54			
			i	40	13			
			i	46	20			
			SSS	12	00	25		
			e	03	30			
			i	08	24			
			M					

DATE	STATION	COMPT.	PHASE	G. M. T.		△	REMARKS
				h.	m.	s.	km.

Dec.
1954

16	Bombay	N,E	eP	11	26	33	13270	Moderate. Phases mixed up with another shock probably from the same origin.
Contd.		N	e		34	40		
		E	i		35	23		
		E	e		39	07		
	Hyderabad	E	ISS		44	13		
			e	11	27	43		
			M	12	07	49		
	Madras	E						Per. = 21 Secs. /u = 57
			e	11	28	19		
			i		32	50		
			e		45	36		
			e		51	37		Distant shock. Phases not identifiable.
	Kodaikanal	E	ePP?	11	29	04		
			ePS		38	37		
			SS		44	52		
			Lq		57	40		
			Lr	12	03	11		
			M		12	40		Initial phase not clear. Long distance shock of moderate intensity. Per. = 24 Secs /u = 46.5
	Colombo	E	P	11	29	57	9590	'S' uncertain
			S		40	32		
			L	12	08	--		
			M		18	10		
17	Shillong	Z	i	00	55	29		Amp. = 4.9mm
17	Shillong	Z						Slight
17	Shillong	Z	e	04	35	28		
17	Shillong	Z	e	17	27	48		
17	Shillong	Z	iP	18	00	28	210	Slight. Near.
			eSg		00	57		Slight
17	Shillong	Z	eP	19	04	03	280	Slight.
			P*		04	05		
			Pg		04	10		
			S		04	36		
			S*		04	39		
			eSg		04	44		
17	Shillong	Z	i	23	31	00		Slight. Local
18	Shillong	Z	iP	01	45	01	170	Slight
			eSg		45	23		
18	Dehra Dun	N,E	e	08	38	39		Tremor
18	Dehra Dun	N,E	e	09	22	38		Tremor
18	Shillong	Z	P	14	48	50		

DATE	STATION	COMPT.	PHASE	G. M. T.		△	REMARKS
				h.	m.	s.	km.

Dec.
1954

18	Chatra	Z	iP	14	49	53	840	Slight.
			PP		50	01		
			PPP		50	06		
			Lq		51	19		
			iS		51	27		
			Lr		51	39		
			SSS		51	50		
			M		52	18		
	Poona	Z	e?	14	52	55		Tremor
	Bombay	E	eP	14	53	02	2500	Feeble
			eS		57	05		
	Dehra Dun	N,E	e	14	54	44		Tremor
	Madras	E	iS	18	13	27		Moderate
	Dehra Dun	N,E	eP	18	17	15	870	Slight
			PPP		17	29		
			Pg		17	56		
			Lq		18	37		
			iS		18	45		
			SS/Lr		18	57		
			SSS		19	07		
			S*		19	13		
			Sg/M.		19	34		
	New Delhi	E	eP	18	17	35	890	Slight
			iS		19	07		
			SS		19	19		
			SSS		19	31		
			S*		19	38		
			e	18	35	43		Per. = 12 Secs /u = 2
			M		43	20		Feeble and near.
18	Hyderabad	E	i	20	13	02		
18	Bombay	E	P	20	13	35	2450	
			iS		17	35		
			L		19	20		
			M		20	20		Per. = 15 Secs /u = 4
19	Shillong	Z	i	03	30	29		Slight
19	Shillong	Z	i	05	20	01		Slight
19	Shillong	Z	e	05	55	30		Local. Slight.
			e		55	41		
19	Shillong	Z	e	07	13	00		Slight.

DATE STATION COMPT. PHASE G. M. T. Δ REMARKS
h. m. s. km.

Dec.
1954

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
19	Shillong	Z		e 10 12 39		Slight.
19	Epc: 30° N, 94.3° E. Sikang, China. - H = 10h 27m 24s (Shillong). Felt at Dibrugarh and Shillong.					
	Shillong	Z N,E	iP eP P* PP Pg PPP Lq S S* iSg/SS SSS	10 28 11	310	Moderate
				28 15 28 19 28 21 28 25 28 35 28 44 28 51 28 57 29 07		
	Dehra Dun	N,E	eP i	10 30 50		Feeble. Phases not clear.
				33 16		
	New Delhi	E N,E	eP eS SS SSS Lr	10 30 53	1470	Slight
				33 22 33 37 33 50 33 57		
	Poona	E Z	eP e e e e e e e	10 32 08		Moderate
				33 42 33 59 34 10 38 12 38 20 38 27 42 50 46 10		
	Bombay	E	eS e i i	10 36 08		Moderate
				40 17 45 54 52 28		
	Hyderabad	E	e e e e	10 36 49		
				38 07 42 59 53 37		
19	Poona	Z	i i i	10 42 49		Probably after shock of previous day's shock.
				46 10 54 22		
	Colombo	E	P S M	10 42 50	8590	'S' uncertain Amp. = 0.8mm
				52 40 11 41 38		

DATE STATION COMPT. PHASE G. M. T. Δ REMARKS
h. m. s. km.

Dec.
1954

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
19	Dehra Dun	N,E	e i i i i	10 42 58		Feeble. Phases not clear.
				43 25 44 20 45 00 46 23		
	New Delhi	N,E N	ePP i i	10 43 02		Moderate.
				43 33 52 53		
	Madras	E	iP PcP PP PPP iS ScS PS	10 43 03	8610	Moderate.
				43 12 46 03 46 58 52 54 53 09 53 42		
	Shillong	Z N	ePKP e e e e e e	10 43 14		Slight. Distant.
				47 42 54 03 57 45 11 07 30 13 09 30 23		
	Chatra	Z,E E	e e	10 43 57		Slight. Distant.
				53 42		
	Hyderabad	E	eP PP iS SS L M	10 44 01	7440	Per. = 12 Secs /u = 2
				46 22 52 54 56 43 11 05 24 10 55		
19	Shillong	Z	eP eSg	16 06 55	220	Slight.
				07 26		
	Shillong	Z	e	16 10 56		Slight.
	Shillong	Z	e	16 51 48		Feeble.
	Shillong	Z	e	16 41 29		Slight.
	Shillong	Z	i	17 01 32		Slight. Near.
	Shillong	Z	e	18 30 12		Feeble.
				31 09		
	Shillong	Z	e	18 57 44		Feeble.
	Shillong	Z	e	20 28 06		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1954						
20	Shillong	Z	e	00 29 03		
20	Shillong	Z	e	01 58 03		Slight. Local
20	Shillong	Z	e	01 54 02		Slight.
			e	54 12		Slight. Local
20	Shillong	Z	e	16 35 53		Feeble.
20	Shillong	Z	e	18 15 20		Feeble.
20	Shillong	Z	e	20 31 22		Slight.
20	Shillong	Z	e	20 45 15		Slight.
20	Shillong	Z	e	23 21 08		Feeble.
21	Shillong	Z	e	00 17 17		Feeble.
21	Shillong	Z	e	01 28 10		Slight.
21	Dehra Dun	N,E	e	06 53 39		Tremor.
21	Epc: $3\frac{1}{2}^{\circ}$ S, $145\frac{1}{2}^{\circ}$ E. - H = 11h 57m 19s (U.S.C.G.S). Magnitude = $6\frac{1}{4}$ (Kiruna).					
	Chatra	E	e	12 07 57		Slight. Distant.
			e	16 31		
	Dehra Dun	N	eP	12 08 53		Slight. Phases not clear.
			i	18 18		
	Poona	Z	eP	12 08 56	8240	Slight.
			PP	11 43		
			PPP	13 31		
			eS	18 30		
			PS	19 05		
			PPS	19 17		
			SSS	26 33		
			Lq	28 17		
			M	38 07		
	Bombay	E	iP	12 09 04	8300	Slight. Possibly deep focus.
			i	09 48		
			PP	11 49		
			PPP	13 21		
			iS	18 40		
			PS	19 13		
			PPS	19 23		
			SS	23 24		
	Colombo	E	P	12 17 01		Amp. = 0.3mm
			M	44 31		
21	Dehra Dun	N	e	16 27 22		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
	Epc: 40.9° N, 123.9° W. Humboldt Cainty, California. - H = 19h 56m 27s (U.S.C.G.S). Felt at Sanfrancisco. Several injured and extensive property damage. Magnitude = $6\frac{3}{4}$ - 7 (Hurbanovo); $6\frac{1}{2}$ (Kiruna); 6.7 (Takubaya); $6\frac{1}{2}$ - $6\frac{1}{4}$ (Uppsala, Praha, Roma); 6.6 (Pasadena).					
	Shillong	N,E	e	20 15 03		
	Dehra Dun	N	e	20 15 16		Slight. Phases not clear.
			i	22 13		
	Poona	Z	e	20 15 16		Probably distant. Phases not clear.
	New Delhi	N	eP	20 15 28	11550	Moderate.
			PPP	17 25		
			SKS	21 36		
			SKKS	22 13		
			PS	24 36		
			SKKP	26 20		
			SS	30 10		
			SSS	34 12		
	Bombay	N	e	20 16 23		Moderate. Distant.
			e	33 38		
			e	34 30		
	Hyderabad	E	iP	20 16 37		
			e	26 27		
			e	26 58		
			e	33 05		
			e	44 11		
			M	52 49		
	Colombo	E	P	20 18 16		Amp. = 1.1mm
			e	34 41		
			e	21 01 51		Slight. Distant. Phases not clear.
			M	20 31		
	Kodaikanal	E	e?	20 18 39		Slight. Distant. Surface waves.
	Chatra	E	i	20 22 42		
			e	53 00		
	Shillong	Z	P	22 12 58		
21	Shillong	Z	P	04 29 19		Very feeble. Phases not clear.
22	Shillong	Z	e	04 30 41		
	Poona	Z				Tremor.
	Dehra Dun	N	e	06 12 22		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. .	km.	
Dec. 1954						
22	Poona	Z	eP	16 36 12		
23	Shillong	Z	P	16 37 02		Very feeble Phases not clear.
24	Shillong	Z	iP	10 30 07		
24	Poona	Z	e	11 34 43		Feeble.
	Shillong	Z	eP	11 35 38		Feeble shock. Phases not clear.
24	Shillong	Z	eP	11 42 16		Feeble.
24	Hyderabad	N	M	11 53 49		Slight.
		E	M	55 07		Per. = 16 Secs /u = 3 Per. = 16 Secs /u = 2
25	Shillong	Z	eP	05 01 12		
25	Shillong	Z	ePg iSg	17 32 17 32 26	78	Slight. Local. Phases doubtful.
25	Shillong	Z	eP	18 09 03		Slight.
25	Shillong	Z	eP	18 39 09		Slight.
25	Shillong	Z	iP	21 16 17		Slight. Distant. Phases doubtful.
26	Shillong	Z	eP	03 48 54		Moderate. Phases not clear.
	Poona	Z,E	e	03 51 09		Slight. Phases not clear.
26	Bombay	N	e	04 00 37		Slight. Deep.
26	Hyderabad	N	M	09 49 52		Per. = 12 Secs /u = 2
27	Shillong	Z,N,E	iP iSg	01 36 55 37 21	200	Slight. Felt locally.
27	Epc: 5½° S, 130° E. In Banda Sea. - H = 06h 47m 23s (U.S.C.G.S).					
	Shillong	Z	eP	06 56 09		Moderate. Phases not clear.
	Chatra	Z	i	06 56 42		Slight. Distant.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1954						
27	Madras	E	iP eS	06 56 45 07 03 52	5490	Slight.
Contd.	Poona	Z E	iP i i	06 57 37 07 05 32 06 05		Slight. Phases not clear.
	New Delhi	N,E	iP iS	06 57 41 07 05 40	6430	Moderate
	Dehra Dun	N,E	e	06 57 44		Slight. Phases not clear.
	Bombay	N	eP iS	06 57 46 07 05 45	6430	Slight. Deep
27	Poona	Z	eP	07 29 44		Tremor.
27	Poona	Z	e	14 30 55		Tremor.
28	Epc: 3° S, 153° E. In New Britain Region. - H = 01h 00m 46s (Shillong). 5° S, 152½° E; - H = 01h 00m 37s (U.S.C.G.S) 4½° S, 153° E; - H = 01h 00m 40s (B.C.I.S) Magnitude = 6½ (Kiruna).					
	Shillong	Z,N,E	iP PP PPP eS SS Lq	01 11 30 13 48 15 30 20 25 24 30 28 15	7220	Moderate.
	Chatra	Z	e	01 12 00		Slight. Distant.
	Bokaro	N,E	e e	01 12 14 13 14		
	Colombo	E	P L M	01 12 20 36 -- 47 48		Amp. = 0.6mm
	Madras	E	eP eS	01 12 21 21 38	7910	Slight. Phases not clear.
	Hyderabad	E	eP eS SS L M	01 12 33 22 26 26 50 38 34 45 48	8640	Per. = 18 Secs /u = 5

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

Dec.
195428 Kodaikanal E
Contd.

iP 01 12 38 8570 Slight.
iS 22 27
Lq 32 57
Lr 36 36
M 42 57

New Delhi N,E
N

eP 01 12 51 8710 Moderate.
eS 22 47
PS 23 20
i 24 05

Poona Z
E

iP 01 12 59 9050 Moderate.
PP 16 00
PPP 17 55
SKS₁ 23 04
eS 23 12
ScS 23 22
PS 24 09
PPS 24 39
SS 28 38
SSS 32 05
Lq 34 29
M 46 06

Bombay N
E
N

eP 01 13 05 9450 Slight to moderate.
iP 13 22 Somewhat deep. Fol-
i 18 23 lowed by after
PPP 23 12 shocks.
SKS₁
eS
iS 23 34
e 24 11
e 29 01

28 Poona

E
N
E

e 02 26 35 Tremor.

28 Dehra Dun

N,E

e 03 12 46 Slight. Phases
i 22 49 not clear.

28 Shillong

Z

eP 06 10 31 Slight. Phases
doubtful.

28 Shillong

Z

iP 07 26 58 Slight. Phases
not clear.

28 Shillong

Z

eP 09 53 09 Slight.

28 Shillong

Z

eP 10 30 07 Slight.

29 Bokaro

N,E

e 11 52 21
e 12 03 53
e 14 36

Poona

Z,E

eP 11 53 11 Feeble. Phases
not clear.

DATE STATION COMPT. PHASE G. M. T. REMARKS
h. m. s. km.

Dec.
1954

29 Shillong Z eP 19 28 58 Slight.

30 Dehra Dun N,E e 01 56 22 Feeble. Phases
i 58 10 not clear.

30 Dehra Dun N,E e 11 13 36 Tremor.

30 Epc: 53° N, 168° W; Fox Islands in Ale tians.
- H = 11h 32m 28s (U.S.C.G.S). Felt at Unalaska.
Magnitude = 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ (Pasadena).

Dehra Dun N,E e 11 42 37 Tremor.

Shillong Z iP 11 44 05 8400 Slight.

Chatra Z i 11 44 18 Slight. Distant.
E e 54 00 Per. = 22.0 Secs
e 12 15 00 Amp. = 0.3mm.New Delhi N,E eP 11 44 39 8890 Moderate.
N eS 54 43Poona Z,E eP 11 45 29 10010 Moderate.
E PP 49 08
PPP 51 11
SKS₁ 55 38
eS 56 22
PPS 58 27
M? 12 24 59Bombay N,E eP 11 45 31 10150 Slight. Somewhat
N eS 56 28 deep.
E iSBokaro N,E iS 11 54 18
e 54 33
e 54 48
i 12 19 56Hyderabad N M 12 18 08
E M 19 58

31 Dehra Dun N,E e 17 18 38 Tremor.

Per. = 15 Secs
/u = 4
Per. = 18 Secs
/u = 3

Earthquake Reports
(Non Instrumental Reports)

The following is the list of earthquakes that were reported by Voluntary Observers from various places during the month of December 1954.

Place	Date in G. M. T	Time in G. M.T. h. m.	Duration of Shocks	Number of Shocks	Intens- ity in R. F. Scale	Remarks
<u>Dec. 1954</u>						
Sipla (N.E.F.A)	01	23 17	-	-	-	No damage
Charduar (N.E.F.A)	01	---	-	-	-	Tremor.
Dirang-Dzong (N.E.F.A)	01	---	-	-	-	Slight damage of a kind only.
Shillong	09	15 28	5	1	IV	
Dhanbad	09	21 37	3	1	V	Direction
Tezu	10	01 42	30	-	-	
Shillong	13	20 41	10	-	-	
Abu	15	02 48	50	-	III	
Abu	15	17 00	30	-	IV	
Dibrugarh	19	10 30	1	-	IV	

Dated, 1st February, 1960.

Dear Colleague,

I regret much that due to certain unavoidable circumstances the printing of the monthly Seismological bulletins of the Indian Seismological Stations had been interrupted for a considerable period. These difficulties have now been overcome and I am forwarding herewith the seismological bulletins of Indian Stations for the period March, 1954 to December, 1954. We hope that in future our bulletins will be reaching you regularly.

May I take this opportunity of thanking you for the invaluable data of your station which are being received regularly.

Assuring you of our co-operation at all times, and with kind regards,

Yours faithfully,

A. N. Tandon
(A. N. TANDON)
Seismologist.

Bisht
1/2/60.