

loquax

JANUARY, 1962

1962

Station	Phase	G. M. T. h. m. s.	Arc Distance	C/R	Remarks
1 Bha	eP	08 56 33			+ 150 km from Station
	iS		51		
1 Bul	e	12 53 20			
	i		54 02		
1 X/Bha	ePKP	23 59 45	136		USCGS H=23 40 20, 52.4N 177.7E,
X/Bul	ePKP		143		Rat Island h + 27 km
2 Bul	iS	00 53 55			
2 X/Bul	eP ₁	05 36 45	95		USCGS H=05 23 38, 17.8S 69.8W,
					Peru-Bolivia Border h + 47 km
2 Bul	eP _n	12 35 05			
	iP ₁		12		
	iS _n		46		
	iS ₁		36 08		
X/Bha	iS ₁		37 12		
2 Bul	traces	14 44 33			W. W. R. Tremor
2 Bul	e	19 20 21	121		USCGS H=19 03 07, 19.3N 145.3E,
Bha	i		123		Mariana Islands region h + 178 km
2 Bul	e	23 26 58		C	
Bha	i		27 08	C	
3 Bha	e	01 00 43			Probably Central Africa
	i		03 09		
	i		04 40		
Bul	traces		01 55		
3 Bha	e	01 06 19			
	i		57		
Bul	traces		31		
3 Bul	traces	16 12 50			W. W. R. Tremor
3 Bul	traces	17 06 00			W. W. R. Tremor
4 Bul	e	00 09 23			
4 Bul	iP	01 23 54	73	R	USCGS H=01 12 41, 0.1S 100.1E,
					Near Coast of Sumatra h + 141 km
4 X/Bha	i	04 53 41			
X/Bul	i		54 14		
4 Bul	e		17		
4 Bha	traces	05 19 05			
4 Bul	traces	12 29 10			
4 Bha	eP	20 12 12	73		USCGS H=20 00 54, 1.6S 99.6E,
Bul	eP		(21)		Near Coast of Sumatra h + 59 Km.
4 Bul	e	21 45 32	74		
5 X/Bha	eP	04 37 32	67	C	USCGS H=04 27 05, 36.4N 71.2E,
X/Bul	iP		59	C	Hindu Kush h + 182 km.
5 X/Bul	ePKP	08 27 20	140		USCGS H=08 08 08, 15.5S 172.5W,
X/Bha	iPKP		145		Tonga Is. region h + 60 km
5 Bul	e	14 08 09			
5 X/Bul	iP	14 13 03	73		USCGS H=14 01 42, 1.6S 100.0E,
X/Bha	eP		03	74	R Near South Coast of Sumatra h + 25 km
5 Bul	i	15 59 08			
Bha	e		15		
5 Bha	eP _n	18 02 43			
	iS _n		03 52		
	iS ₁		04 32		
Bul	i		07		
6 Bul	traces	01 22 47			
6 Bul	iS ₁	01 24 25			W. W. R. Tremor
6 Bul	iS ₁	13 30 50			W. W. R. Tremor
6 Bha	traces	14 24 55			
6 Bul	traces	20 12 15			
7 X/Bul	iPKP ₁	01 33 50	147	R	W. W. R. tremor
					USCGS H=01 14 13, 55.2N 154.1W,
7 Bha	e	08 53 04			Near Kodiak Island h + 27 km
7 Bul	e	08 57 08			
7 Bul	traces	09 04 25			
7 X/Bha	iP	10 13 10	61		USCGS H=10 03 13, 43.4N 17.4E,
X/Bul	eP		46	67	Yugoslavia h + 32 km
7 Bha	traces	13 34 40			Probably Central Africa

January, 1962 (continued)

Date	Station	Phase	G. M. T. H. M. S.	Arc Distance	C/R	Remarks
7	Bha	traces	16 08 15			Probably Central Africa
7	Bul	eP	22 13 08	92		USCGS H=22 00 31, 37.7S 71.7W,
	Bha	iP	27	94		Central Chile-Argentine border h + 90 km
8	Bha	eP	01 14 21	105		USCGS H=01 00 24, 18.5N 70.5W,
X	Bul	iPP	18 34			Near South Coast of Dominican
	Bul	eP	14 28	108		Republic h ± 63 km
	Bul	iPP	18 42			
8	Bul	traces	01 30 28			
X	Bul	iPKP	06 01 58	132	C	USCGS H=05 43 02, 24.2S 177.7W,
X	Bha	ePKP	02 05	137		Tonga Islands region h ± 133 km
8	Bul	eP _n	11 00 53			W.W. R. Tremor
		iS ₁	02 31			
	Bha	eP _n	10			
		iS ₁	05 25			
8	Bha	e ₁	15 48 58			
8	Bha	e	22 22 17			Probably Central Africa
		i	24 16			
		i	25 13			
	Bul	traces	27 15			
X	Bha	eP	22 35 28	67	C	USCGS H=22 25 11, 36.5N 70.9E,
X	Bul	iP	54	72	C	Hindu Kush h ± 208 km
9	Bul	e	02 29 10			
		i	30 10			
9	Bul	traces	03 39 14			
9	Bha	e	04 17 25			
9	Bul	traces	07 33 37			
9	Bul	traces	12 51 42			
9	Bul	traces	12 53 18			
X	Bha	ePKP	12 59 33	122		USCGS H=12 40 49, 42.9N 144.8E,
X	Bul	iPKP	41	124		Near Coast of Hokkaido, Japan. h ± 78 km.
9	Bul	e	17 13 00			
9	Bul	eP	19 56 28	36		USCGS H=19 49 30, 20.2S 66.2E,
	Bha	eP	38	37		Mascarene Islands Reg. h + 25 km
10	Bul	iPKP ₁	02 39 32	146	C	USCGS H=02 19 57, 52.9N 169.1W,
						Fox Islands, Aleutian Islands h + 43 km
10	Bul	iP	03 07 48	95		USCGS H=02 55 01, 17.1S 68.0W,
						Peru-Bolivia border h ± 208 km
						W. W. R. Tremor
10	Bul	traces	12 38 55			
10	Bha	traces	12 50 10			
10	Bul	traces	13 45 50			
10	Bha	traces	15 54 45			
10	Bha	eP	18 40 27			+ 150 km from Station
		iS	45			
11	Bha	eP _n	03 07 31			
		iS _n	08 33			
		iS ₁	09 02			
X	Bha	iP ₁	03 12 36	71	C	USCGS H=03 01 33, 28.1N 84.8E,
X	Bul	iP	57	75		Nepal h + 38 km
11	Bha	iP	05 14 59	61		USCGS H=05 05 02, 43.5N 17.7E,
X	Bul	eP	15 36	67		Near Coast of Central Yugoslavia M = 5 $\frac{3}{4}$ h ± 25 km
11	Bul	e	10 13 12			
11	Bul	traces	12 24 10			
11	Bul	e	17 16 45			
12	Bul	e	03 22 33			
12	Bul	iP	10 07 22	90		USCGS H=09 54 43, 31.9S 70.2W,
						Central Chile-Argentine border h + 24 km
						W. W. R. Tremor
12	Bul	eP _n	21 39 49 $\frac{1}{2}$			
		iS _n	40 59			
		iS ₁	26			
	Bha	eP _n	41 05 $\frac{1}{2}$			
		iS ₁	44 21			

January, 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc Distance	C/R	Remarks
13	Bul	eP	00 57 55	90		USCGS H=00 45 13, 22.7S 68.6W, Northern Chile h ± 159 km
13	Bul	iP	17 11 55			Probably local
		iS	12 14			
	Bha	eP _n	23			
		iS _n	13 13			
		iS ₁	14 05			
13	Bul	iP	17 19 (22)			
		iS	20 (24)			
	Bha	i	(41)			
		i	21 (20)			
13	Bul	e	18 56 44			
14	Bul	eP _n	08 66 42			
		iS ₁	07 37			
14	Bul	e	08 38 37			
14	Bul	e	13 55 43			
15	Bha	e	11 02 19			
15	Bha	traces	15 27 50			
15	Bul	e(P _n)	18 11 08			W. W. R. Tremor
		i(S ₁)	37			
15	Bul	e	21 20 27			
		i	21 34			
	Bha	traces	50			
15	Bul	e	22 02 19			
16	Bul	eP _n	08 24 34			W. W. R. Tremor
		eS _n	25 48			
		iS ₁	26 11			
16	Bul	iS ₁	10 32 39			
16	Bha	iPKP	11 54 48	130		USCGS H=11 35 41, 30.5S 177.9W, Kermadec Islands m = 6½ h ± 39 km
16	Bha	i	11 58 04			
16	Bul	iS ₁	18 14 33			
16	Bha	iP ₁	18 28 25	70		USCGS H=18 17 30, 7.8N 36.0W, Mid-Atlantic Ocean h ± 30 km
17	Bul	iS ₁	09 41 08			W. W. R. tremor
17	Bha	traces	12 25 15			
17	Bul	i	13 32 50			
	Bha	e	55			
17	Bul	eP	15 42 59	101		USCGS H=15 29 07, 4.3N 128.3E, Molucca Passage h ± 25 km
17	Bul	eP _n	17 56 14			W. W. R. tremor
		iS ₁	57 51			
	Bha	traces	59 35			
18	Bul	e	09 22 15			
18	Bul	iP	16 01 11	121		USCGS H=15 45 41, 4.2S 153.6E, New Britain h ± 127 km
	Bha	eP	14	122		
18	Bul	i	16 04 34			
	Bha	i	37			
18	Bul	i	16 12 35		C	
	Bha	i	39		C	
18	Bul	i	16 15 21		C	
	Bha	i	24		C	
19	Bul	iS ₁	12 31 39			W. W. R. tremor
19	Bha	e	22 27 26			
20	Bha	i	00 58 44			
20	Bul	eP	03 40 43	59	C	USCGS H=03 31 31, 32.7N 49.5E, Iran h ± 40 km.
21	Bha	eP	03 01 29	61		USCGS H=02 51 36, 43.2N 16.6E, Near Coast of Central Yugoslavia
	Bul	eP	02 06	67		h ± 33 km
21	Bul	i	07 35 20			
21	Bha	i	12 57 33			Probably Central Africa

January, 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc Distance	C/R	Remarks
21	Bha	iPKP	13 10 09	142		USCGS H=12 51 52, 17.7S 178.8W, Fiji h + 558 km
		iPP	13 04			
	Bul	iPKP	10 11	136		
		iPP	12 51			
21	Bul	e	15 51 14			Probably Kariba Area
22	Bha	iP	11 02 03			
		iS	30			
	Bul	eP _n	02 24			
		iS ₁	03 15			
23	Bha	e	00 58 11			
		i	46			
23	Bul	iPKP ₁	16 18 56	146	C	USCGS H=15 59 20, 52.5N 169.5W, Fox Islands, Aleutian Islands, h + 25 km
23	Bul	traces	21 18 44			
24	Bul	iP	03 13 45	89	R	USCGS H=03 01 17, 21.2S 65.7W, Southern Bolivia h + 238 km
24	Bul	iPKP	05 05 18	127	C	USCGS H=04 46 29, 15.6S 167.6E, New Hebrides Is. h + 133 km
24	Bul	e	13 14 49			
25	Bul	e	00 49 04			
25	Bul	ePKP	02 09 06	124		USCGS H=01 50 11, 10.7S 161.8E, Solomon Islands h + 80 km
25	Bul	e	02 39 25			
25	Bul	iP	07 38 50	95	C	USCGS H=07 26 06, 15.8S 69.5W, Peru-Bolivia border h + 209 km
26	Bul	i	06 31 40	K	R	USCGS H =06 09 33, 23.4S 176.1W Tonga Islands h + 214km
26	Bha	iP	08 26 32	52		USCGS H=08 17 37, 35.1N 22.7E, Mediterranean Sea H + 32 km M=5 1/4
	Bul	iP	27 12	58		Seismic, probably local
26	Bha	e	17 02 51			
		i	04 03			Probably Central Africa
26	Bha	e	21 06 08			
		i	08 06			Probably Central Africa
27	Bha	traces	01 03 20			
27	Bul	e	03 10 00			
27	Bul	traces	11 31 00			
27	Bul	e	12 24 17			
27	Bha	ePKP	23 27 13	144		USCGS H=23 07 42, 31.0N 114.3W, Gulf of California h + 22 km M=5 1/4
	Bul	iPKP ₁	21	148		W. W. R. Tremor
28	Bul	eP _n	05 19 13			
		iS _n	20 05			
		iS ₁	25			
28	Bul	ePKP	05 59 24	134		USCGS H=05 40 08, 17.2S 172.0W, Tonga Islands h + 25 km M=6 1/4
	Bha	ePKP	36	141		
28	Bul	i	11 40 13			
28	Bul	iP	16 54 28	96	C	USCGS H=16 41 14, 0.0 123.9E, Northern Celebes
	Bha	iP	29	96	C	
28	Bul	e	21 36 28			Seismic, probably local
29	Bha	i	11 02 41			
		i	51			
		i	03 21			
		i	36			+ 160 km from Station
29	Bul	iP	17 07 48			
		iS	08 07			+ 190 km from Station
29	Bha	eP	22 57 19			
		eS	43			
30	Bha	iPKP	08 53 03	121		USCGS H=08 34 27, 12.7N 88.7W, Nicaragua h + 101 km
	Bul	iPKP	05	122		
30	Bul	ePKP	15 41 22	121	C	USCGS H=15 22 49, 20.7N 144.5E, Mariana Is. h + 187 km
			22			USCGS H=00 05 57, 38.5N 70.3E, Tadzhik S. S. R.
31	Bha	iP	00 16 45	68		
	Bul	iP	17 10	72		
31	Bul	e	12 59 31			

H. O. Oliver
Esme Milella
27th April, 1962

Copied JJS

MAR 1962

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

MARCH 1962

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
1	Bul	iP	02 26 01	98		USCGS H= 02 12 37 15.7S 74.4W ht 62Km Southern Peru
1	Bul	traces	11 50 09			
		i	51 33			
1	Bul	iS ₁	13 40 55			W.W.R. Tremor
1	Bul	eP	20 51 22	91		USCGS H= 20 38 31 38.0S 74.0W ht 25Km Off Coast of Chile
1	Bul	e	22 31 20			W.W.R. Tremor
		i	32 53			
1	Bha	i	23 03 12			Seismic, Probably Local
		i	32			
	Bul	iP _n	04 07			
		iS ₁	05 32			
2	Bha	e	04 28 37			
2	Bul	traces	09 07 00			
2	Bul	traces	13 16 45			W.W.R. Tremor
2	Bha	i	14 08 42		R	
		i	11 04			
	Bul	e	09 15			
2	Bha	i	14 33 44			
		i	35 58			
	Bul	e	34 08			
2	Bha	i	18 59 28			
		i	01 52			
	Bul	i	19 00 03			
2	Bha	i	20 09 19		C	
2	Bul	i	20 27 18			
		i	29 42			
	Bha	e	27 53			
2	Bha	i	23 19 31		C	
		i	21 54			
2	Bha	e	23 41 52			
		e	45 42			
3	Bha	iP	01 15 55	250Km		B P I H= 01 15 17 Kariba Area Rhodesia
		iS	16 24			
	Bul	iP _n	12	385Km		
		iP ₁	21			
3	Bha	iP	01 40 01	245Km		B P I H= 01 39 24 Kariba Area, Rhodesia
		iS	27			
	Bul	e	25			
		i	41 08			
3	Bha	iP	01 56 06	250Km		B P I H= 01 55 28 Kariba Area, Rhodesia
		iS	33			
	Bul	iP ₁	32	385Km		
		iS ₁	57 15			
3	Bha	e	03 10 35			
3	Bha	iP	03 13 05	245Km		B P I H= 03 12 28 Kariba Area, Rhodesia
		iS	32			
	Bul	iP _n	22	385Km		
		iP ₁	31			
		iS ₁	14 14			
3	Bha	iP	03 23 27	245Km		B P I H= 03 22 50 Kariba Area, Rhodesia
		iS	55			
	Bul	iP ₁	53	385Km		
		iS ₁	24 36			
3	Bha	iP	03 34 31	250Km		B P I H= 03 33 53 Kariba Area, Rhodesia
		iS	58			
	Bul	e	54			
		iS ₁	35 37			

MARCH 1962 (Continued)

- 151 -

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist. C/R	Remarks
3	Bul	traces	04 00 50		W.W.R. Tremor
3	Bha	iP	06 18 51	250Km	B P I H= 06 13 13 Kariba Area, Rhodesia
		iS	19 18		
		eP _n	08	385Km	
	Bul	iP ₁	15		
		iS ₁	20 00		
3	Bul	Traces	07 00 05		W.W.R. Tremor
3	Bul	eP _n	07 08 01		W.W.R. Tremor
		iS ₁	44		
3	Bha	eP	08 59 23	240Km	B P I H= 08 58 45 Kariba Area, Rhodesia
		iS	49		
3	Bha	eP	19 19 35	250Km	B P I H= 19 18 57 Kariba Area, Rhodesia
		iS	20 02		
3	Bha	iP	09 37 25	245Km	B P I H= 09 36 48 Kariba Area, Rhodesia
		iS	52		
	Bul	iP _n	42	385Km	
		iP ₁	50		
		iS ₁	38 34		
3	Bul	iP	10 14 41	99	USCGS H= 10 01 17 0.1N' 126.5E ht 25Km Molucca Passage
3	Bha	iP	11 20 36	255Km	B P I H= 11 19 57 Kariba Area, Rhodesia
		iS	21 04		
	Bul	iP _n	20 53	390Km	
		iP ₁	21 02		
		iS ₁	45		
3	Bha	eP	11 54 24	240Km	B P I H=11 53 47 Kariba Area, Rhodesia
		iS	50		
3	Bha	traces	12 28 32		
3	Bul	i	12 28 32		
3	Bha	iP	13 26 10	245Km	B P I H= 13 25 34 Kariba Area, Rhodesia
		iS	33		
	Bul	iP _n	27	330Km	
		iP ₁	36		
		iS ₁	27 20		
3	Bha	eP	13 36 06	250Km	B P I H= 13 35 28 Kariba Area, Rhodesia
		iS	35		
3	Bul	ePKP	16 19 58	134	USCGS H= 16 01 55 21.5S 179.1W ht 613Km Fiji Islands
3	Bha	eP	18 27 45	245Km	B.P.I. H= 18 27 08 Kariba Area, Rhodesia
		iS	28 11		
3	Bha	eP	23 41 16	245Km	B P I H= 23 40 39 Kariba Area, Rhodesia
		iS	42		
	Bul	traces	42 23		
4	Bha	eP	01 54 15		
		i	56 36		
		i	57 25		
	Bul	traces	58 45		
4	Bha	eP	02 25 16	250Km	B P I H= 02 24 38 Kariba Area, Rhodesia
		iS	44		
4	Bha	traces	03 06 40		Probably Kariba area
4	Bha	eP	05 11 22	245Km	B P I H= 05 10 45 Kariba Area, Rhodesia
		iS	49		
4	Bha	eP	05 27 52	250Km	B P I H= 05 27 14 Kariba Area, Rhodesia
		iS	28 19		
	Bul	e	15		
		iS ₁	57		
4	Bha	eS	08 00 30		Probably Kariba Area

MARCH 1962 (Continued)

- 152 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
4	Bul	i	12 06 09		C	
4	Bha	iP	13 16 03	240Km		B P I H= 13 15 26 Kariba Area, Rhodesia
4	Bul	iS	28			
4	Bul	eP	16 33 13	90		USCGS H= 16 20 54 36.3S 72.9W ht 60Km Off Coast of Central Chile
4	Bha	eP	17 16 10			
4	Bha	iS	43			
4	Bha	eP	18 34 06	245Km		B P I H= 18 33 30 Kariba area, Rhodesia
4	Bul	traces	30			
4	Bha	eP	19 13 24	250Km		B P I H= 19 12 47 Kariba Area, Rhodesia
4	Bha	iS	51			
4	Bha	eP	20 52 11	245Km		B P I H= 20 51 34
4	Bha	iS	37			
4	Bha	iP	22 57 22	250Km		B P I H= 22 56 45 Kariba Area, Rhodesia
	Bul	iP _n	39	385Km		
		iP ₁	47			
		iS ₁	58 31			
5	Bul	i	01 00 48			
5	Bha	i	01 06			
5	Bha	eP	03 25 58	245Km		B P I H= 03 25 30 Kariba Area, Rhodesia
	Bul	iS	26 24			
	Bul	traces	22			
5	Bha	eP	05 54 03	75		USCGS H= 03 42 33 4.0S 103.3E ht 78 Km Near South Coast of Sumatra
5	Bul	eP	03	75	R	
5	Bha	iP	04 29 43	245Km		B P I H= 04 29 06 Kariba Area, Rhodesia
	Bul	iS	30 10			
	Bul	iP _n	01	385Km		
		iP ₁	08			
		iS ₁	51			
5	Bul	e	06 55 15			
5	Bha	iS	07 09 02			Probably Kariba Area
5	Bul	e	07 37 46			
5	Bha	ePKP ₁	08 03 44	150		USCGS H= 07 44 00 34.6N 121.6W ht 25Km Off Coast of California
	Bul	ePKP ₁	52	156		M= 4 $\frac{1}{2}$
5	Bul	i	08 55 24			
	Bha	e	57			
5	Bul	e	09 08 23			
5	Bul	iP	10 24 52	57		USCGS H= 10 15 22 55.9S 27.9W ht 25Km Sandwich Islands
	Bha	iP	25 24	62		
5	Bul	iP _n	10 28 02		R	Probably Rhodesia-Mozambique Border
		iS _n	29 17			
		iS ₁	39			
	Bha	iP _u	28 13			
		iS _n	29 32			
		iS ₁	30 14			
6	B a	iP	01 22 03	250Km		B P I H= 01 21 25 Kariba Area, Rhodesia
		iS	30			
	Bul	iP _n	21	385Km		
		iP ₁	28			
		iS ₁	23 11			
6	Bul	traces	01 34 41			
6	Bul	e	01 36 09		R	
6	Bul	e	02 10 50			
			11 33			
6	Bha	eP	03 09 16	245Km		B P I H= 03 08 38 Kariba Area, Rhodesia
		iS	42			

MARCH 1962 (Continued)

- 155 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
11	Bha	eP	02 21 35	65		USCGS H= 02 11 10 34.1N 70.9E
	Bul	iP	22 03	69		ht 44Km Hindu Kush
12	Bha	ePKP	11 58 54	114		USCGS H= 11 40 13 8.1N 83.0W
	Bul	ePKP	59 48	116		ht 58Km Near South Coasts of Panama and Costa Rica M = 6 ³ / ₄
12	Bha	e	19 04 28			Probably Republic of the Congo
		i	07 21			
12	Bha	traces	23 05 52			
13	Bul	e	07 36 45			
13	Bul	e	15 56 17			
14	Bul	iP	04 04 37	200Km		B P I H= 04 04 05 18° 20' S 28° 40' E
		iS	05 00			Southern Rhodesia
	Bha	eP _n	05 06	430Km		
		iS ₁	48			
14	Bul	i	06 12 45			
14	Bul	eP _n	10 45 35			B P I H= 10 44 05
		iS _n	46 44			W.W.R. Tremor
		iS ₁	47 09			
	Bha	eP _n	46 51			
		iS _n	48 52			
		iS ₁	50 09			
14	Bha	iP	11 55 27			Probably Nyasaland
		iS	56 46			
	Bul	e	30			
		i	58 43			
		i	59 03			
15	Bul	i	00 54 43		C	
15	Bha	eP	00 58 23			Probably Kariba, Rhodesia
		iS	48			
15	Bul	i	01 22 24			
15	Bul	i	04 56 19		R	
15	Bul	i	11 24 15		C	
15	Bha	e	14 44 27			
	Bul	e	32			
15	Bul	iS ₁	15 40 39			
15	Bha	e	15 43 38			
15	Bul	iP	21 24 48	77	C	USCGS H= 21 13 04 7.1S 106.1E
	Bha	iP	50	78	R	ht 83Km Near South Coast of Java
16	Bul	iP _n	02 46 19	280Km		B P I H= 02 45 38 Probably 18S 28E Southern Rhodesia
		iS ₁	56			
	Bha	eP _n	32	390Km		
		iS ₁	47 28			
16	Bha	iP _n	10 08 05			+ 340Km from Station
		i	09			
		iS ₁	41			
16	Bul	iPKP	20 01 44	129		USCGS H= 19 42 39 10.8S 165.7E
	Bha	ePKP	48	133		ht 25Km Santa Cruz Islands region
16	Bha	eP	24 35 24			Probably Kariba
		iS	51			
17	Bha	eP	20 59 13	78		USCGS H= 20 47 32 10.6N 43.7W
	Bul	iP	22	80		ht 25Km North Atlantic Ocean
18	Bul	iPKP	00 59 24	116	C	USCGS H= 00 40 10 36.0S 176.9W
	Bha	ePKP	30	122		ht 25Km off Coast of North Island New Zealand
18	Bha	ePKP	03 25 32	131		USCGS H= 03 06 19 16.1S 167.2E ht 200Km New Hebrides Islands region

MARCH 1962 (Continued)

- 156 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
18	Bha	eP	15 40 08	57		USCGS H= 15 30 32 40.6 N 19.6E ht 25Km Southern Albania
19	Bha	iP	06 07 44 A	97	C	USCGS H= 05 54 24 0.3N 123.5E ht 53 Km Near South Coast of Minahossa Peninsula, Celebes Islands
19	Bul	i	12 39 00			
19	Bha	e	18 00 49			Seismic, Probably Local
		iS ₁	01 33			
19	Bul	eP	21 08 48	73		USCGS H= 20 57 24 4.3S 103.1E ht 100Km Near South Coast of Sumatra
20	Bha	i	03 52 11			
20	Bul	e	11 12 22			
20	Bul	e	14 15 13			
20	Bul	iS ₁	18 49 54			W.W.R. Tremor
20	Bul	e	21 09 08			
20	Bul	eP _n	22 21 07			W.W.R. Tremor
		iS ₁	22 45			
20	Bul	eP	23 22 57	83		USCGS H= 23 10 38 32.0n 94.6E ht 25Km Tibet
21	Bul	e	12 46 03			
21	Bul	traces	13 56 39			W.W.R. Tremor
21	Bha	traces	15 49 40			
21	Bul	iP	23 09 15 A	83	C	USCGS H= 22 57 51 5.9S 113.0E ht 631Km Java Sea
		i	11 23			
		i	18 36			
		i	21 44			
	Bha	iP	09 18	85	R	
		i	11 25		R	
		i	18 40			
		i	21 46			
22	Bha	eP	00 31 07	83		USCGS H= 00 19 43 5.9S 112.9E ht 611Km Java Sea
		i	40 35			
	Bul	iP	31 08 A	85	C	Java Sea
22	Bul	iP	00 49 01	83		USCGS H= 00 37 37 6.0S 113.0E
	Bha	iP	03	85	R	ht 595Km Java Sea
		i	54 08			
22	Bul	i	00 57 05		C	
22	Bul	i	01 37 25			
22	Bul	iS ₁	02 35 40			
22	Bha	e	04 46 17			
		i	54			
22	Bul	e	04 49 25			
22	Bha	eP	08 50 28			Probably Kariba
		iS ₁	55			
	Bul	i	35			
22	Bul	iP	12 19 56	87		USCGS H= 12 07 06 32.2S 66.9W
	Bha	eP	20 12	90		ht 249Km San Luis Province, Argentina
22	Bul	ePKP	15 31 07	111		USCGS H= 1513 04 3.2S 142.3E
	Bha	ePKP	36	113		ht 25Km Near North Coast of New Guinea M= 5 ³ / ₄
22	Bul	iP	19 11 25 K	90	R	USCGS H= 18 59 01 28.1S 67.5W
	Bha	iP	40	92		ht 217Km Catamarca Province, Argentine
22	Bha	iP	19 16 46			Probably Central Africa
		i	18 43			
		i	19 51			
22	Bul	i	21 28 07			Seismic, Probably local
23	Bul	iS ₁	02 29 27			W.W.R. Tremor
23	Bul	traces	03 28 45			
23	Bul	eP	05 47 23	88		USCGS H= 05 34 41 38.0s 72.3W
	Bha	iP	43	91		ht 67Km Near Coast of Southern Chile

MARCH 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Are. Dist.	C/R	Remarks
23	Bul	i	07 55 44			
23	Bha	iP	08 54 45			Probably Kariba Dam
		iS	55 13			
	Bul	iP _n	00			
		iP ₁	10			
		i	51			
23	Bul	traces	10 09 08			
23	Bha	iP	16 02 42	250KM		B P I H= 16 02 04 Kariba area, Rhodesia
		iS	03 10			
	Bul	iP _n	02 57	390Km		
		iP ₁	03 06			
		iS ₁	49			
24	Bha	iP	00 35 55			Probably Nyasaland
		iS _n	36 53			
		iS ₁	37 25			
		e	08			
		i	39 10			
24	Bul	i	01 15 35			W.W.R. Tremor
24	Bul	e	01 49 42			USCGS H= 01 34 08 17.8S 173.0W ht 25Km Fiji Islands
24	Bha	e	08 34 18			
24	Bha	eP	09 05 27			Probably Kariba
		iS	53			
	Bul	traces	06 35			
24	Bha	eP	12 24 49			Probably Kariba
		iS	25 15			
24	Bul	e	12 57 23			W.W.R. Tremor
24	Bul	iPKP	13 18 00	111		USCGS H= 12 59 31 5.7S 145.0E
24	Bha	iPKP	03	115	R	ht 111Km Near North Coast of New Guinea
24	Bha	traces	20 18 01			
24	Bha	eP	22 26 42			Probably Kariba
		iS	27 09			
	Bul	traces	05			
25	Bul	ePKP ₁	08 32 15	149		USCGS H= 08 12 38 51.2N 169.8W +45Km Fox Islands, Aleutian Islands
25	Bul	iP	11 52 14	46		USCGS H= 11 44 28 49.5S 8.7W
	Bha	ei	51	51		ht 25Km About 600miles North West of Bovet Island
25	Bul	i	14 36 23			
	Bha	e	57			
25	Bha	e	19 46 36			Probably Kariba
		i	47 04			
25	Bul	iP	21 01 16	86	R	USCGS H= 20 49 09 27.8N 99.6E
	Bha	traces	22			ht 25Km Si Kiang Province China
25	Bha	e	22 24 08			
26	Bha	traces	04 53 31			Probably Central Africa
			55 17			
26	Bul	traces	05 13 20			
26	Bha	iP	05 56 21	250Km		B P I H= 05 55 43 Kariba Area, Rhodesia
		iS	49			
	Bul	eP _n	38	385Km		
		iP ₁	46			
		iS ₁	57 30			
26	Bha	iP ₁	07 02 40	250Km		B P I H= 07 02 02 Kariba Area, Rhodesia
		i	43			
		iS	03 08			
	Bul	iP ₁	03 05	390Km		
		iS ₁	03 50			

MARCH 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
26	X/Bul	eP	09 32 03	62		USCGS H= 09 22 07 38.7N 20.6E ht 25Km Ionian Islands
26	X/Bha	eP	12 13 48	53		USCGS H= 12 04 55 0.5S 19.2W
	X/Bul	iP	✓ 59	56		ht 25Km Mid-Atlantic Ocean
26	Bha	traces	12 16 39			Probably Kariba
26	Bha	traces	15 53 49			Probably Kariba
26	X/Bul	iP	16 45 23	88		USCGS H= 16 32 44 40.6S 73.3W
	X/Bha	iP	✓ 42 A	91	C	ht 32Km New Coast of Southern Chile
26	Bha	iP	17 04 32	250Km		B P I H= 17.03 54 Kariba Area, Rhodesia
		i	35			
		iS	05 02			
	Bul	iP _n	04 50	390Km		
		iP ₁	05 00			
		iS ₁	42			
27	Bha	iS ₁	00 34 27			Probably Kariba
27	X/Bha	iP ₁	05 36 06	102	R	USCGS H= 05 22 32 3.9S 129.1E ht 96Km Ceram Region
27	Bha	iP	10 17 09			North of Brokenhill
		i	18 20			
		i	55			
	Bul	eP	07			
		i	19 45			
		i	20 47			
27	Bul	eS ₁	12 17 58			W.W.R. Tremor
27	Bul	eS ₁	13 39 35			W.W.R. Tremor
27	Bha	e	14 21 03			
27	Bul	e	15 19 02			
28	X/Bha	iP	01 02 24 A	66	C	USCGS H= 00 51 55 36.6N 71.6E
	X/Bul	iP	✓ 52 A	70	C	ht 108 Km Hindu Kush
28	X/Bha	iP	04 16 28 K	71	R	USCGS H= 04 05 25 1.4N 97.5E
	X/Bul	eP	✓ 32 K	72	R	ht 74Km Near South Coast of Sumatra
28	Bha	eP	07 57 08			Seismic, Probably Northern Rhodesia
		iS	59 03			
28	Bha	eP	09 35 00			Probably Kariba
		iS	28			
	Bul	traces	36 11			
28	Bha	traces	10 39 05			
28	X/Bul	e P	13 38 40	84		USCGS H= 13 26 20 45.7N 83.1E ht 25Km Kazakh S.S.R.
29	Bha	e	16 28 04			
29	Bha	traces	02 21 10			
29	Bha	traces	05 04 15			
29	Bul	traces	16 08 02			
29	X/Bul	eP	20 22 39 A	99	C	USCGS H= 20 09 02 0.5S 127.4E
	X/Bha	eP	✓ 41	101		ht 25Km Halmahera region
30	Bul	iS ₁	00 20 27			W.W.R. Tremor
30	Bul	iS ₁	11 08 13			W.W.R. Tremor
30	Bha	e	11 17 32			Probably Central Africa
		i	18 48			
30	Bul	i	14 32 50			
30	Bha	traces	17 52 26			Probably Central Africa
30	Bha	iP	19 06 25			+ 170 Km from Station
		iS	46			
31	Bha	o	02 24 43			
31	Bha	traces	04 53 00			
31	Bul	e	06 25 09			
		i	26 25			
31	Bul	traces	08 00 50			
31	Bul	i	12 11 34		C	
31	Bul	eP	23 46 33	59		USCGS H= 23 36 44 34.0N 48.0E ht 25Km Western Iran

Imp

APR 1962

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

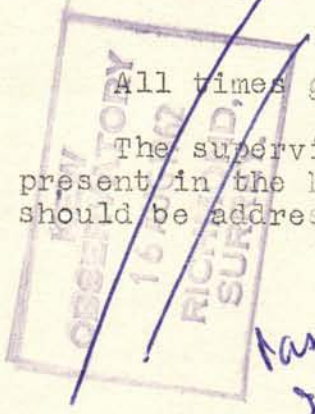
SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.



Handwritten signatures and initials: 'Handwritten signature' and 'SS'.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

APRIL 1962.

- 160 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
1	X/Bha	traces	00 52 30			
	/Bul	i	53 20			
-1	Bul	i	06 35 03		C	
1	Bha	iP	12 17 22	143		USCGS H= 12 00 04 53.4N 164.5W
1	Bha	iPKP	19 33			ht 36Km Fox Islands Aleutian Islands
	Bul	iP	52	149		
	Bul	iPKP	43			
1	X/Bul	iPKP	12 29 35	115	R	USCGS H= 12 11 09 4.2S 143.6E
	X/Bha	ePKP	39	117		ht 80Km Near North Coast of New Guinea
1	Bul	e	15 55 59			
1	Bul	traces	16 48 01			
2	Bul	e	00 33 20			
2	Bul	i	08 29 58			
2	Bha	e	13 01 30			
2	Bha	e	20 22 40			
2	Bha	eP	04 39 10			Probably Central Africa
3	Bul	iS	12 10 48			
		i	11 21			
		i	31			
3	Bul	e	14 19 08			W. W. R. Tremor
		i	20 46			
3	X/Bul	ePKP	16 43 59	127		USCGS H= 16 24 56 10.6S 164.9E
	X/Bha	traces	44 23	130		ht 36Km Santa Cruz Islands region M= 5 1/2
3	Bul	traces	22 27 30			
4	Bul	e	11 03 46			
4	Bha	traces	12 52 59			
4	Bha	eP	16 22 19			+ 180Km from Station
		iS	42			
	Bul	e	24 02			
4	Bha	e	18 05 16			
4	Bha	eP	18 12 04			Seismic, Probably local
		iS	25			
4	Bul	traces	20 04 35			
4	Bha	eP	20 59 48	51		USCGS H= 20 51 05 34.6N 25.5E
	Bul	eP	21 00 30	57		ht 21Km Crete
4	X/Bha	eP	21 08 27	51		USCGS H= 20 59 36 34.6N 25.5E
	X/Bul	iP	09 01	57	R	ht 25Km Crete
5	Bha	eP	01 23 22			B ⁿ P I H = 01 22 44 Kariba Area, Rhodesia
		iS	48			Probably Central Africa
5	Bha	eP	10 57 32			
		iS	59 38			
5	Bul	eP	12 37 14	88	C	USCGS H= 12 24 35 44.9S 75.3W
	Bha	eP	33	92		ht 25Km Near Coast of Southern Chile
5	Bha	e	12 42 29			Seismic, Probably local
		i	50			
6	Bul	iS ₁	06 26 05			
6	Bha	traces	06 36 05			
6	Bha	e	07 08 23			
6	Bul	e P _n	12 48 11			W. W. R. Tremor
		i S ₁	49 13			
6	Bul	e P _n	15 06 10			W. W. R. Tremor
		i S ₁	07 09			
6	Bul	e P _n	16 11 14			W. W. R. Tremor
		i S _n	12 26			
		i S ₁	59			
7	X/Bul	ePKP	06 40 31	110		USCGS H= 06 21 38 10.0N 144.4E
						ht 50Km Caroline Islands region M=6
7	Bul	iP	13 12 58	89		USCGS H= 13 00 26 35.1S 70.3W
						ht 108 Km Central Chile
7	Bha	eP	22 25 16	67		USCGS H = 22 14 47 36.6N 71.4E
	Bul	eP	43	71		ht 105Km Hindu Kush
7	Bha	e	23 17 21			
7	Bul	e	23 39 05			
8	Bul	eS ₁	01 07 17			
8	Bha	eP ₁	03 14 58			Seismic, Probably local
		iS	15 37			

APRIL 1962

- 161 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
8	Bul	e	20 45 18			
8	Bul	iPKP ₁	22 29 02	146		USCGS H= 22 09 31 54.8N 165.0W ht 25Km Unimak Islands region
9	Bul	iP	09 07 32	93	C	USCGS H= 08 54 23 8.6S 124.1E
	Bha	iP	✓ 38	95	C	ht 46Km Sawoe Sea
9	Bha	iP	23 35 40			USCGS H= 23 35 02 Kariba Area, Rhodesia
		iS	36 07			
	Bul	iS ₁	47			
10	Bul	e	04 18 33			
10	Bul	eP	04 49 02	90		USCGS H= 04 36 28 28.6S 68.3W
	Bha	iP	✓ 17	92		ht 130Km Chile-Argentine Border
10	Bul	eS ₁	07 17 08			W. W. R. Tremor
10	Bha	i	10 51 00			USCGS H= 10 31 59 51.1N 157.7E ht 33Km Near Coast of Kamchatka
10	Bul	iP	12 47 35	89		USCGS H= 12 34 51 37.3S 72.6W
	Bha	iP	53	92		ht 67Km Near Coast of Southern Chile
10	Bul	eP	14 22 04	90		USCGS H= 14 09 19 37.5S 73.8W
	Bha	eP	22	93	C	ht 25Km Near Coast of Chile
10	Bha	iP	14 52 51			
		iS	53 15			
10	Bha	iP	21 46 24	56		USCGS H= 21 37 13 37.9N 20.1E
	Bul	iP	47 05	62	C	ht 35Km Ionian Sea M=5
10	Bul	iP	22 20 43	56		USCGS H= 22 10 50 38.1N 20.4E
	Bha	eP	✓ 21 03	62		ht 25Km Ionian Sea
11	Bha	traces	04 35 00			
11	Bha	iP	09 44 06	65		USCGS H= 09 33 36 36.5N 71.6E
	Bul	iP	35	69		ht 97Km Hindu Kush
11	Bha	eP	10 56 44	56		USCGS H= 10 47 34 38.2N 20.0E
	Bul	iP	✓ 57 22	62		ht 43Km Ionian Sea
11	Bul	e	12 05 19			
11	Bul	traces	12 25 02			
11	Bha	i	13 23 26			Seismic, Probably local.
11	Bul	eS ₁	14 06 32			W. W. R. Tremor
12	Bha	ePKP	01 11 26	119		USCGS H= 00 52 47 38.2N 142.3E
	Bul	iPKP	33	122		ht 68Km Near East Coast of Honshu, Japan M=7
		iPP	✓ 13 00			
12	Bha	e	01 21 52			
12	Bul	iP	16 48 58	91		USCGS H= 16 36 08 28.7S 71.9W
	Bha	eP	49 13	93		ht 34Km Near Coast of Northern Chile
13	Bha	e	03 24 11			
13	Bul	iS ₁	07 06 54			
13	Bul	i	21 26 58			
		i	27 25			
13	Bha	e	12 52 40			Seismic, Probably local
13	Bha	traces	14 10 50			
13	Bha	iP	18 48 16	83	C	USCGS H= 18 35 58 49.1N 87.2E ht 28Km Kazakh S.S.R.- China Border
14	Bul	e	00 07 55			
14	Bha	eP	14 24 16			
		iS	25 12			
14	Bha	e	22 11 25			
15	Bha	iP	00 14 58			+ 90Km from Station
		iS	15 09			
15	Bha	e	01 23 38			
15	Bha	e	12 58 45			
15	Bha	eP	18 16 14	44		USCGS H= 18 08 27 2.7S 11.6W
	Bul	iP	✓ 26	46		ht 25Km Ascension Island region
15	Bha	eP	18 53 04	44		USCGS H= 18 45 17 2.9S 11.9W
	Bul	iP	✓ 16	46		ht 25Km Ascension Island region

APRIL 1962. (Continued)

- 162 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
15	Bul	i	22 40 25		C	USCGS H= 22 31 06 56.6S 26.2W
	Bha	i	59		C	ht 25Km Sandwich Islands
16	Bha	eP	00 24 27	56	R)	USCGS H= 00 15 16 38.2N 20.4E ht 25Km Ionian Sea
16	Bha	iPKP	13 38 42	119		USCGS H= 13 20 15 30.6N 140.5E ht 176 Km
	Bul	iPKP	46	120		South of Honshu, Japan
		i	42 13)	
16	Bha	e	13 59 05			
16	Bul	eP	14 28 26			
		iS ₁ ⁿ	29 01			
16	Bul	iP	18 00 17	29		USCGS H= 17.54 49 44.8S 37.2E
		iS	06 46			ht 25Km Prince Edward Island
	Bha	eP	01 06	35		
		eS	07 37			
17	Bha	iPKP	07 08 43	119		USCGS H= 06 48 45 31.3N 142.6E
						ht 23Km South of Honshu, Japan
17	Bha	iP	11 36 12	245Km		B P I H= 11 35 34 Kariba Area, Rhodesia
		iS	39			
	Bul	eP _n	29	385Km		
		iS _n	36			
		iS ₁	37 18			
17	Bha	iP	11 43 45	56		USCGS H= 11 33 51 37.8N 19.9E
		iP	49 32	62		ht 25Km Ionian Sea
17	Bul	e	14 59 57			
17	Bha	iP	22 43 13	46		USCGS H= 22 34 57 1.5S 14.9W
	Bul	iP	24	49		ht 25Km Mid-Atlantic Ocean
17	Bha	eP	23 58 15			B P I H= 23 57 37 Kariba Area, Rhodesia
		iS	42			
	Bul	iS ₁	59 22			
18	Bul	iP	19 28 32	106		USCGS H= 19 14 37 10.0S 79.0W
	Bha	ep	43	106		ht 39Km Off Coast of Peru M= 6 $\frac{3}{4}$
18	Bha	i	19 44 29			
19	Bha	eP	02 15 06	56		USCGS H= 02 05 59 38.5N 20.5E
	Bul	iP	47	62		ht 25Km Ionian Sea
19	Bul	iP	12 05 25	63		USCGS H= 11 55 27 38.6N 44.0E
						ht 25Km Eastern Turkey
19	Bha	e	19 09 17			Probably Central Africa
		i	10 32			
		i	11 07			
	Bul	iS ₁	13 12			
19	Bha	iP ₁	22 26 56	250Km		B P I H= 22 26 16 Kariba Area, Rhodesia
		iS	27 24			
19	Bul	iS ₁	22 28 04			
19	Bha	ePKP	22 34 09	133		USCGS H= 22 15 21 15.8S 168.0E
	Bha	iPP	22 37 10			ht 213Km New Hebrides Islands
19	Bul	ePKP	23 34 43	118		USCGS H= 23 16 04 69.8N 138.6 E
						ht 0Km Siberia S.S.R.
20	Bha	iP	16 02 03	106		USCGS H= 05 47 55 20.6N 72.2W
		iPP	06 17			ht 25Km Near North Coast of Haiti
	Bul	eP	02 10	109		M = 6 $\frac{3}{4}$
		iPKP	05 31			
		iPP	06 20			
20	Bha	e	06 17 47			
20	Bha	e	11 56 09			
20	Bha	e	13 42 51			
20	Bha	iP	15 15 41			+ 25Km from Station
		iS	44			
20	Bha	iP _n	22 47 19			Probably Nyasaland
		iS _n	48 08			
		iS ₁	27			

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
20	Bha	e	09 33 48			
21	Bul	eP _n	09 36 07			
		iS _n	55			
	Bha	iS ₁	37 23			
		e	36 24			
		e	37 41			
		i	38 19			
21	Bha	e	12 49 23			Seismic, Probably local
		i	56			
	Bul	traces	51 30			
21	Bha	traces	13 13 20			
22	Bha	eP	01 07 31	245Km		B P I H= 01 06 54 Kariba Area, Rhodesia
		iS	57			
	Bul	traces	08 25			
22	Bha	eP	01 11 05	250Km		B P I H= 01 10 27 Kariba Area, Rhodesia
		iS	32			
22	Bul	ePKP	02 28 44	125		USCGS H= 02 10 12 18.9S 169.5E
X	Bha	ePKP	52	130		ht 288Km New Hebrides Islands region
		e	30 52			
22	Bul	iP	04 41 55	87		USCGS H= 04 29 39 44.2S 72.6W
X	Bha	iP	42 15	91	R	ht 146Km Near Chile-Argentina border
22	Bha	iPKP	05 04 12	127		USCGS H= 04 45 20 15.5N 93.1W ht 69Km Near Coast of Chiapas, Mexico. M = 5 1/4 Probably Central Africa
22	Bha	eP	11 07 36			
		iS _n	10 04			
		iS ₁	11 35			
22	Bul	traces	11 12 41			
22	Bul	e	19 01 13			
23	Bha	eP	02 16 24	245Km		B P I H= 02 15 46
		iS	50			
	Bul	e	18 31			
23	Bul	e	04 30 51			
23	Bha	e	06 13 22			
23	Bha	iPKP	06 16 53	121		USCGS H= 05 58 05 42.9N 143.4E
X	Bul	ePKP	17 00	125		ht 25Km Hokkaido, Japan m = 7
		i	30			
23	Bha	eP	06 27 12	245Km		B P I H= 06 26 34 Kariba Area, Rhodesia
		iS	38			
23	Bha	e	09 50 41			Seismic, Probably local
		i	51 34			
24	Bha	e	09 05 01			
24	Bha	i	18 31 42			
24	Bha	eP	21 06 51	250Km		B P I H= 21 06 13 Kariba Area, Rhodesia
		iS	07 18			
	Bul	eP ₁	16	385Km		
		iS ₁	08 01			
25	Bul	i	04 33 29		R	
25	Bha	e	14 24 03			
25	Bha	ePKP	16 06 11	119		USCGS H= 15 47 29 38.4N 142.5E
X	Bul	ePKP	16	122		ht 56Km Honshu Japan.
25	Bha	eP	22 10 42	245Km		B P I H= 22 10 04 Kariba Area, Rhodesia
		iS	11 08			
	Bul	eP ₁	06	385Km		
		iS ₁	49			
25	Bha	e	23 10 14			
25	Bha	eP	01 25 01	250Km		B P I H= 01 24 33 Kariba Area, Rhodesia
		iS	28			
	Bul	eP ₁	25	385Km		
		iS ₁	26 09			
26	Bha	eP	01 34 38	245Km		B P I H= 01 34 00 Kariba Area, Rhodesia
		iS	35 04			

APRIL 1962 (Continued)

- 164 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
26	Bha	eP	02 23 31	250Km		B P I H= 02 22 53 Kariba Area, Rhodesia
	Bul	iS ₁	24 08 50			
26	Bha	eP	03 09 49			Probably Kariba
		iS	10 14			
26	Bha	eP	03 15 39	250Km		B P I H= 03 15 01 Kariba Area, Rhodesia
	Bul	iP ₁	16 06 03	385Km		
		iS ₁	47			
26	Bul	e	03 23 38			
26	Bul	ePKP	07 44 28	133		USCGS H= 07 26 31 17.8S 179.1W ht 689Km Fiji Islands
		i	47 22			
	Bha	iPKP	44 42	139		
		i	47 35			
26	Bha	iP	11 54 02	250Km		B P I H= 11 54 24 Kariba Area, Rhodesia
	Bul	iS	29			
		iP _n	19	385Km		
		iP ₁	25			
		iS ₁	55 11			
26	Bha	eP	13 17 21			
		iS	50			
27	Bha	eP	01 28 20	250Km		B P I H= 01 27 42 Kariba Area, Rhodesia
		iS	47			
	Bul	traces	29 29			
27	Bha	e	06 06 50			
27	Bul	iP	07 00 08	87		USCGS H= 06 47 27 44.4S 74.8W
	Bha	iP	29	91		ht 31Km Southern Chile
27	Bul	e	12 24 16			
27	Bul	eS ₁	13 54 03			
28	Bha	eP	11 27 53	56		USCGS H= 11 18 57 36.4N 26.6E
	Bul	iP	28 34	62		ht 40Km Dodecanese Islands
28	Bul	iS ₁	11 39 55			
28	Bha	eP ₁	12 52 49	55		USCGS H= 12 43 49 36.3N 26.7E
	Bul	iP	53 24	61		ht 48Km Dodecanese Islands
29	Bha	iP _n	11 33 45			Probably Central Africa
		iS _n	34 57			
		iS ₁	35 29			
	Bul	e	34 55			
		i	38 18			
29	Bha	e	17 04 28			
29	Bha	e	17 51 06			Seismic, Probably Local
		i	58			
30	Bha	ePKP	02 45 08	117		USCGS H= 02 26 30 38.8S 140.9E
	Bul	iPKP	14	119		ht 104Km Honshu, Japan
30	Bul	e	02 55 27			
30	Bul	ePKP	10 03 06	122		USCGS H= 09 44 17 17.0N 147.3E
						ht 109Km Mariana Islands
30	Bul	eS ₁	15 14 41			W. W. R. Tremor
30	Bha	e	15 34 51			Probably Central Africa
		i	35 36			
30	Bul	e	16 26 22			
	Bha	e	52			
30	Bha	ePKP	16 36 06	135		USCGS H= 16 16 48 17.9S 176.1W
	Bul	ePKP	10	141		ht 26Km Tonga Islands region
30	Bul	ePKP	18 50 17	141		USCGS H= 18 31 07 18.0S 176.4W
						ht 135Km Fiji Islands region

H.O. Oliver
Esmé Milolla

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

- MAY 1962

SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, = Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

1962

- 165 -

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist. °	C/R	Remarks
1	Bha	eP	10 08 05	46		USCGS H= 09 59 57 23.8N 5.4E
	Bul	iP	52	52		Southern Algeria.
1	Bul	ePP	10 10 22	96		USCGS H= 09 54 21 5.8S 125.5E ht 621Km Banda Sea
1	Bha	e	10 26 55			
1	Bha	e	13 52 41			
1	Bul	iS ₁	15 49 11			W.W.R. Tremor
1	Bha	eP	20 49 47			Probably Kariba
		iS	14			
1	Bul	eP	21 15 15	35		USCGS H= 21 08 16 20.0S 65.7E
	Bha	eP	19	37		ht 39Km Mascarene Islands Region
2	Bha	e	01 25 03			
2	Bul	iPKP ₁	03 02 59	149		USCGS H= 02 43 26 55.9N 156.1W ht 25Km Kodiak Islands, Alaska region.
2	Bul	iP	09 08 55	89	R	USCGS H= 08 56 29 23.6S 65.9W
	Bha	iP	09 07	90	R	ht 163 Km Jujuy Province, Argentina
2	Bha	e	09 19 22			
2	Bha	e	09 26 45			
2	Bul	iS ₁	12 36 28			W.W.R. Tremor
2	Bul	iP	12 45 33	89	C	USCGS H= 12 33 08 23.8S 66.4W
	Bha	iP	44	90	C	ht 179Km Salta Province, Argentina
2	Bul	iS ₁	13 42 19			W.W.R. Tremor
2	Bha	e	23 47 23			Probably Kariba
3	Bha	e	02 45 18			USCGS H= 02 37 57 42.6N 144.6E
		i	25			ht 49Km Off Southeast Coast of Hokkaido, Japan
3	Bul	iP	03 44 51	60	R	USCGS H= 03 34 49 60.0S 32.9W ht 20Km Sandwich Islands region M=5 $\frac{1}{2}$
3	Bul	i	07 51 16			Probably W.W.R. Tremor
3	Bul	i	08 47 55			
3	Bul	eP	17 10 28	60		USCGS H= 17 00 33 60.5S 33.2W ht 33Km Sandwich Islands region.
3	Bul	e	22 53 39			
	Bha	e	54 13			
4	Bul	i	08 54 43			
4	Bha	iP	10 51 37	240Km		B P I H= 10 50 59
		iS	52 06			Probably Kariba area.
	Bul	iS ₁	52 44			
4	Bul	i	10 59 17			
5	Bha	e	06 19 38			Probably Central Africa
		i	21 05			
		i	47			
	Bul	traces	23 10			
5	Bha	e	13 05 32			
5	Bha	traces	21 53 20			
5	Bha	ePKP	23 25 02	131		USCGS H= 23 05 57 31.6S 176.7W ht 41Km Kermadec Islands region
6	Bul	eP	05 33 36	90		USCGS H= 05 21 00 37.8S 73.4W ht 25Km Near Coast of Southern Chile
6	Bha	e	07 07 48			Probably Central Africa
		i	08 29			
		i	09 42			
6	Bul	iP	19 10 10	60		USCGS H= 19.00.10 60.0S 32.8W
	Bha	iP	43	65	R	ht 25Km Sandwich Islands region M=7
6	Bul	i	19 29 55		C	
	Bha	e	30 29			
6	Bha	e	19 39 49			
6	Bul	eP	22 03 46	60	R	USCGS H= 21 53 49 60.2S 33.1W
	Bha	eP	04 20	65		ht 37Km Sandwich Islands region

May, 1962 (Continued)

- 166 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
6	Bul	e	23 32 27			
7	Bul	e	01 14 44			
	Bha	i	18 19			
	Bha	i	15 24			
	Bha	i	18 08			
7	Bha	eP	15 27 17			
		iS	48			
7	Bha	iPKP	17 58 32	122	C	USCGS H= 17 39 50 45.3N 146.7E Kurile Islands M=6 $\frac{3}{4}$
	Bul	i	18 08 52			
	Bul	iPKP	17 58 48	125	C	
7	Bul	iP	19 13 05	58	C	USCGS H= 19 03 32 59.5S 25.6W
	Bha	iP	40	63		ht 25Km Sandwich Islands
8	Bha	i	13 01 34			Seismic, Probably local
		i	53			
8	Bul	i	13 17 28			Probably W.W.R. Tremor
8	Bha	e	21 33 40			
9	Bul	i	05 06 12			Probably W.W.R. Tremor
9	Bul	oP	12 23 26	68		USCGS H= 12 12 34 36.6N 68.3E ht 96Km Hindu Kush
9	Bha	eP	12 52 18			Probably Kariba
		iS	44			
9	Bha	e	18 51 42			
		i	52 51			
	Bul	traces	55 50			
9	Bha	e	20 57 30			
		i	59 51			
9	Bul	eP	22 22 25			Probably W.W.R. Tremor
		i ⁿ	23 31			
		iS ₁	24 00			
	Bha	i	23 41			
10	Bha	ePKP	00 22 40	136		USCGS H= 00 03 40 62.0N 150.1W ht 72Km Alaska M=6
	Bul	iPKS	26 12			
	Bul	ePKP	23 47	142		
10	Bha	ePKP	05 31 34	142		USCGS H= 05 12 16 52.4N 170.9W
	Bul	iPKS	35 15			ht 43Km Fox Islands M=6
	Bul	iPKP	31 50	147	C	
10	Bha	eP	06 01 01			Probably Kariba
		iS	27			
10	Bul	e	14 47 27			W.W.R. Tremor
		i	48 10			
11	Bha	traces	03 59 35			
11	Bul	iS ₁	08 53 32			W.W.R. Tremor
11	Bul	iPP	12 27 08	128	R	USCGS H= 12 06 42 14.3S 170.4E
	Bha	i	20	132	R	ht 623Km New Hebrides Islands region
11	Bha	iPKP	14 30 46	133		USCGS H= 14 11 52 17.0N 99.7W
		i	31 00			ht 25Km Near Coast of Mexico M=7
	Bul	ePKP	30 51	135		
11	Bha	e	17 45 57			
11	Bul	e	18 02 04			
11	Bha	e	19 35 03			
11	Bul	eP	20 08 32	41		USCGS H= 20 01 07 27.5S 13.7W
	Bha	eP	52	43		ht 25Km South Atlantic Ocean.
11	Bha	e	20 21 56			
	Bul	e	22 01			
12	Bha	i	00 10 48			Probably Central Africa
		i	11 20			
	Bul	i	49			
		i	13 37			
		i	14 37			
12	Bha	e	02 37 58			
		i	38 20			
12	Bha	e	05 05 33			Probably Republic of the Congo
		i	07 32			
		i	08 38			

May, 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
12	Bha	e	15 46 10			
12	Bul	e	18 51 19			
	Bha	e	52 10			
12	Bul	e	19 19 39			
14	Bul	iP	10 46 13	86	R	USCGS H= 10 33 26 9.0S 118.7E
	Bha	iP	18	88		ht 30Km Soembawa
15	Bul	eP	05 37 14	97		USCGS H= 05 23 46 7.3S 128.3E
	Bha	eP	20	99		ht 34Km Banda Sea. M=7 $\frac{1}{4}$
15	Bul	e	05 53 51			
15	Bha	e	16 31 36			
15	Bul	ePKP ₁	16 36 00	149	R	USCGS H= 16 16 19 53.2N 164.7W
						ht 25Km Unimak Island region
15	Bha	e	18 17 18			Probably Kariba
		i	43			
15	Bha	iPKP	19 51 23	131	C	USCGS H= 19 32 23 53.4N 159.6E
						ht 30Km Near Coast of Kamchatka
15	Bul	iPKP ₁	20 53 05	149	C	USCGS H= 20 33 29 53.5N 164.0W
						ht 25Km Unimak Island Region
16	Bha	iP	02 50 19	240Km		B P I H= 02 49 42 Kariba Area,
		iS	46			Rhodesia
	Bul	eP ₁	45	380Km		
		iS _n	51 18			
		iS ₁	29			
16	Bul	ePKP	17 52 08	128		USCGS H= 17 33 06 13.4S 167.3E
						ht 35Km New Hebrides Islands
16	Bul	e	19 48 48			
16	Bha	e	21 17 34			
16	Bha	e	23 57 38			Probably Central Africa
		i	58 43			
		i	59 21			
	Bul	e	58 50			
		i	24 00 52			
		i	02 07			
17	Bha	e	00 23 39			
17	Bul	i	01 11 40			
17	Bha	e	01 40 09			
		i	42 12			
17	Bha	iP	12 07 57	44		USCGS H= 12 00 30 6.2S 68.3E
	Bul	iP	08 05	45	R	ht 25Km Chagos Archipelago Region
		iPP	09 38			
17	Bul	iP	16 10 09	56		USCGS H= 16 00 37 55.8S 27.0W
	Bha	iP	43	61	C	ht 23Km Sandwich Islands
17	Bha	eP	18 00 07			
		iS	39			
18	Bul	i	02 28 42			W.W.R. Tremor
		i	29 48			
		i	30 18			
	Bha	e	29 58			
		i	32 05			
18	Bul	ePP	03 10 33	133		USCGS H= 02 49 50 21.2S 178.8W
						ht 549Km Fiji Islands region
18	Bul	iPKP	07 31 33	126	C	USCGS H= 07 12 55 29.3S 178.4W
						ht 192Km Kermadec Islands
18	Bul	iS ₁	13 07 08			W.W.R. Tremor
18	Bha	e	21 03 09			Probably Congo
		i	04 23			
19	Bul	eP _n	05 04 05	430Km		B P I H= 07 03 05 24S 29E
		iP ₁	(14)			Potgietersrust Area, N. Transvaal
		iS _n	49			S. Africa.
		iS ₁	05 07			
	Bha	eP _n	23	1060Km		
		i	07(18)			

May, 1962. (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
19	Bha	i	07 08 08			
19	Bha	e	14 29 20			Seismic, Probably local
		i	51			
19	Bul	ePKP	15 17 20	133		USCGS H= 14 58 13 17.2N 99.5W
	Bha	ePKP	23	131		ht 20Km Near Coast of Mexico. M=7½
19	Bul	eP	18 01 30			Local, + 32Km from Station
		iS	34			
19	Bha	e	21 01 07			
	Bul	i	34			
19	Bha	traces	21 12 36			
20	Bul	e	00 49 11			
20	Bha	e	03 56 12			
		i	57 10			
20	Bha	e	14 30 10			
		i	31 36			
		i	32 24			
20	Bha	traces	16 00 55			
20	Bha	i	22 42 58			Probably Central Africa
		i	44 48			
		i	45 47			
21	Bha	traces	11 12 35			Probably Central Africa
21	Bha	iP	12 15 08	83		USCGS H= 12 02 51 37.3N 96.0E
	Bul	iP	27	86	C	ht 25Km Chinghai Province China M=7
21	Bul	i	12 41 56			
			42 05			
21	Bul	iP	12 48 55	86		USCGS H= 12 36 20 37.0N 95.9E
						ht 25Km Chinghai Province, China
21	Bul	iP	13 28 17	86	C	USCGS H= 13 15 39 37.0N 95.7E
						ht 25Km Chinghai Province, China
21	Bul	e	14 49 28			
21	Bul	i	14 52 03			W.W.R. Tremor
		i	38			
21	Bha	iP	15 54 02	83		USCGS H= 15 41 47 37.1N 95.9E
	Bul	iP	20	86	C	ht 36Km Chinghai Province China
21	Bha	e	16 40 47			
21	Bha	e	20 31 32			Probably Central Africa
		i	32 52			
		i	33 23			
21	Bha	ePKP	21 33 21	136		USCGS H= 21 15 31 20.0S 177.5W
		i	34 09			ht 379Km Fiji Islands region M=6½
	Bul	iPKP	33 39	140		
		i	34 11			
22	Bha	ePKP ₁	00 39 15	146		USCGS H= 00 20 02 16.8S 174.3W
						ht 52Km Tonga Islands
22	Bha	e	06 30 44			Probably Central Africa
		i	32 40			
		i	33 46			
	Bul	traces	34 00			
22	Bul	iPKP	08 25 29	129		USCGS H= 08 06 39 12.3S 166.6E
	Bha	iPKP	38	133		ht 151Km Santa Cruz Islands M=6½
22	Bha	e	14 26 50			Probably Central Africa
		i	28 46			
		i	29 55			
	Bul	traces	32 00			
22	Bha	traces	16 29 16			
22	Bul	ePKP	22 22 16	119		USCGS H= 22 03 36 5.5S 152.0E
	Bha	ePKP	20	122		ht 100Km New Britain
22	Bha	e	23 39 12			
22	Bha	eP	23 41 32	83		USCGS H= 23 29 14 36.8N 96.0E
	Bul	iP	51	86	R	ht 25Km Chinghai Province, China
22	Bul	i	23 59 05			
23	Bul	eP	01 05 37	86		USCGS H= 00 53 03 37.2N 95.8E
						ht 39Km Chinghai Province, China

May, 1962. (Continued)

- 169 -

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
23	Bha	iP	01 54 27	83	C	USCGS H= 01 42 12 37.1N 96.0E
	Bul	iP	46 86		C	ht 50Km Chinghai Province, China
23	Bul	iS ₁	02 59 32			W.W.R. Tremor
24	Bul	ePKP ₁	04 44 28	148		USCGS H= 04 24 50 49.1N 129.4W ht 25Km Vancouver Island region
25	Bul	e	02 20 23			
	Bha	e	50			
25	Bul	iP _n	03 16 52	670Km		B P I H= 03 15 21 19S 35E
		iS _n	17 55			Mozambique
		iS ₁	18 30			
	Bha	iP _n	17 08	810Km		
		iS _n	13 26			
		iS ₁	19 04			
25	Bul	i	04 23 44			
25	Bha	ePKP	04 38 28	142		USCGS H= 04 19 57 20.7S 174.3W ht 231Km Tonga Islands
25	Bul	iP	11 47 38	86	C	USCGS H= 11 35 08 38.0W 95.9E ht 25Km Chinghai Province, China
25	Bha	ePKP	17 40 13	134		USCGS H= 17 21 58 24.1S 179.1E ht 576Km Fiji Islands region
25	Bha	i	17 42 46			
25	Bul	eP	21 41 23	88	R	USCGS H= 21 28 28 24.3S 65.3W
	Bha	eP	36 89			ht 69Km Jujuy Province, Argentine
25	Bul	traces	21 51 00			
26	Bul	eP	13 03 43	89		USCGS H= 12 51 01 43.2S 75.6W ht 38Km Off Coast of Southern Chile
26	Bha	iP	19 55 20	70		USCGS H= 19 44 18 6.7N 94.6E
	Bul	iP	27 70	C		ht 60Km Nicobar Islands
		i	58			
27	Bha	e	06 30 57			
27	Bul	eP	14 41 46	50		USCGS H= 14 33 04 41.4S 80.6E ht 25Km Kerguelen Islands region
27	Bha	eP	18 41 24	240Km		B P I H= 18 40 46 Kariba Area
		iS	51			
	Bul	iS ₁	42 31			
27	Bha	e	19 28 24			Probably Central Africa
		i	29 40			
		i	30 34			
	Bul	e	32 04			
27	Bha	e	20 56 12			
		i	55			
28	Bul	eP	02 26 14			Probably Kariba
		iS	41			
28	Bul	iS ₁	12 11 02			W.W.R. Tremor
28	Bul	traces	14 53 30			
28	Bul	iS ₁	18 06 20			W.W.R. Tremor
28	Bha	e	18 09 15			
29	Bul	iP	00 01 32	87		USCGS H= 23 49 01 31.3S 68.3W
	Bha	iP	48 91	R		ht 94Km San Juan Province, Argentina
29	Bul	i	20 45 39		R	
	Bha	i	46 07			
29	Bha	ePKP	21 19 32	141		USCGS H= 21 00 16 51.8N 177.1W
	Bul	iPKP ₁	44 146			ht 25Km Andreanof Islands, Aleutian Islands
30	Bul	traces	00 33 17			W.W.R. Tremor
30	Bul	traces	08 55 32			
30	Bha	eP	10 15 09	82		USCGS H= 10 02 52 30.3N 42.4W
	Bul	eP	25 87			ht 35Km North Atlantic Ocean. M=5
		e	18 40			

May, 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc. Dist.	C/R	Remarks
30	Bha	iP	16 02 55	245Km		B P I M= 16 02 17 Kariba Area
		iS	03 23			
	Bul	iP ₁	20	380Km		
		iS _n	52			
		iS ₁	04 04			
31	Bha	e	02 06 22			
	Bul	e	52			
31	Bul	i	02 59 33			Probably South African Earthquake
31	Bha	iPKP	06 46 43	116		USCGS H= 06 28 26 22.1N 142.6E
	Bul	iPKP	45	116	C	ht 257Km Volcano Islands region M 6½
31	Bul	iPKP	08 56 22	125		USCGS H= 08 37 26 30.3E 177.3W ht 42Km Kermadec Islands
31	Bul	e	10 25 38			W.W.R. Tremor
	Bha	traces	26 55			
31	Bul	i	10 27 15			
31	Bul	iS ₁	13 21 15			W.W.R. Tremor
31	Bha	eP	19 15 37	245Km		B P I H= 19 14 59 Kariba Area
		iS	16 04			
	Bul	eP ₁	02	385Km		
		iS _n	33			
		iS ₁	46			
31	Bul	iP	19 31 47	89	C	USCGS H= 21 19 04 38.2S 72.7W
	Bha	iP	32 06	92	C	ht 25Km Central Chile

H.O. Oliver
Esné Milolla

Am

JUN 1962

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

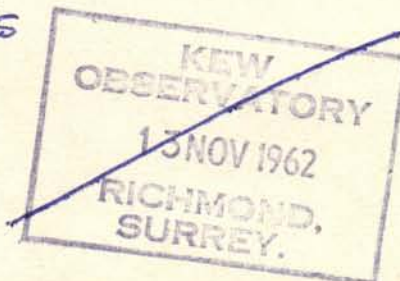
The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

*Amended
H.S.
[Signature]*



June, 1962 (Continued)

Date	Station	Phase	G. h.	M. m.	T. s.	Arf Distance Degrees	C/R	Remarks
8	Bha	traces	23	25	48			Seismic, probably local
9	Bha	e	04	20	(14)			Seismic, probably local
		i			52			
9	Bha	e	17	54	08			Seismic, probably local
		i			39			
	Bul	e			08			
		i		55	09			
9	Bha	eP ⁿ	20	05	53			Probably Central Africa
		iS ⁿ		07	17			
		iS ⁿ		08	10			
	Bul	e ^l		07	09			
		i		10	(30)			
9	Bha	iPKP	20	16	15	124	R	USCGS H = 19 57 36, h ± 104 km
	Bul	iPKP		✓ 16	16	126		13.6 N, 91.2 W, Off coast of Guatemala
10	Bul	i	00	03	47			
	Bha	i		04	01		R	
10	Bul	iP ⁿ	10	25	40	710 Km		B P I H = 10 24 06
		iS ⁿ		26	51			W. W. R. Tremor
		iS ^l		27	22			
	Bha	iP ^l		26	55	1310 Km		
		iS ⁿ		29	(06)			
		iS ^l		30	22			
10	Bul	e ^l	17	33	01			
10	Bha	eP	22	32	40			Seismic, probably local.
		iS		33	02			
11	Bul	traces	04	29	20			W. W. R. Tremor
11	Bul	ePP	04	✓ 56	24	138		USCGS H = 04 35 01, h ± 370 km
								19.6 S, 177.7 W, Fiji Islands
11	Bul	iS ^l	06	02	33			
11	Bul	iP ^l	07	✓ 26	14	67	R	USCGS H = 07 15 38, h ± 21 km.
								43.5 N, 18.3 E, Yugoslavia. M = 5
								W. W. R. Tremor
11	Bul	iS ^l	12	46	34			
12	Bha	e ^l	19	27	21			
12	Bha	eP	21	29	49			± 200 Km from Station
		iS		30	08½			
13	Bha	e	13	19	57			
		i		20	20			
		i		21	12			
	Bul	traces		22	00			
13	Bul	traces	03	45	20			
14	Bha	eP ⁿ	02	01	55	310 Km		B P I H = 02 01 09,
		iP ^l		02	01			Northern Rhodesia
		iS ^l			27			
	Bul	iP ⁿ			45			
		iS ⁿ		03	54			
		iS ^l		04	29			
14	Bha	iP ^l	03	08	29	560 Km		B P I H = 03 07 12
		iP ⁿ			44			Probably republic of the Congo.
		iS ^l		09	24			
		iS ⁿ			43			
	Bul	eP ^l			43	1200 Km		
		iS ⁿ		11	35			
		iS ^l		12	37			
14	Bha	iP ^l	04	54	05	560 Km		B P I H = 04 52 48
		iS ⁿ			58			Probably Republic of the Congo
		iS ^l		55	20			
	Bul	eP ^l			20	1200 Km		
		iS ⁿ		58	13			
14	Bul	iS ^l	07	32	50			W. W. R. Tremor
14	Bha	eP ^l	07	55	12	245 Km		B P I H = 07 54 34
		iS			39			Kariba Area
	Bul	eP ⁿ			28	580 Km.		
		iP ⁿ			35			
		iS ^l		56	18½			
14	Bul	ePKP	08	11	✓ 51	137		USCGS H = 07 51 51, h ± 34 km
								54.3 N, 169.1 E, Near Islands,
								Aleutian Islands, M = 6

June, 1962 (Continued)

Date	Station	Phase	G. h.	M. m.	T. s.	Arc Distance Degrees	C/R	Remarks
14	Bha	traces	15	27	10			Probably Central Africa
		e		28	33			
14	Bha	e	16	59	31			
14	Bha	eP	17	45	34			Probably Kariba
		eS		46	02			
14	Bha	traces	18, 00		10			Seismic, probably local.
		e			33			
14	Bul	e	18	35	08			
15	Bul	i	06	22	43			
15	Bul	eP	06	43	40	94		USCGS H = 06 30 37, h ± 60 km. 20.4 S, 70.3 W, Near Coast of Northern Chile M = 5.
15	Bul	e	12	23	36			
15	Bul	e	18	58	33			
16	Bha	e	01	25	23			Kariba area
		i			51			
16	Bha	eP ₁	02	43	12	300 Km.		B P I H = 02 42 28
		iS ₁ ⁿ			43			Northern Rhodesia
	Bul	iS ₁ ⁿ		45	14	750 Km		
		iS ₁ ⁿ			59			
16	Bul	e	06	23	33			
		i		24	05			
16	Bul	iP	06	40	32	94		USCGS H = 06 27 30, h ± 177 km 0.2 S, 122.8 E, Celebes Region Seismic, local
16	Bul	eP ₁	09	03	04			
		iS ₁ ⁿ			48			
		iS ₁ ⁿ		04	10			
16	Bha	eP ₁	11	05	59			Probably Kariba
		iS		06	23			
16	Bul	iS ₁	11	13	34			W. W. R. Tremor
17	Bul	iP	04	33	03	29	C	USCGS H = 04 27 38, h ± 15 km
17	Bha	iP	04	33	47	33	C	40.1 S, 45.7 E, Indian Ocean, North of Crozet Islands. USCGS H = 04 39 27, h ± 22 km 33.3 N, 76.2 E, Kashmir Region
17	Bul	eP	04	50	38	72		
17	Bha	traces	06	45	15			
17	Bha	eP	13	03	16	250 Km.		B P I H = 13 02 38, Kariba Area
	Bul	traces		04	25			
17	Bul	i	14	46	17			
	Bha	i			30			
17	Bha	traces	19	40	50			
18	Bul	eS ₁	04	16	32			Probably W. W. R. Tremor
18	Bha	traces	05	59	30			Probably Republic of the Congo
18	Bul	ePKP ₁	12	46	22	145		USCGS H = 12 27 03, h ± 65 km Andreanof Islands, Aleutian Is.
18	Bul	iPKP	00	01	15	121		USCGS H = 23 42 31, h ± 47 km
18	Bha	iPKP	00	19	19	122		4.8 S, 151.8 E, New Britain Area M = 6 $\frac{1}{2}$
19	Bha	ePKP	16	57	45	135		USCGS H = 16 39 21, h ± 405 km 20.9 S, 177.8 W, Fiji Islands region
19	Bul	iS ₁	22	00	15			Probably W. W. R. Tremor
20	Bha	iS ₁	02	42	10	245 Km		B P I H = 02 42 32, Kariba Area
		iS			37			
	Bul	eP ₁			35			
		iS ₁ ⁿ		43	07			
		iS ₁ ⁿ			17			
20	Bha	e	18	42	23			Seismic, probably local
20	Bul	iS ₁	22	02	07			W. W. R. Tremor
21	Bha	iS ₁	15	12	48			Seismic, probably local
22	Bul	iPKP	12	07	34	121		USCGS H = 11 48 55, h ± 25 km 32.2 S, 142.4 E, Off coast of Honshu, Japan.
23	Bha	e	02	47	50			Probably Kariba
23	Bha	e	03	16	02			Probably Central Africa

June, 1962 (Continued)

Date	Station	Phase	G. h.	M. n.	T. s.	Arc Distance Degrees	C/R	Remarks
23	Bul	iP	05	09	03			± 56 Km. from Station
		iS			15			
23	Bul	eP	05	14	17	56		USCGS H = 05 04 53, h ± 25 km 29.7 N, 49.1 E, Persian Gulf.
23	✓ Bha	e	10	02	03	106		USCGS H = 09 44 38, h ± 36 Km 25.7 N, 128.5 E, Ryukyu Is. M = 5½
23	✓ Bul	e			17	106		
23	✓ Bha	eP	10	11	55	100		USCGS H = 09 58 26, h ± 40 km 19.1 N, 121.4 E, Near Coast of Luzon, P. I.
23	✓ Bul	eP	12	03		101	C	
23	Bul	e	11	00	47			
		i			02 36			
		i			03 08			
23	Bul	i	12	52	21			
		i			57 00			
	Bha	e			53 12			
23	Bul	e	14	14	10			W. W. R. Trenor
		i			43			
23	Bul	eP	15	16	02	90		USCGS H = 15 03 15, h ± 40 Km 33.5 S, 71.8 W, Near Coast of Chile
	Bha	iP			18	92		W. W. R. Trenor
23	Bul	iS ₁	20	15	16			Seismic Probably local
23	Bha	e	21	25	16			
		i			26 03			
24	✓ Bha	iP	01	33	31	84	R	USCGS H = 01 21 18, h ± 35 km 25.6 N, 101.1E, Yunnan Province, China.
	✓ Bul	iP			44	86		
24	Bul	eP	15	15	38	40		USCGS H = 15 08 16, h ± 47 km 12.5 N, 48.6 E, Gulf of Aden. Seismic, probably local
24	Bha	e	17	45	02			
		i			26			
24	Bul	iS ₁	19	57	07			W. W. R. Trenor
25	Bul	i	00	48	31			Probably Indian Ocean
		i			50 50			
		i			52 07			
	Bha	e			49 39			
		i			54 30			
25	Bha	e	01	15	03			
25	✓ Bul	iPKP	01	49	43	134		USCGS H = 01 31 42, h ± 645 km 20.8 S, 179.2 W, Fiji Islands region.
		i			52 10			
	✓ Bha	iPKP			49 44	139		
25	Bul	eP	03	02	04	94		USCGS H = 02 49 02, h ± 37 km 20.6 S, 71.0 W, Near coast of Northern Chile.
25	✓ Bul	eP	06	39	32	90		USCGS H = 06 26 50, h ± 40 km 37.3 S, 73.5 W, Near Coast of Chile
	✓ Bha	iP			50	92	C	
25	✓ Bul	eP	11	24	15	103		USCGS H = 11.10 23, h ± 33 km 24.3 N, 122.6 E, Off coast of Formosa, M = 5½
26	Bul	i	14	02	23	160 Km.		B P I H = 14 01 58, Southern Rhodesia
		i			40			
	Bha	e			03 10	550 Km		
		i			04 04			
		i			31			
26	Bha	traces	15	43	15			Seismic, probably local
	Bul	iS			44 10			
26	Bha	iP	17	20	23	250 Km		B P I H = 17 19 45, Kariba Area.
		iS			51			
	Bul	eP ₁			41	380 Km		
		iP ₁			50			
		iS ₁			21 21			
		iS ₁			33			
26	Bul	e	17	33	24			
26	Bul	iS ₁	18	51	20			W. W. R. Trenor
27	Bul	iPKP	03	48	41	116		USCGS H = 03 30 02, h ± 55 km 6.1 S, 148.8 E, New Britain Region
	Bha	ePKP			44	120		

June, 1962 (Continued)

Date	Station	Phase	G. h.	M. m.	T. s.	Arc Distance Degrees	C/R	Remarks
27	Bul	e	10	10	50			
		i		12	24			
27	Bul	i	11	57	25			
27	Bul	iS ₁	12	29	45			W. W. R. Tremor
27	Bul	e	13	46	07		C	USCGS H = 13 33 22, h ± 40 km
	Bha	eP			21	92		39.1 S, 74.9 W, Off coast of Chile
27	Bul	eP	13	48	54	63		USCGS H = 13 38 31, h ± 25 km
	Bha	eP		49	20	63		48.0 S, 99.6 E, Indian Ocean, Southwest of Australia.
27	Bul	i	15	16	37			
27	Bul	e	18	16	29			
		i		17	08			
27	Bul	i	18	19	38			
27	Bul	i	20	00	01		R	
27	Bul	iS ₁	21	25	06			W. W. R. Tremor
25 28 X	Bha	ePKP ₁	04	47	24	177		USCGS H = 04 27 18, h ± 25 km
		i		48	55			20.0 N, 155.6 W, Hawaii Island, Hawaii, M = 5 1/2
	Bul	ePKP ₁		47	25	176		
		i		49	06			
28 X	Bul	iP	07	01	17	64		USCGS H = 06 51 04, h ± 25 km
								40.9 N, 20.8 E, Near Greece-Albania border
28	Bha	e	09	49	06			
28	Bul	iP	11	29	36	78		USCGS H = 11 17 49, h ± 94 km
	Bha	eP			38	80	C	7.7 S, 107.9 E, Near coast of Java
28	Bul	e	13	36	" "			W. W. R. Tremor
		i		38	52			
28 X	Bul	iP	19	03	46	95	C	USCGS H = 18 50 28, h ± 58 km
	Bha	iP			48	96	C	0.2 S, 124.3 E, Northern Celebes
28 X	Bul	iPKP	21	06	24	135		USCGS H = 20 47 31, h ± 244 km
	Bha	ePKP			36	141		17.6 S, 175.2 W, Tonga Islands region
28	Bha	traces	22	58	10			
29	Bha	e	01	02	35			
		i			56			
29	Bul	eP	03	39	47	57		USCGS H = 03 30 19, h ± 25 km
	Bha	eP		40	20	62	C	56.2 S, 26.9 W, Sandwich Islands
29	Bul	eP	14	02	33	96		USCGS H = 13 49 17, 7.9 S, 127.0 E, h ± 80 km. Banda Sea.
29 X	Bha	ePKP	16	47	16	135		USCGS H = 16 28 04, h ± 39 km
	Bul	ePKP		49	55	141		62.3 N, 152.4 W, Alaska M = 4 3/4
29	Bul	eP	21	06	58	49		USCGS H = 20 58 17, h ± 33 km
	Bha	eP		07	24	54		41.8 S, 79.7 E, South Indian Ocean
29 X	Bha	e	22	44	38			
	Bul	i		45	16			
30	Bha	i	01	35	27			Seismic, probably local
30	Bha	eP ₁	06	27	08	350 Km.		B. P. I. H = 06 26 17, Rhodesia
		i			55			
		iS ₁			59			
	Bul	eP ₁			33	570 Km.		
		iS ₁		08	27			
		iS ₂			56			
30	Bha	e	14	46	10			Seismic, probably local
		i			39			
30	Bul	i	20	36	47			
	Bha	i		37	07		C	
30	Bha	eP ₁	21	09	01			Seismic, probably local
		iP ₁			06			
		iS ₁			43			
	Bul	i			07			
		i			35			

H. O. Oliver,
Esmè Milella

18th September, 1962

JUL 1962

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

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Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

JULY, 1962

- 177 -

Date	Station	Phase	G. M. T. h. m. s.	Arc Distance °	C/R	Remarks.
1	Bha	e	01 54 14		C	
1	Bha	iPcP	03 50(07)	84		USCGS H= 03 37 36
	Bul	iP	24	87		30.1N 102.8E ht 25Km Sinkang Province, China. Seismic, Probably local
1	Bha	e	06 24 47			
		i	25 01			
		i	24			
1	Bul	e	07 02 30			
1	Bha	e	10 26 25			
1	Bul	eP	11 57 00	65		USCGS H= 11 46 30 40.8N 49.9E ht 46Km Off Coast of Azerbaijan, S.S.R.
1	Bha	eP	21 34 49 K	70	R	USCGS H= 21 23 42 40.0N 75.4E ht 25Km Sin Kiang Province, China. Seismic, Probably local.
	Bul	iP	35 16			
2	Bul	e	01 29 28			
		i	58			
	Bha	i	30 39			
2	Bha	e	08 51 31	131		USCGS H= 08 32 38 10.3S 165.9E ht 50Km Santa Cruz Islands, M = 64
		iPKP	44			
		iPKS	55 02			
	Bul	iPKP	51 38	128		
2	Bul	e	15 25 08			W.W.R. Tremor
		i	26 17			
2	Bul	eP	15 55 24	93		USCGS H= 15 42 22 0.2S 123.1E ht 136 Km Celebes Region
	Bha	eP	29	94		
2	Bha	e	22 40 01			
		i	47			
		i	41 07			
	Bul	iS ₁	43 16			
2	Bul	iS ₁	22 55 16			W.W.R. Tremor
3	Bul	i	02 33 22			W.W.R Tremor
		i	34 30			
		i	58			
	Bha	e	38			
3	Bha	eP	03 27 12	62		USCGS H= 03 16 56 36.7N 70.9E ht 200Km Hindu Kush Seismic, Probably local
	Bul	iP	41	66	C	
3	Bul	i	15 35 39			
3	Bul	e	18 31 40			
4	Bha	e	01 59 35			Probably Kariba.
		i	00 06			
*4	Bul	e	15 19 45			W.W.R Tremor
		e	20 53			
		i	21 24			
4	Bul	i	16 17 52			W.W.R. Tremor
4	Bha	e	16 48 28			Seismic, Probably local
		i	45			
4	Bha	traces	16 52 30			
5	Bha	e	04 14 53			
		i	17 37			
		i	18 46			
5	Bul	eS ₁	12 14 42			W.W.R. Tremor
5	Bha	eP	18 05 02	240Km		B.P.I. H= 18 04 25 Kariba
		iS	29			
	Bul	eP ₁	25			
		iS ₁	16 05			
5	Bha	e ₁	18 10 55			Probably Central Africa
		i	11 59			
5	Bha	e	22 29 02			Seismic, Probably local
		i	42			
6	Bul	traces	01 17 15			
6	Bha	iP	02 19 35	39	C	USCGS H= 02 12 20 13.3N 58.0E ht 30Km Arabian Sea, east of Socotra
	Bul	iP	20 05	43	C	

JULY , 1962 (Continued)			- 178 - Arc.			
Date	Station	Phase	G. M. T. h. m. s.	Distance	C/R	Remarks
6	Bul	e	03 05 16			
6	Bul	iP	09 26 07	59		USCGS H= 09 16 15 38.0N 20.2E ht 30Km Ionian Sea M=5
6	Bul	e	09 46 37			
6	Bul	e	10 01 49			
6	Bul	traces	14 05 35			W.W.R. Tremor
6	Bha	iP	23 15 46	62	R	USCGS H= 23.05.32
6	Bul	iP	16 15	66	R	36.6N 70.4E ht 203 Km Hindu Kush
7	Bul	ePKP	06 32 06	141		USCGS H= 06 12 49 51.3N 178.6E ht 60Km Rat Islands, Aleutian Is.
7	Bul	iP _n	12 19 36			W.W.R. Tremor
		iS _n	20 45			
		iS ₁	21 13			
	Bha	e	23 02			
7	Bul	e	14 41 38			W.W.R. Tremor
7	Bha	traces	18 51 38			
7	Bha	iP	19 00 20			+ 45Km from Station
		iS	26			
7	Bul	eS ₁	21 30 33			W.W.R. Tremor
7	Bul	iS ₁	23 26 40			W.W.R. Tremor
8	Bha	ePKP	03 41 20	136		U.S.C.G.S. H= 03 22 04 51.5N 178.5E ht 50Km Rat Islands, Aleutian Is.
8	Bha	e	03 59 05			
		i	04 01 28			
	Bul	e	00 04			
		i	03 02			
		i	04 19			
8	Bul	eP	04 13 29	56	R	USCGS H= 04 03 57 55.5S 30.1W ht 25Km Sandwich Is.
	Bha	eP	14 02	61		
8	Bul	iPP	12 23 07	134		U.S.C.G.S. H= 12 02 33 22.0S 179.8W ht 600Km Fiji Islands.
8	Bha	e	13 27 03			
9	Bha	e	00 04 28			
9	Bha	e	07 02 06			
9	Bul	e	12 41 23			
		i	43 27			
		i	57			
9	Bul	e	14 01 21			
9	Bul	iS ₁	14 05 53			W.W.R. Tremor
9	Bul	i	14 27 50			
9	Bha	e	20 40 22			
10	Bha	iP	00 05 16			+ 180Km from Station
		iS	34			
	Bul	eP	06 20			
		iS _n	07 30			
		iS ₁	46			
10	Bul	e	01 06 53			
10	Bul	iPP	05 32 49	134		USCGS H= 05 12 06 20.8S 178.7W ht 584Km Fiji Is.
10	Bul	traces	20 12 00			
11	Bul	iP	01 14 30	62		USCGS H= 01 03 59 . 31.8N 66.9E ht 25Km Afganistan
11	Bha	eP	12 54 03	97		USCGS H= 12 40 31 11.9N 122.1E ht 25Km Panay, Philippine Is.
11	Bul	iP	04	97		W.W.R Tremor
11	Bul	iS ₁	22 46 28			
12	Bha	e	04 45 05			
		i	58			

JULY, 1962. (Continued)

- 179 -
Arc.

Date	Station	Phase	G. M. T. h. m. s.	Distance	C/R	Remarks
12	Bul	iS ₁	13 39 00			W.W.R. Tremor
13	Bha	e	02 29 51			Seismic, Probably local
13	✓ Bha	i	30 34			
13	✓ Bha	eP	03 45 21	94		USCGS H= 03 32 13 10.2N
	✓ Bul	eP	24	94		121.7E ht 157 Km
13	✓ Bha	eP	05 11 59	66		Panay, Philippine Is. USCGS H= 05 01 09 30.5N 79.6E ht 25Km Tibet-Indian border.
13	Bul	i	15 38 36			Seismic, Probably local
	Bha	e	39 24			
14	Bha	e	04 50 52			Seismic, Probably local
14	Bha	e	04 57 21			Central Africa, Probably Belgian Congo
		i	58 44			
		i	59 36			
14	Bul	i	07 02 12			
14	Bul	i	10 37 51			
14	Bul	i	10 47 36			
14	Bha	e	13 11 19			Probably Central Africa
		i	12 38			
		i	13 17			
	Bul	e	12 31			
		i	14 48			
		i	16 14			
14	Bul	e	15 56 02			
14	✓ Bha	eP	16 09 42	66		USCGS H= 15 58 54 30.4N 79.5E
	✓ Bul	iP	10 16	70		ht 40Km Tibet- Indian border
14	Bha	ePKP	20 03 22	145		USCGS H= 19 43 53 40.3N
	Bul	ePKP ₂	40	151		124.4W ht 25Km Northern California
14	✓ Bha	iPKP	20 56 55	125	C	USCGS H= 20 38 12 50.1N
	✓ Bul	ePKP	57 03	130	C	155.7E ht 171Km Kurile Is.
14	Bha	e	21 42 06			Seismic, Probably local
		i	35			
15	Bul	traces	04 52 50			
15	✓ Bul	ePKP	07 06 02	119		USCGS H= 06 47 23 39.8N
						140.9E ht 103Km Honshu, Japan
15	Bul	e	09 03 29			W.W.R. Tremor
15	✓ Bul	ePKP	15 31 31	119		USCGS H= 15 12 44 40.2N
						142.4E ht 55Km Honshu, Japan
15	Bha	eP _n	16 29 46			Probably Central Africa
		iS _n	31 03			
		iS ₁	49			
	Bul	i	34 40			
15	Bul	eP	22 00 15	40		USCGS H= 21 52 17 13.4N
						53.1E ht 25Km Gulf of Aden
15	Bha	e	23 45 12			
16	✓ Bul	ePcP	02 17 39	86		USCGS H= 02 04 53 52.1S
	✓ Bha	eP	18 02	92		138.9E ht 14Km South of Tasmania
16	✓ Bul	iPKP	09 44 41	128	R	USCGS H= 09 25 55 13.0S
						167.2E ht 180Km Santa Cruz Is. region
16	Bul	iS ₁	10 13 29			W.W.R. Tremor
16	✓ Bul	iPKP	13 14 00	139		USCGS H= 12.54.41 62.3N
						153.1W ht 39Km Alaska
16	Bha	e	16 49 33			
16	Bul	i	22 31 48			
17	✓ Bul	iP	05 44 51	91	R	USCGS H= 05 32 09 43.0S
	✓ Bha	iP	45 10	94	R	74.9W ht 26Km Near Coast of Chile
		i	18			
17	Bul	e	12 18 29			

JULY, 1962 (Continued)

Date	Station	Phase	G. M. T. h. m. s.	- 180 Arc Distance	C/R	Remarks
17	Bha	e	13 12 18			Probably Central Africa
		i	13 44			
		i	14 32			
	Bul	e	13 41			
		e	15 59			
		i	17 25			
17	Bha	e	15 41 06			
17	Bha	e	16 22 05			
17	Bha	e	17 02 56			
17	Bha	ePKP	17 39 11	121		USCGS H= 17.20 23 43.1N 144.5E ht 30Km Hokkaido, Japan.
17	Bha	e	19 18 43			
17	Bha	ePP	23 33 52	116		USCGS H= 23 12 09 7.8S 148.1E ht 42Km New Britian region.
18	Bul	ePP	01 39 48	114		USCGS H= 01 21 03 4.3S 152.9E ht 51Km New Britian region + 200Km from Station
18	Bha	iP	01 51 24			
		iS	45			
18	Bha	e	03 47 12			
18	Bul	iP	06 06 34	85	C	USCGS H= 05 53 48 9.6S 119.8E ht 68Km Sumba Is.
18	Bha	eP	39	87		
18	Bul	iS ₁	09 19 01			Probably W.W.R. Tremor
18	Bul	iP _{CP}	09 35 32	86		USCGS H= 09 23 38 7.2S 119.9E ht 588Km Flores Sea.
18	Bul	i	10 29 09			USCGS H= 10 10 13 15.3N 148.1E ht 16Km Mariana Is. region
19	Bul	iS ₁	00 09 20			
19	Bul	iPKP	01 11 02	117	R	USCGS H= 00 52 14 5.1S
	Bha	iPKP	06	118		153.6E ht 49Km New Britian region. Probably W.W.R. Tremor
19	Bul	e	06 09 06			
		i	10 02			
19	Bul	i	06 22 18			
19	Bha	iP	11 13 32	245Km		B.P.I. H= 11 12 54 Kariba Area.
		iS	14 00			
	Bul	iS ₁	40			
19	Bul	iP ₁	12 15 06	89		USCGS H= 12 02 31 20.6S 68.7W ht 160Km Near Bolivia Chile Border. Probably W.W.R. Tremor Probably W.W.R. Tremor
19	Bul	iS ₁	13 34 27			
19	Bul	iS ₁	13 53 25			
19	Bul	e ₁	14 38 32			
		i	40 09			
20	Bul	i	01 43 32			
20	Bul	iPKP	04 56 14	145		USCGS H= 04 36 41 51.5N 173.6W ht 25Km Fox Is., Aleutian Is.
21	Bul	i	13 41 08			
21	Bha	i	15 37 23			Probably Central Africa
		i	38 35			
		i	39 17			
	Bul	iS ₁	41 12			
21	Bha	iP ₁	17 39 13	64	C	USCGS H= 17 28 35 37.0N 71.9E ht 38Km Hindu Kush region
	Bul	iP	41	68	C	
22	Bul	ePKP	00 40 15	118		USCGS H= 00 21 31 5.9S 151.7E ht 81Km New Britain region
22	Bha	i	12 30 14			
22	Bul	ePKP	13 55 38	122		USCGS H= 13 36 50 8.4S 158.8E ht 107 Km Solomon Is. Probably Mkushi Area, Northern Rhodesia
22	Bha	i	20 55 37			
	Bul	iP _n	56 36			

JULY, 1962 (Continued)

- 181 -
Arc

Date	Station	Phase	G. M. T. h. m. s.	Distance	C/R	Remarks
		iP ₁	44			
23	Bul	iS ₁ ⁿ	11 04 16			Probably W.W.R Tremor
23	Bha	traces	15 25 59			Seismic, Probably local
23	Bul	i	26 32			
23	Bul	iS ₁	19 35 25			Probably W.W.R Tremor
23	Bha	traces	23 02 15			Seismic, Probably local
24	Bha	eP	00 11 34	245Km		B.P.I. H= 00 10 56
		iS	12 02			Kariba Area
	Bul	traces	40			
24	Bha	iPKP	21 27 05	124		USCGS H= 21 08 23 15.5W
	Bul	iPKP	06	126		92.5W ht 129Km Mexico-Guatemala border region M=5½
24	Bul	eP ⁿ	22 19 49			W.W.R. Tremor
		iS ⁿ	21 24			
	Bha	eP ¹	03			
		iS ⁿ	23 11			
		iS ⁿ	24 24			
25	Bul	iP ¹	08 48 50			W.W.R. Tremor
		iS ¹	50 25			
	Bha	eP ¹	08			
25	Bha	traces	13 21 10			Seismic, Probably local
25	Bul	iS ₁	15 29 53			Probably W.W.R. Tremor
25	Bha	traces	20 53 05			Seismic, Probably local
26	Bul	iP	06 53 27			W.W.R. Tremor
		iS ⁿ	54 26			
		iS ⁿ	55 01			
26	Bul	ePKP	08 32 46	110		USCGS H= 08 14 42 7.5N
	Bha	ePKP	33 22	110		82.7W ht 21Km South of Panama
						M= 6¼
26	Bha	e	10 44 24			Probably Central Africa
		i	45 49			
		i	46 24			
26	Bul	iS ₁	16 16 31			Probably W.W.R. Tremor
26	Bha	i	20 37 07			
27	Bul	iPKP ₁	12 58 06	145		USCGS H= 12 38 35 51.6N
						174.1W ht 60Km
						Andreanof Is., Aleutian Is.
27	Bul	iS ₁	18 11 46			Probably W.W.R. Tremor
27	Bul	iPKP	19 45 11	127		USCGS H= 19 26 35 13.2S
						167.1E ht 286Km Santa Cruz Is. region.
27	Bul	e	20 03 01			
28	Bul	iPKP	00 24 26	141		USCGS H= 00 05 11 16.2S
	Bha	iPKP ₁	42	146		173.2W ht 40Km Samoa Islands region.
28	Bul	traces	04 43 45			
28	Bul	traces	12 27 15			
28	Bul	e	12 36 50			
28	Bul	ePKP	14 17 33	125		USCGS H= 13 58 41 14.8N
						93.0W ht 71Km Near Coast of Chiapas, Mexico M= 4½
28	Bha	i	14 30 41		R	
28	Bha	e	19 54 44			
29	Bha	e	00 35 25			
	Bul	i	55			
29	Bul	iS ₁	12 53 10			Probably W.W.R. Tremor
30	Bha	iP ¹	08 16 04	245Km		B.P.I. H= 08 56 26 Kariba Area
		iS	32			
	Bul	iP	21	380Km		
		iP ⁿ	28			
		iS ¹	17 09			
30	Bha	iP ¹	08 31 57	240Km		B.P.I. H= 08 31 19
		iS	32 24			
	Bul	eP ¹	20	380Km		
		iS ⁿ	52			
		iS ₁	33 02			

JULY, 1962. (Continued)			G. M. T. - 182 -		C/R	Remarks
Date	Station	Phase	h. m. s.	Distance		
30	Bul	e	13 12 35			Probably W.W.R. Tremor
30	Bul	traces	14 56 59			
30	Bul	e	16 21 43			W.W.R. Tremor
		e	22 53			
		i	23 26			
30	Bul	eP	17 31 31	108		USCGS H= 17 16 44 3.3S
		iPP	35 27			143.9E ht 25Km Near North
	Bha	eP	31 39	111		Coast of New Guinea M=7
30	Bul	e	17 46 14			
30	Bha	iP	19 09 08	250Km		B.P.I. H= 21 08 30
		iS	37			Kariba Area
	Bul	eP ⁿ	24	380Km		
		iP ¹	33			
		iS ¹	10 14			
30	Bul	e	19 56 35			
30	Bha	eP	20 32 58	103		USCGS H= 20 18 49 5.0N
	Bul	eP	33 01	104		76.3W ht 45Km Western
						COLOMBIA M=6
31	Bul	iP	11 37 27	90		USCGS H= 11 25 06
						19.7S 67.7W ht 270Km
						Southern Bolivia
31	Bul	i	22 11 49			
		i	13 27			

Esmè Milolla
H.O. Oliver

7/11/62

* 4 Bul eP 13 08 32 88 USCGS H= 12 55 53 44.0s
79.2W ht 25Km Off Coast
of Chile.

SEP 1962

AUG 1962

Aug/Sept.

Copied 4/93

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER,
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

AUGUST, 1962.

Date	Station	Phase	G. M. T. h. m. s.	Arc ° Dist.	C/R	Remarks.
1	Bul	e	04 52 41			
1	Bha	ePKP	04 55 25	112		USCGS H = 04 36 58 3.2S 143.7E
	Bul	ePKP	04 55 33	110		143.7E h± 33 km. Nr. North Coast of New Guinea. M=6 $\frac{3}{4}$
1	Bha	e	05 06 23			
	Bul	e	05 06 28			
1	Bul	eP	06 14 24			Seismic, Probably local.
		iS	06 14 59			
	Bha	iS	06 15 34			
1	Bul	e	15 57 49			
1	Bha	iP	16 00 18	85		USCGS H = 15 47 46 39.1N
	Bul	iP	16 00 37	87		98.6E h± 25 km Kansu Prov. China. ± 140 km from station.
1	Bha	eP	20 00 31			
		iS	20 00 45			
2	Bul	eP	15 43 22	67		USCGS H = 15 32 21 33.4N
						73.5E h± 33 Km. West Pakistan. ± 120 Km. from station.
2	Bha	iP	22 18 11			
		iS	22 18 23			
3	Bul	iP	02 29 50			Seismic, Probably local
		iSn	02 30 15			
		iS ₁	02 30 25			
	Bha	iP	02 30 10			
		iS	02 30 53			
3	Bha	eP	05 10 03	245		B.P.I. H = 05 09 25
		iS	05 10 38	km		Kariba area.
	Bul	e	05 11 27	380		
		iS	05 11 09	km		
3	Bul	iS	07 43 16	25	C	USCGS H = 07 33 55 45.1S
						38.3E h± 33 Km. Prince Edward Islands region.
3	Bul	iP	09 08 57	90	R	USCGS H = 08 56 12 23.2S
	Bha	iP	09 09 10	91		67.5W h± 71 Km. Northern Chile, Argentine border M = 7 $\frac{1}{2}$.
3	Bul	iPKP	10 23 39	118	C	USCGS H = 10 04 45
						10.1S 161.2E h± 40 Km. Solomon Islands.
3	Bul	e	10 35 22			USCGS H = 10 16 27 23.3S
						171.2E h± 39 Km. Loyalty Islands region.
3	Bha	eP	11 13 41	68		USCGS H = 11 04 0 4
	Bul	eP	11 15 34	73		40.9N 73.3E h± 25Km. Kirghiz, S.S.R.
3	Bha	eP	12 04 33			B.P.I. H = 12 03 55
		iS	12 04 01			Kariba
	Bul	eP ₁	12 04 56			
		iS ₁	12 05 38			
3	Bul	i	15 28 53		C	
	Bha	i	15 29 09		C	
3	Bha	eP	18 13 02	65	C	USCGS H = 18 02 46 36.6N
	Bul	iP	18 13 30	69	C	71.1E h± 209 Km. Hindu Kush
3	Bul	e	20 27 28			
	Bha	e	20 28 05			
4	Bha	ePKP	03 08 47	108		USCGS H = 02 49 45
						14.1N 93.0W h± 30Km. Near Coast of Guatemala M=4 $\frac{1}{2}$.
4	Bha	e	09 26 23			
		i	09 27 41			
4	Bul	e	11 36 30			Probably Witwatersrand tremor.
4	Bul	e	12 26 14			Probably Witwatersrand tremor
4	Bul	e	23 37 23			Probably Witwatersrand tremor
5	Bul	iS ₁	11 11 01			Probably Witwatersrand tremor

Contd. /.....

AUGUST, 1962 (Contd)

- 184 -

Date	Station	Phase	G. M. T. h. m. s.	Arc ° Dist.	C/R	Remarks.
5	Bul	ePKP ₁	15 27 34			USCGS H = 15 08 34 13.7S 166.6E h±50 Km. New Hebrides Islands.
5	Bha	e	20 22 31			Probably Central Africa.
5	Bha	e	21 28 11			Probably Nyasaland
		i	43			
		i	53			
6	Bul	eP _n	00 58 31			Witwatersrand tremor
		iP ₁	39			
		iS _n	59 14			
		iS ₁	32			
	Bha	eP _n	48			
		iS ₁	02 30			
6	Bha	iP ₁	01 47 46	82	R	USCGS H = 01 35 31 32.ON
	Bul	eP	48 05	86		40.8W h±48 Km. North Atlantic Ocean M = 6.
6	Bul	eP	08 50 40	55		USCGS H = 08 41 18
	Bha	eP	51 14	60		58.4S 25.5W h± 54 Km Sandwich Islands.
6	Bul	e	09 05 56			
6	Bha	iP	12 54 50	245Km		B.P.I. H = 12 54 12 Kariba area.
		i	53			
		iS	55 19			
	Bul	eP _n	07	380Km		
		iP ₁	15			
		iS _n	41			
		iS ₁	56			
6	Bul	iP ₁	14 02 39			110 Km. from Station
		iS	50			
6	Bul	Traces	13 21 10			Probably Witwatersrand Tremor
6	Bha	e	19 39 11			
		i	40 15			
6	Bul	e	21 04 36			Witwatersrand Tremor
6	Bul	iPKP	21 10 57	126	C	USCGS H = 20 51 57
	Bha	iPKP	11 07	127	C	26.9S 177.1W h± 50 Km. Kermadec Is. Region M=6
7	Bha	eP	03 12 55	69		USCGS H = 03 01 52 12.2N
	Bul	eP	13 06	70		92.5E h±33 Km. Andaman Is.
7	Bha	e	06 40 19			
		i	58			
		i	41 14			
7	Bha	e	18 40 47			
8	Bha	e	02 23 16			
8	Bul	iPKP	11 14 30	138	C	USCGS H = 10 54 56 52.1N 170.5W h±40 Km. Fox Is. Aleutian Is.
9	Bul	iS ₁	01 37 02			Probably Witwatersrand tremor.
9	Bha	e	02 41 57			
9	Bha	i	04 33 22			Probably Central Africa.
		i	35 25			
		i	36 21			
9	Bul	iP	06 32 25	88	C	USCGS H = 06 19 51
	Bha	iP	35	89		24.1S 66.5W h± 128 Km Salta Province, Argentine.
9	Bul	iP	17 37 24	89	C	USCGS H = 17 24 49
	Bha	iP	45	92	C	44.5S 73.4W h± 33 Km Near Coast of Southern Chile
9	Bha	traces	18 57 35			
9	Bha	e	20 05 56			
		i	06 44			
10	Bha	e	03 20 46			

(Contd.)

AUGUST, 1962 (Contd)

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
10	X ✓ Bha	e P	21 16 12	30		USCGS H = 21 03 59; 49.4N 27.9W
	✓ Bul	i P	21 16 37	86	R	North Atlantic Ocean h + 33km M = 4½
10	Bul	e	23 24 44			
		i S ₁	25 13			
	Bha	e	02			
10	Bha	e P	00 12 05			Seismic, probably local
		i S	19			
11	✓ Bul	i PKP	02 05 31	137		USCGS H = 01 47 40; 20.0S 178.5W
		i	44			Fiji Islands h + 638km
		i	08 15			
	✓ Bha	i PKP	05 41	135		
		i	03 28			
11	X ✓ Bha	i P	08 29 15	101	R	USCGS H = 08 15 44; 25.2N 123.3E
		i PP	33 20			Off N.E. coast of Formosa h ± 140km
	X ✓ Bul	i P	29 24	102	R	M = 6
		i PP	33 39			
11	Bul	traces	11 06 20			Probably Witwatersrand tremor.
11	Bha	traces	20 20 55			
	Bul	traces	21 05			
12	Bul	i S ₁	08 17 22			Probably Witwatersrand tremor.
12	Bha	traces	04 16 05			
12	Bul	i S ₁	10 20 20			Probably Witwatersrand tremor.
12	Bul	i P	20 47 53	88	C	USCGS H = 20 35 17; 36.0S 72.4W Central Chile h ± 43km
12	Bha	traces	21 17 30			
13	Bha	e	01 01 03			Probably Central Africa.
		e	04 47			
13	Bha	e	05 04 37			Probably Central Africa.
		i	05 19			
13	Bha	e	06 45 24			Probably Kariba.
		i	53			
13	Bul	e	10 33 03			
	Bha	i	53		C	
13	Bul	e	10 33 12			
13	Bha	traces	10 40 25			Probably Central Africa.
13	Bha	e	13 21 24			
		i	22 59			
13	Bul	i S ₁	14 50 39			Witwatersrand tremor.
14	Bha	e	07 07 51			
		i	08 16			
14	Bha	e	07 13 43			
		i	14 25			
14	Bha	traces	10 04 48			Probably Central Africa.
	Bul	traces	06 00			
14	Bha	e	10 55 47			
14	Bha	traces	15 21 46			
14	Bha	traces	16 11 20			
14	Bha	traces	20 34 20			
15	X ✓ Bul	i P	08 42 05	95		USCGS H = 08 29 47; 4.7N 122.6E Celebes Sea h ± 620km
15	Bha	i	10 59 19			
		i	11 00 23			
15	Bul	e	11 38 40			Probably Witwatersrand tremor
15	Bul	e PKP ₁	11 40 09	145		USCGS H = 11 20 46; 51.3N 177.0W Andreanoff Islands, Aleutian Is. h + 53km
15	Bul	e P	13 16 51	42		USCGS H = 13 08 42; 14.5N 55.3E Tocotra Island region h + 33km
15	Bul	i S ₁	15 10 11			Probably Witwatersrand region.
15	Bha	e P	20 57 42			Probably Kariba.
		i S ₁	53 08			
16	Bha	e	22 03 56			
16	Bha	i P	22 54 38			B.P.I. H = 22 54 00
		i S ₁	55 05			Kariba Area.
	Bul	e	(04)			
		i S ₁	46			
17	Bul	i P	03 36 08	85	C	USCGS H = 03 23 32; 31.6S 67.7W San Juan Province, Argentina. h + 33km

AUGU T. 1962 (Contd.).

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist. °	C/R	Remarks.
17	X / Bul	e P	05 18 01	96		USCGS H = 05 04 32; 10.6N 121.6E Panay Region, Philippine Is. h ± 33km
	/ Bha	e P	✓ 01	96		
17	Bha	e	08 14 05			Probably Central Africa.
		i	15 25			
		i	16 07			
17	Bul	iS ₁	18 57			Probably Central Africa.
	Bha	e ₁	10 26 21			
	Bul	e	27 36			
17	Bha	traces	14 05 50			Probably Central Africa.
17	Bha	e	17 35 32			
		i	36 13			
18	Bha	e P	00 38 49			B.P.I. H = 00 38 11
		i S	15			Kariba Area.
	Bul	iS ₁	39 55			
18	X / Bul	iPKP	04 22 12	135		USCGS H = 04 01 34; 21.9S 179.3W Fiji Islands region. h ± 516km
	/ Bha	ePKP	✓ 28	136		
18	Bul	iS ₁	06 00 40			Probably Witwatersrand tremor.
18	Bha	e ₁	07 50 04			North of Broken Hill.
		i	39			
		i	51 15			
18	Bha	e P	10 15 58			B.P.I. H = 10 15 20;
		i S	16 24			Kariba Area
	Bul	iS ₁	17 01			
18	Bha	e P	11 05 30			B.P.I. H = 11 04 52;
		i S	56			Kariba Area.
	Bul	e	53			
		i	06 23			
		iS ₁	34			
18	Bul	iS ₁	16 43 45			USCGS H = 16 43 54; 62.3N 152.5W Central Alaska h + 32km M = 6
18	X / Bha	e	17 02 54			
	Bul	e	03 10			USCGS H = 17 46 15 62.3N 152.5W
18	X / Bul	ePKP	18 05 25	133		ht ± 32 km. Central Alaska M = 6.
	/ Bha	e	08 18			
	/ Bha	ePKP	05 29	139		
		e	07 21			
18	Bul	ePKP	23 08 37	123		USCGS H = 22 49 48 7.3S 156.1E h ± 60 Km. Solomon Islands.
19	Bha	e	00 01 43			
		i	03 14			
19	Bul	iP	00 35 30	71	C	USCGS H = 00 23 04 19.9S 66.9W
	Bha	iP	39	7 2	C	h ± 240 Km. Bolivia.
19	Bha	e	03 53(53)			Probably Kariba area.
			54 24			
19	Bha	i	04 22 47			
19	Bha	i	12 30 54			
19	X / Bha	iP	18 38 24	74	C	USCGS H = 18 26 39 44.6N 81.7E
			36			h ± 33 Km. Northwest Sinkiang
	/ Bul	iP	48	79	C	Province M = 5.2.
		i	39 00			
19	Bha	i	19 55 30			
		i	57 45			
	Bul	i	56 15			
		i	23			
19	Bha	e	22 47 10			
		i	26			
19	X / Bul	iP	23 25 42	71	R	USCGS H = 23 12 50 26.6S 69.8W
	/ Bha	i	26 00			h ± 51 Km. Near Coast of N. Chile
	/ Bha	eP	25 54	72		
20	Bha	e	12 52 05			
		i	55 55			
	Bul	traces	53 05			
20	Bul	iP	13 10 27	79	C	USCGS H = 12 58 24 12.4S 112.1E h ± 87 Km. 340 Miles South of Java.

AUGUST, 1962 (continued)

Date	Station	Phase	G. M. T. h. m. s.	Arc ^o Dist.	C/R	Remarks.
20	Bul	i	15 45 50			
20	Bul	iS ₁	21 47 55			Probably Witwatersrand Tremor.
20	Bul	ePKP	23 37 39	127		USCGS H = 23 18 40 14.7S 166.6E
	Bha	iPKP	46	130		h ± 52 Km. New Hebrides Is.
21	Bul	traces	11 08 10			Probably Witwatersrand Tremor.
21	Bha	e	13 22 33			
		i	23 17			
21	Bha	e	15 34 40			
21	Bha	e	18 18 48			USCGS H = 18 09 07 41.5N 15.4E
X	Bul	i	19 27		C	h ± 36 Km. Italy.
21	Bha	oP	18 29 14	56		USCGS H = 18 19 33 41.4N 15.5E
X	Bul	iP	52	62		h ± 34 Km. Italy.
21	Bha	eP	18 54 39	56		USCGS H = 18 44 56 41.2N 15.2E
X	Bul	eP	55 16	62		h ± 31 Km. Italy.
21	Bha	i	19 54(06)			Probably Kariba
		i	(34)			
	Bul	i	26			
		i	55 34			
21	Bha	eP	20 09 58	240 Km		B.P.I. H = 20 09 20 Kariba area.
		iS	10 23			
	Bul	iS	11 05			
21	Bha	i	20 27 49			
		i	28 01			
21	Bul	e	21 24 56	120		USCGS H = 21 09 50 29.6S 111.9W
X	Bha	e	25 08			h ± 33 Km Easter Is. Region M=6½.
21	Bha	iP	23 17 18			B.P.I. H = 23 16 40
		iS	47			Kariba area.
	Bul	e	41			
		iS _n	18 12			
		iS ₁	18 22			
21	Bul	traces	23 31 00			Probably Witwatersrand Tremor.
22	Bha	eP	02 56 40			Probably Kariba area.
		iS	57 03			
22	Bha	e	08 33 18			
		i	38			
22	Bul	e	12 27 15			
		i	46			
		i	58			
22	Bul	i	17 27 06		R	
	Bha	e	32			
22	Bha	e	18 14 02			
22	Bha	traces	20 13 10			
22	Bha	e	21 17 42			
22	Bha	iP	21 45 24	245 Km		B.P.I. H = 21 44 46 Kariba area.
		iS	52			
	Bul	e	48	385 Km		
		iS _n	46 19			
		iS ₁	28			
23	Bul	iS ₁	02 24 43			Probably Witwatersrand Tremor.
23	Bul	e	05 39 08			
			55			
23	Bha	eP	10 41 22			
		iS	44			
23	Bha	eP	10 53 22			
		iS	44			
23	Bha	eP	11 34 03	250 km		B.P.I. H = 11 33 25 Kariba area.
		iS	32			
	Bul	iS ₁	35 12			
23	Bha	e	13 10(05)			
		i	08			
		i	34			
	Bul	e	21			
		i	30			
		i	11 11			
23	Bha	iPKP	19 48 43	144		USCGS H = 19 29 16 41.8N 124.1W
X	Bul	ePKP ₁	59	150		h ± 33 Km. Del Norte County California. M = 5½.

AUGUST, 1962 (Contd.)

Date	Station	Phase	G. M. T.			Arc Dist.	C/R	Remarks.
			h.	m.	s.			
23	Bul	eP	21	02	19	54	R	USCGS H = 20 52 52 56.1S 26.6W
	Bha	iP		✓	52	59	C	h ± 33 Km. Sandwich Is.
24	Bha	eP	01	28	07	245	Km	B.P.I. H = 01 27 29 Kariba area.
	Bul	iS			33			
	Bul	i			30			
	Bul	i			30	11		
24	Bha	eP	01	58	28			B.P.I. H = 01 57 50 Kariba area.
	Bul	iS			55			
	Bul	iS			59	38		
24	Bha	e	05	16	54			
	Bul	i			17	30		
24	✓ Bul	iPKP	07	05	12	127	R	USCGS H = 06 47 08 24.5S 178.8E
X	✓ Bha	ePKP			(16)	132		h ± 526 Km. Fiji Is. region
	Bul	i			23			
	Bul	i			07	57		
24	X ✓ Bul	ePKP ₁	09	23	43	143		USCGS H = 09 04 23 15.0S 173.3W
	X ✓ Bha	ePKP ₁			✓ 55	145		h ± 33 Km. Samoa Is. region M=5½
24	Bul	eP	13	28	48	95		USCGS H = 13 15 37 17.5S 70.4W
	Bul	eP						h ± 92 Km. Peru-Bolivia border.
24	Bul	e	15	51	48			
	Bul	i			52	13		
24	Bha	e	20	17	07			
25	X ✓ Bul	ePKP	08	49	50	128		USCGS H = 08 31 49 20.5S 178.5W
	Bul	i			50	00	C	h ± 561 Km. Fiji Islands.
	Bul	i			52	34		
	✓ Bha	iPKP			50	01	133	
	Bul	i			52	48		
25	Bha	i	13	43	23			
25	Bul	traces	23	46	35			Probably Witwatersrand Tremor.
26	Bha	eP	16	39	34	57		USCGS H = 16 30 47 36.5N 1.6E
	Bul	i			40	31		h ± 15 Km. Near Coast of Algeria.
	Bul	eP			41	05	63	
27	Bha	e	10	50	42			
	Bul	i			53	01		
	Bul	i			54	25		
27	Bul	iS ₁	15	53	04			Probably Witwatersrand Tremor
27	Bul	iS ₁	17	27	24			Probably Witwatersrand Tremor.
27	Bul	eP ₁	23	47	26	109		USCGS H = 23 30 38 3.7S 140.1E
	Bha	eP			30	110		h ± 50 Km. New Guinea.
28	X ✓ Bha	iP	11	09	00	54		USCGS H = 10 59 59 38.0N 23.1E
	X ✓ Bul	iP			✓ 39	60	R	h ± 120 Km. Greece M = 6½.
28	X ✓ Bha	e	22	53	44			USCGS H = 22 46 01 2.2S 67.8E
	Bul	e						h ± 33 Km. Northwest of Chagos Is. region.
29	Bha	i	02	58	33			
29	Bha	traces	05	23	40			
29	X ✓ Bha	eP	09	19	43	41		USCGS H = 09 12 00 1.9S 67.9E
	X ✓ Bul	eP			✓ 55	42		h ± 33 Km. Northwest of Chagos Is.
30	Bul	i	11	48	48			
30	Bha	e	12	56	21			
	Bul	i			51			
30	Bha	e	15	55	02			
	Bul	i			57	39		
30	X ✓ Bha	ePKP	17	38	07	138		USCGS H = 17 17 52 21.2S 174.4W
	X ✓ Bul	ePKP			37	04		h ± 33 Km Tonga Is. M = 5½
30	Bul	eP	19	14	51	26		USCGS H = 19 09 16 47.7S 32.6E
	Bha	eP			15	45	32	h ± 33 Km Prince Edward Is. region.
31	Bul	iS ₁	15	48	42			Probably Witwatersrand Tremor.
	Bha	traces			52	42		
31	X ✓ Bha	iPKP	17	22	05	140	C	USCGS H = 17 02 43 51.3N 179.7W
	X ✓ Bul	iPKP ₁			✓ 08	143		h ± 26 Km. Rat Is. Aleutian Is. M=6½
31	X ✓ Bul	ePKP ₁	18	15	34	143		USCGS H = 17 56 09 51.2N 179.9W
	Bul	ePKP ₁						h ± 43 Km. Rat Is. Aleutian Is.

SEPTEMBER 1962.

Date	Station	Phase	G. M. T.	Arc Dist.	C/R	Remarks.
1	X/BHA X/Bul.	ePKP iPKP ₁	04 05 (20) 32	140° 143°		USCGS. H = 03 - 46 - 05; 51.3 N, 179.7 W. h = + 25 km. Rat Is. Aleutian Is. - M = 6.
1	X/BHA	ePKP	05 00 55	140°	C	USCGS. H = 04 - 41 - 42; 51.3 N, 179.9 W. h = ± 37 km. Rat Is. Aleutian Is.
1	X/BHA X/Bul.	ePKP iPKP	05 10 45 50	128° 131°		USCGS. H = 04 - 52 - 15; 15.9 S, 168.2 E. h = ± 244 km. New Hebrides Is.
1	X/BHA X/Bul.	ePKP ePKP ₁	08 10 25 32	140° 143°		USCGS. H = 07 - 51 - 08; 51.3 N, 179.9 W. h = ± 42 km. Rat Is. Aleutian Is. M = 6½
1	BHA	Traces	11 25 30			Probably Central Africa.
1	BHA	Traces	12 26 25			Probably Central Africa.
1	X/BHA X/Bul.	c i	15 10 21 51		R	
1	X/BHA X/Bul.	eP iP	19 30 02 39	55° 61°	C	USCGS. H = 19 - 20 - 39; 35.6 N, 50.0 E. h = ± 21 km. N.W. Iran.
1	BHA Bul.	eP iP	20 37 02 37	55° 61°	C	USCGS. H = 20 - 27 - 37; 35.3 N, 49.6 E. h = ± 33 km. Northwest Iran.
1	Bul.	i	23 42 01			Probably Witwatersrand Tremor.
	BHA	c	43 13			
2	Bul.	iS ₁	04 13 39			Probably Witwatersrand Tremor.
2	X/Bul. X/BHA	eP ₁ eP	15 34 45 47	88° 90°		USCGS. H = 15 - 21 - 55; 10.2 S, 120.3 E. h = ± 33 km. Soemba Is. region.
2	Bul.	c	15 51 42			
2	BHA	eP	19 43 56	245 km.		B.P.I. H = 19 - 43 - 18; Kariba Area.
	Bul.	iS ₁	44 23			
2	Bul.	iS ₁	19 45 00	380 km.		
2	BHA	eP ₁	19 50 59	245 km.		B.P.I. H = 19 - 50 - 21; Kariba Area.
	Bul.	iS	51 26			
2	Bul.	iS ₁	51 05	380 km.		
2	Bul.	iS ₁	19 53 08			Probably Witwatersrand.
2	Bul.	eP ₁	22 41 03 ⁺			Probably Witwatersrand.
		iS _n	42 13 ⁺			
		iS ₁	44 ⁺			
	BHA	eP ₁	22 42 19			
		iS _n	44 29			
		iS ₁	45 40			
4	X/Bul.	eP ₁	13 40 10	61°		USCGS. H = 13 - 30 - 11; 35.6 N, 49.7 E. h = ± 24 km. North-West Iran.
4	X/BHA X/Bul.	ePKP ₁ ePKP ₁	17 37 01 10	148° 152°	C	USCGS. H = 17 - 17 - 28; 41.0 N, 124.0 W. h = ± 48 km. Near Coast of North California. M = 4-3/4.
4	Bul.	iS ₁	21 10 34			Probably Witwatersrand.
4	X/BHA X/Bul.	c c	23 08 57 09 34	66° 72°		USCGS. H = 22 - 59 - 19; 39.9 N, 44.2 E. h = ± 33 km. Turkey, Armenia, S.S.R. Border.
5	BHA	c	11 18 24			
5	BHA	Traces	14 08 21			
5	Bul.	iP _n	15 44 18	750 km.		B.P.I. H = 15 - 42 - 39.
		S _n	45 25			
	BHA	i ₁	46 07			
		i	45 02	1100 km.		
		i	46 43			
6	BHA		00 39 27			
			57			
	Bul.	c	40 10			
		i	41 29			
6	BHA	eP	03 32 34			Probably Kariba.
		iS	33 01			
	Bul.	iS ₁	33 44			
6	BHA	e ₁	05 30 36			
		i	31 24			
			46			
6	BHA	eP	09 19 16			Probably Kariba.
		iS	45			
	Bul.	c	43			
		i	20 14			

Date	Station	Phase	G. M. T.	Arc Dist.	C/R	Remarks.
6	Bul.	i	25			
		i	13 47 02			Probably double Witwatersrand Tremor.
		i	35			
		i	49 10			
6	Bul.	oPKP	15 21 49	122°		USCGS. H = 15 - 03 - 02; 8.4 S, 153.3 E. h = ± 95 km. Solomon Is. region.
8	BHA	e	10 27 33			Probably Central Africa.
		e	29 33			
		i	30 28			
8	Bul.	c	13 26 44			Witwatersrand.
		i	27 52			
		i	28 23			
8	BHA	Traces	13 28 03			Witwatersrand.
			31 20			
8	BHA	iP	17 37 40	245 km.		B.P.I. H = 17 - 37 - 04; Probably Luangwa Valley, N. Rhodesia.
		eS	38 (08)			
	Bul.	oP	51	820 km.		
9	BHA	e	10 28 06			Seismic, Local.
		i	39			
10	BHA	iP	09 45 09	50°		USCGS. H = 09 - 36 - 24; 35.0 N, 27.1 E. h = ± 33 km. Dodecanese Is.
	Bul.	iP	50	56°		Probably Kariba Area.
10	BHA	oP	12 53 32			
		iS	54 01			
10	Bul.	iPKP	16 01 42	132°	R	USCGS. H = 15 - 43 - 59; 21.1 S, 179.2 W. h = ± 640 km. Fiji Is. M=6½
		iPP	02 00			
			03 28			
	BHA	iPKP	01 56	136°		
		iPP	58			
			03 46			
10	BHA	Traces	20 28 50			
10	BHA	c	23 59 03			
11	BHA	e	13 14 56			
11	BHA	iP	21 19 53			Probably Kariba.
		iS	20 20			
	Bul.	c	21 13			
		i	22	01		
12	BHA	e	04 57 54			
12	BHA	c	05 40 39			
		i	07			
12	BHA	i	20 40 37			
		i	51			
	Bul.	iS ₁	43 15			
12	BHA	iP ₁	21 07 25	67°	C	USCGS. H = 20 - 57 - 00.4; 36.5 N, 69.2 E. h = ± 50 km. Hindu Kush. M = 6½
	Bul.	iP	53	71°	C	
12	Bul.	iS ₁	21 37 13			Probably Witwatersrand.
14	Bul.	i ₁	18 39 20		R	
14	Bul.	iS ₁	19 17 18			Probably Witwatersrand.
15	Bul.	iP ₁	13 02 18			Local.
		iS	28			
15	BHA	oP	16 47 12	245 km.		B.P.I. H = 16 - 46 - 34; Kariba Area.
		iS	39			
	Bul.	e	33	330 km.		
		iS ₁	48 22			
15	BHA	iP ₁	17 06 28	245 km.		B.P.I. H = 17 - 05 - 50; Kariba Area.
		iS	56			
	Bul.	e	54			
		oS ₁	07 33	330 km.		
15	BHA	oP ₁	17 43 37			Probably Kariba Area.
		iS	44 05			
15	BHA	oPKP	23 09 43	127°		USCGS. H = 22 - 50 - 46.3; 48.5 N, 156.3 E. h = ± 33 km. Kurile Is. M=6
		e	11 42			
	Bul.	oPKP	09 55	131°		
			12 06			
16	Bul.	oPn	07 09 29			
		iP ₁	10 12			
		iS ₁	10 22			

Date	Station	Phase	G.M.T.	Arc Dist.	C/R	Remarks.
16	BHA	Traces	18 48 03			
16	BHA	eP	19 17 48	72°		USCGS. H = 19 - 06 - 29; 16.7 N, 94.2 E. h = ± 33 km. Near Coast of Burma.
16	BHA	eP	23 23 56			Probably Kariba Area.
		iS	24 23			
16	BHA	eP	23 28 56			Probably Kariba Area.
		iS	29 23			
17	BHA	e	00 57 03			
		i	58 06			
		i	34			
17	Bul.	e	01 30 31			
	BHA	e	31 01			
17	Bul.	iS ₁	11 45 57			Witwatersrand.
17	Bul.	e ₁	11 53 15			Witwatersrand.
17	BHA	iPKP	13 13 46	132°		USCGS. H = 17 - 55 - 45; 21.0 S, 179.1 W. h = ± 601 km. Fiji Is.
		i	14 00			
		iPP	16 32			
	Bul.	iPKP	13 48	136°		
		iPP ₁	16 17			
17	Bul.	iS ₁	20 54 28			Probably Witwatersrand.
18	Bul.	ePKP	00 47 40	114°		USCGS. H = 00 - 29 - 05; 7.5 N, 82.3 W. h = ± 33 km. South of Panama.
	BHA	ePKP	40	115°		M = 7.
18	BHA	eP	06 24 05	100°		USCGS. H = 06 - 10 - 26; 2.3 N, 126.9 E. h = ± 33 km. Malucca Passage.
19	Bul.	eP	13 19 12	88°		USCGS. H = 18 - 06 - 44; 9.9 S, 120.5 E. h = ± 34 km. Soemba Is.
20	BHA	eP	13 01 12	245 km.		B.P.I. H = 13 - 00 - 34; Kariba Area.
		iS	31			
	Bul.	eP ₁	37	380 km.		
		iS ₁	02 22			
20	Bul.	e ₁	19 19 17			
		i	20 33			
		i	59			
20	BHA	Traces	19 22 40			Witwatersrand.
21	BHA	e	08 26 30			
		i	27 31			
21	BHA	iS ₁	09 30 29			Probably Kariba Area.
21	BHA	e ₁	21 03 06			
		i	52			
21	Bul.	eP	22 50 31	77°		USCGS. H = 22 - 38 - 52; 57.7 S, 64.1 W. h = ± 51 km. Drake Passage.
22	BHA	iP	07 03 29	78°	R	USCGS. H = 06 - 51 - 32; 26.5 N, 97.0 E. h = ± 33 km. Northern Burma.
	Bul.	iP	44	81°	C	B.P.I. H = 13 - 07 - 20; South of Lake Nyasa.
22	BHA	iP	13 08 53	700 km.		
		i	10 00			
		iS ₁	33			
	Bul.	eP ₁	12 02	1000 km.		
22	BHA	iP	16 13 38			Probably Kariba.
		iS	14 05			
	Bul.	iS ₁	16 14 47			
24	BHA	Traces	10 53 00			
24	BHA	e	13 33 40			
25	BHA	iP	04 50 58		R	Republic of the Congo.
		i	52 53			
		i	53 44			
	Bul.	eP	51 57			
		i	54 39			
		i	56 02			
26	BHA	eP	02 09 05			Probably Lake Nyasa.
		i	47			
26	BHA	Traces	06 22 30			
26	BHA	eP	14 51 10	770 km.		B.P.I. H = 14 - 49 - 27; Probably South of Lake Nyasa.
		i	52 18			
		i	59			
26	BHA	eP	23 33 13			Probably Kariba.
		eS	41			

Date	Station	Phase	G. M. T.	Arc Dist.	C/R	Remarks.
27	BHA	e	06 59 58			
27	BHA	e	11 20 24			
27	BHA	iP	13 07 48	76°	C	USCGS. H = 12 - 56 - 19; 4.6 S, 104.4 E. h = ± 144 km. Southern Sumatra.
27	BHA	e	21 14 28			
		i	15 18			
27	Bul.	iS ₁	21 39 31			Probably Witwatersrand.
27	Bul.	iS ₁	22 03 38			Probably Witwatersrand.
28	BHA	e	04 01 22			Local.
28	BHA	iP	21 08 57	245 km.		B.P.I. H = 21 - 08 - 19; Kariba Area.
		iS	09 25			
	Bul.	oPn	15	380 km.		
		iP ₁	24			
		iS ₁	53			
		iS ₁	10 03			
28	Bul.	iS ₁	22 09 04			Probably Witwatersrand.
29	BHA	e	01 32 48			
		i	11			
29	BHA	Traces	12 01 14			
			02 05			
29	Bul.	iS ₁	13 08 44			Witwatersrand.
29	Bul.	iP ₁	15 29 12	84°	R	USCGS. H = 15 - 17 - 48; 27.0 S, 63.6 W. h = ± 575 km. Santa del Estero Province, Argentine. M = 6½.
29	BHA	iP	15 29 26	86°	R	B.P.I. H = 03 - 35 - 33; Republic of the Congo.
30	BHA	iPn	03 37 07	700 km.		
		iSn	38 12			
		i	47			
	Bul.	iPn	20	1300		
		i	40 22			
		i	41 42			
30	Bul.	iPKP	11 17 19	117		USCGS. H = 10 - 58 - 37; 5.9 S, 151.0 E. h = ± 50 km. Near Southern Coast of New Britain Islands.
30	Bul.	i	22 40 26		R	

H.O. Oliver.
Esme Milollo.

Copied H/S

1-OCT 1963

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN.

13 MAY 1963

The data herewith give the results for a network of seismographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organisations on request.

Stations:	<u>BULAWAYO (Bway)</u>	<u>BROKEN HILL (B.Hill)</u>
Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H. O. OLIVER.
Seismological Officer.

Address:

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

OCTOBER, 1962.

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks
1	BUL	e	00 54 10			
1	BUL	i	01 10 51		R	
1	BUL	e	02 22 38			
1	BUL	ePKP	04 15 09	136		USCGS H = 03 56 52 17.5S
		ePP	17 50			178.9W h = ± 550 Km. Fiji Is.
	BHA	ePKP	15 09	141		
		iPP	18 03			
1	BHA	e	07 19 40			
		i	20 11			
1	BHA	iP	08 01 59	67	R	USCGS H = 07 50 53 6.5N
						95.1E H = ± 33 Km. Nicobar
						Is. region
1	BHA	eP	08 13 01			Seismic, probably local.
		iS	23			
1	BHA	e	10 44 41			
1	BHA	i	12 22 48		C	
1	BHA	iP	21 46 52			± 200 Km. from station.
		iS	47 14			
2	BHA	e	06 47 21			Probably Central Africa.
3	BUL	Traces	00 41 01			Probably W.W.R. tremor.
3	BUL	iS ₁	01 37 06			" " "
3	BHA	iP ₁	03 39 11	245 Km		B.P.I. H = 03 38 33
		iS	39			Kariba area.
	BUL	iS ₁	40 20	380 Km		
3	BUL	eP ₁	18 58 19	55		USCGS H = 18 48 52 57.5S
	BHA	eP	55	60		26.7W h = ± 33 Km. Sandwich
						Is.
4	BHA	e	07 15 55			Seismic, probably local
		i	17 02			
6	BHA	eP	04 06 49	76		USCGS H = 03 54 58 40.5N
						29.5W h = ± 33 km. Azores
						region.
6	BUL	ePKP	04 42 23	124		USCGS H = 04 23 24 17.4S
	BHA	ePKP	31	128		167.7E h = ± 33 km. New
						Hebrides Is.
6	BUL	ePKP	08 15 21	124		USCGS H = 07 56 20 17.4S
						167.9 E h = ± 33 Km. New
						Hebrides Is.
6	BUL	ePKP	08 22 32	124		USCGS H = 08 03 32 17.2S
						168.0E h = ± 33 Km. New
						Hebrides Is.
6	BUL	iPKP	11 19 35	130	C	USCGS H = 11 00 53 13.3S
	BHA	iPKP	42	132		167.3E h = ± 209 Km. New
						Hebrides Is.
6	BUL	e	14 08 41			Probably Central Africa.
		i	09 50			
		i	10 21			
6	BHA	Traces	14 12 00			
6	BHA	ePKP	23 50 33	129		USCGS H = 23 31 28
						17.5S 167.6E h = ± 42 Km.
						New Hebrides Is.
7	BHA	i	10 50 46			Local, 130 Km. from station
		i	51 00			
7	BHA	eP	18 26 32			Probably Kariba
		iS	59			
7	BHA	Traces	19 04 27			
8	BHA	iP	21 14 20	245 Km		B.P.I. H = 21 13 42
		iS	47			Kariba area.
	BUL	e	46	380 Km		
		eS _n	15 17			
		eS ₁	29			
8	BHA	eP ₁	22 10 01	99		USCGS H = 21 56 22 24.3N
						121.7E h = ± 29 Km. Near E.
						Coast of Formosa M=6.
9	BHA	e	02 07 06			
		i	58			

(Contd.)



Date	Station	Phase	G. M. T.			Arc Dist.	C/R	Remarks
			h.	m.	s.			
9	BUL	e	13	33	45			
9	BHA	i	14	04	56			
		i		05	42			
		i		06	00			
9	BUL	e	14	06	13			Probably Central Africa.
		e		07	56			
9	BHA	iP	16	09	32	65	C	USCGS H = 15 59 18 36.4N 71.3E h ⁺ 241 Km Hindu Kush.
	BUL	iP	16	01	70			
10	BHA	eP	04	49	26	42		USCGS H = 04 41 47 1.6S 66.8E h ⁺ 33 Km. Indian Ocean
10	BHA	eP	13	45	20	81	R	USCGS H = 13 33 12 8.9S 110.4E near S. Coast of Java. Probably Kariba
10	BHA	eP	15	51	08			
		iS			35			
10	BHA	eP	20	52	23	50		USCGS H = 20 43 37 27.9N 54.8E h = ⁺ 47 Km. Iran.
10	BHA	eP	21	06	20	90	C	USCGS H = 20 53 35 34.9S 70.1W h ⁺ 137 Km. Mendoza Prov. Argentine.
10	BHA	ePKP ₁	22	12	08	148		USCGS H = 21 52 37 15.1S 173.3W h ⁺ 33 Km. Samoa Is. Region. Probably Kariba
11	BHA	eP	03	50	27			
		iS			54			
11	BHA	eP	10	02	52			Probably Kariba
		iS		03	19			
11	BHA	eP	13	59	58			Probably Kariba
		iS		14	00	27		
11	BHA	Traces	15	21	06			
11	BHA	e	17	16	23			Probably Central Africa.
		e		17	32			
		i		18	10			
12	BHA	e	05	11	50			Probably Central Africa
		i		13	45			
		i		14	08			
12	BUL	e	18	02	28			
12	BUL	e	19	22	31	126		USCGS H = 19 03 54 28.9S 177.1W h ⁺ 134 Km. Kermadec Is. region.
13	BHA	iP	10	33	00	54		USCGS H = 10 23 38 35.5N 49.8E h ⁺ 33 Km. N.W. Iran
	BUL	i			37			
14	BUL	iPKP	00	48	46	121	R	USCGS H = 00 29 56 33.4S 179.3W h ⁺ 33 Km. Kermadec Is. region.
	BHA	iPKP			56	126		
14	BHA	iP	01	49	55	74	R	USCGS H = 01 38 39 1.5N 99.0E h ⁺ 100 km. NW. Coast of Sumatra. Seismic, probably local
14	BHA	e	04	10	15			
		i			54			
14	BHA	iP	10	56	58			Republic of the Congo.
		i		58	55			
		i		11	00	10		
	BUL	e		10	58	12		
		e		11	02	55		
14	BUL	i		14	42	40		
15	BUL	i		05	18	17		
	BHA	e			42			
15	BHA	e	05	52	01			
16	BHA	Traces	03	45	30			
16	BHA	ePKP ₁	18	21	51	140		USCGS H = 18 02 33 51.6N 175.8W h ⁺ 27 Km. Near Aleutian Is. M = 5 $\frac{1}{4}$.
	BUL	iPKP ₁		22	03	145	R	
17	BHA	e	11	50	41			USCGS H = 04 06 00 8.9S
18	BUL	iP	04	18	37	85	C	
	BHA	iP		18	43	88	C	117.0 E h ⁺ 33 Km. Sumbawa.
18	BHA	e	07	34	11			
		i			58			
19	BUL	eP	04	25	33	88		USCGS H = 04 13 04 31.0S 69.4W h ⁺ 120 Km. San Juan
	BHA	eP			50	90		

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
19	BHA	e	06 37 51			Probably Republic of the Congo.
		i	39 12			
		i	58			
19	BHA	i	14 30 04			Luangwa Valley.
		i	30			
	BUL	e	46			
		i	31 43			
		i	32 08			
20	BHA	Traces	06 29 41			
21	BUL	e	07 20 50			Probably W.W.R. Tremor
		i	23 00			
22	BHA	ePKP	15 42 33	125		USCGS H = 15 23 33 49.8N 155.8E h [±] 19 Km. Northern Kurile Islands.
23	BHA	iPKP ₁	00 45 32	145	C	USCGS H = 00 26 00 15.2S 173.0W h [±] 1 Km. Samoa Is. region
23	BHA	e	07 52 22			
		i	53 11			
		i	37			Prob. Central Africa.
	BUL	e	43			
		i	56 34			
23	BHA	eP	12 53 41			Probably Kariba
		iS	54 06			
23	BHA	ePP	16 37 57	141		USCGS H = 16 15 59 16.9S 178.8W h [±] 576 Km. Fiji Is.
23	BHA	Traces	18 22 36			
23	BHA	e	19 48 58			Probably Kariba.
		i	49 26			
23	BHA	Traces	20 57 02			
25	BUL	iP	09 47 50	99	C	USCGS H = 09 34 15 3.0N 136.7E h [±] 33 Km. Molucca Passage.
	BHA	eP	51	99	C	USCGS H = 20 06 10 61.4S 154.9E h [±] 33 Km. S.W. of Macquerie Is.
25	BUL	eP	20 18 57	89		Seismic, probably local.
	BHA	eP	19 20 95			
26	BHA	e	05 05 40			
		e	06 06			
26	BHA	eP	11 34 48			USCGS H = 11 26 12 33.7N 27.9E h [±] 33 Km. E. Mediterr- anean Sea.
		o	35 29			
26	BHA	Traces	13 31 09			
26	BUL	iP	16 07 59	53		USCGS H = 15 58 35 55.5S 26.5W h [±] 33 Km. Sandwich Is.
	BHA	eP	08 32 58	58		Probably Central Africa.
26	BHA	e	19 01 48			
		i	02 59			
26	BUL	eP	22 18 34	53		USCGS H = 22 09 05 55.7S 26.5W h [±] 33 Km. Sandwich Is.
			19 08 58			
27	BHA	ePKP	08 29 08	121	C	USCGS H = 08 10 24 14.0N 90.4W h [±] 107 Km. Guatemala El Salvador border.
	BUL	iPKP	09 124			
27	BHA	i	14 03 42			
		i	04 29			
	BUL	e	06 42			
		i	07 44			
27	BUL	ePKP ₁	16 39 01	147		USCGS H = 16 19 31 52.1N 171.1W h [±] 60 Km. Rat Is. Aleutian Is. Probably W.W.R. Tremor
28	BUL	e	04 53 16			
		i	58			
28	BHA	e	13 35 17			
28	BUL	iP	15 13 34	94	C	USCGS H = 15 00 17 0.1N 123.6E h [±] 61 Km. N. Celebes
	BHS	iP	36 94	C		Probably W.W.R. Tremor
28	BUL	iS ₁	19 31 41			
28	BHA	e	23 11 49			
29	BUL	e	07 25 26			
29	BHA	e	07 48 37			
		i	49 43			Probably Central Africa
		i	50 14			

OCT., 1962

- 196 -

Date	Station	Phase	G. M. T.			Arc Dist.	C/R	Remarks.
			h.	m.	s.			
29	BHA	Traces	22	20	55			
29	BHA	e	22	22	16			Probably Central Africa.
		e		23	19			
29	BUL	Traces	22	26	26			
30	BHA	e	00	29	58			Probably Central Africa.
30	BUL	iP	01	53	37	38 Km	C	USCGS H = 01 46 33 54.2S
30	BHA	iP		54	21	43 Km	C	9.1E h±33km. Bouvet Is region.
30	BHA	i	08	50	34			
30	BHA	Traces	10	14	35			
30	BHA	e	23	41	15			
		e		42	42			
31	BUL	i	13	30	00			W.W.R. Tremor
		i		31	07			
		i			35			
31	BHA	i	13	31	15			W.W.R. Tremor
		i		33	22			
		i		34	34			
31	BHA	Traces	15	01	23			

H.O. Oliver

H.R. Roberts

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NOV 1967

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN. 13 MAY 1967

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Latitude:	20° 08' 6" S.	14° 26' 46" S.
Longitude:	28° 36' 8" E.	28° 28' 08" E.
Lithologic foundation:	Hornblende schists of the Bulawayan system.	Dolomite and shales of the middle Katanga system.
Height:	1341 meters	1206 meters
Instrument:	Vertical & Horizontal Willmore S. P.	Vertical & Horizontal Willmore S. P.
Seismo. Officer:	Director, Federal Surveys.	Director, Federal Surveys.
Observer:	Officer-in-charge, Goetz Observatory.	Officer-in-charge, Broken Hill Observatory.
Institution:	Department of Federal Surveys, Salisbury.	Department of Federal Surveys, Salisbury.

All times given are G. M. T.

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H. O. OLIVER,
Seismological Officer.

Address:

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NOVEMBER, 1962.

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
1	BHA	eP	02 48 14			
		iS	44			Probably Kariba.
1	BUL	e	08 03 14			
2	BUL	iP	14 59 20	85		USCGS H = 14 46 39 10.0 S 117.8E h _± 33 Km. South of Sumbawa.
		e	24			
2	BHA	eP	15 25 23	85		USCGS H = 15 12 37 10.2S 117.6E h _± 33 Km. South of Sumbawa.
3	BHA	Traces	12 11 00			
3	BUL	iS ₁	13 22 30			Probably W.W.R. Tremor
3	BUL	iS ₁	23 19 00			" " "
4	BHA	e	03 51 53			Probably Central Africa.
		i	53 21			
4	BUL	Traces	03 56 00			
4	BUL	iP	23 06 16	88	R	USCGS H = 22 53 34 43.2S 75.6W h _± 33 Km. Occ coast of S. Chile. Mag 5 $\frac{3}{4}$ -6
		i	25			
	BHA	eP	36	91	R	
		i	47			
5	BHA	Traces	03 58 48			
6	BHA	iP	00 18 40	50	C	USCGS H = 00 09 47 28.0N 55.6E h _± 33 Km. S. Iran.
	BUL	iP	19 15	54	C	
6	BHA	ePKP	03 56 13	141	C	USCGS H = 03 36 47 45.8N 122.5W h _± 44 Km. Washing- ton-Oregon border.
	BUL	iPKP	20	146		
6	BHA	Traces	08 52 35			
7	BUL	i	05 17 05			
7	BHA	e	13 09 35		C	
7	BUL	iP	16 15 41	87		USCGS H = 16 03 04 7.8S 119.8E h _± 156 Km. Flores Sea.
		i	16 25			
	BHA	iP	15 46	89	R	
		e	16 27			
7	BUL	e	17 55 53			
8	BHA	Traces	00 46 03			
8	BUL	iS ₁	01 46 22			Probably W.W.R. Tremor 120 Km. from Station.
8	BHA	iP	03 38 48			
	BUL	iS	39 02			
8	BUL	iP	07 34 58	280 Km		BPI. H = 07 34 16 17.4S 28.4E S. Rhodesia.
		i	35 04			
		iS ₁	34			
	BHA	iP _n	35 11	380 Km.		
		i	21			
		i	48			
		iS ₁	36 06			
8	BUL	eP ₁	10 21 59			Probably in same area as previous shock.
		iS	22 34			
	BHA	iP _n	18			
		i	56			
		i	23 07			
8	BHA	e	12 19 49			
8	BUL	i	14 41 37			
8	BUL	e	21 54 29			
9	BHA	eP	01 20 04	53		USCGS H = 01 11 02 33.4N 47.2E h _± 33 Km. Irag- Iran border region.
	BUL	iP	42	57		± 380 Km. from Station N. Rhodesia.
9	BHA	i	01 51 40			
		i	52 18			
		i	32			
	BUL	e	35			
		e	54 37			
9	BUL	i	09 51 34			
9	BHA	Traces	13 48 48			
9	BHA	e	14 01 28			Probably Republic of Congo
		e	02 35			
			03 14			

NOV., 1962 (Contd.)

- 198 -

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
9	BUL	e	14 04 48			
9	BHA	e	16 27 41			Seismic, probably local
9	BUL	eP	22 05 06			280 Km. from station.
		iS	41			S. Rhodesia.
	BHA	Traces	22 05 54			
9	BUL	Traces	23 13 12			
10	BHA	ePKP	01 52 06	122		USCGS H = 01 33 15 43.7N
X	BUL	iPKP	13	125		147.7E h \pm 24 Km. Kurile
10	BUL	Traces	03 38 40			Islands region.
10	BHA	iP	11 44 09			120 Km. from station.
		iS	23			
10	BHA	Traces	12 03 00			
10	BUL	i	17 29 47			
		i	30 10			
10	BHA	eP	18 05 59			Probably Kariba.
		eS	06 26			
11	BUL	eP	07 46 29	37		USCGS H = 07 39 15 23.9S
X	BHA	iP	38	40	R	69.5E h \pm 33 Km. Mascarene
						Is. region.
11	BUL	eP	10 39 03	37		USCGS H = 10 31 48 23.8S
	BHA	eP	21 40	40		69.4E h \pm 33 Km. Mascarene
						Is. Region.
11	BHA	eP	15 22 12	34		USCGS H = 15 15 34 17.2N
X	BUL	eP	52	39		40.7E h \pm 34 Km. Red Sea.
11	BUL	e	15 35 08			
11	BUL	ePKP	16 28 44	126		USCGS H = 16 09 58 12.9S
X		i	56			166.5E h \pm 77 Km. Santa
	BHA	ePKP	49	130		Cruz Is.
		i	29 04			
11	BUL	iP	22 27 01	88		USCGS H = 22 14 19 43.2S
X		i	10			76.0W h \pm 33 Km. Off coast
	BHA	iP	20	92	R	of S. Chile Mag 6 $\frac{1}{2}$ -6 $\frac{3}{4}$.
		i	32			
12	BUL	iP	21 03 10	41	R	USCGS H = 20 55 39 17.8S
						13.6W h \pm 33 Km. South
						Atlantic Ocean.
12	BUL	e	21 56 10			
		i	41			
		i.	58 53			
13	BUL	e	03 46 29			
13	BUL	e	04 41 16			
		i	48			
13	BUL	ePKP ₁	10 17 45	147	C	USCGS H = 09 58 13 52.9N
						166.7W h \pm 69 Km. Fox Is.
						Aleutian Is.
13	BUL	i	12 43 53			Probably W.W.R. Tremor
13	BHA	e	14 27 23			
13	BUL	eP	21 57 14	56	R	USCGS H = 21 47 50 56.9S
	BHA	eP	47	61	R	29.0 W h \pm 33 Km. Sandwich Is.
14	BUL	Traces	10 54 40			
14	BUL	e	22 12 26			
X	BHA	e	26			
		i	13 09			
14	BUL	e	22 12 26			
	BHA	e	26			
			13 09			
15	BUL	iP	16 04 40	87	C	USCGS H = 15 51 58 38.3S
	BHA	eP	58	91	C	73.2W h \pm 33 Km. Central
						Chile
15	BUL	iP	16 22 10	87	C	USCGS H = 16 09 27 38.4 S
	BHA	iP	27	91	C	73.6W Central Chile
						h \pm 33 Km.
15	BUL	eP	23 39 19	105		USCGS H = 23 25 16 8.7S
X						79.8W h \pm 45 Km. Near Coast
						of Northern Peru.

Contd.)



NOV., 1962 (Contd.), - 199 -

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
16	X ✓ BHA	i	21 21 11		C	
	✓ BUL	i	24		C	
16	BHA	e	22 38 38			
17	BUL	iP	00 12 49	90	C	USCGS H = 00 00 21.5 19.6S 68.8W h = \pm 209 Km. Bolivia.
17	BHA	Traces	08 57 14			
17	BHA	eP	13 20 37			Probably Central Africa.
		i	21 54			
			22 34			
	BUL	eP	21 47			
		i	24 51			
17	X ✓ BHA	eP	14 33 45	94		USCGS H = 14 21 31 2.8N 121.7E h \pm 609 Km. Celebes Sea.
18	BHA	i	06 33 21			Probably Kariba
		i	49			
18	X ✓ BUL	iP	06 56 32	97	R	USCGS H = 06 43 08 0.2S 125.1E h \pm 56 Km. Molucca Sea.
	X ✓ BHA	iP	34	98		
18	BHA	e	07 50 38			
18	BUL	iS ₁	22 33 15			Probably W.W.R. Tremor
18	BHA	Traces	22 36 20			
19	BUL	iPKP ₁	22 04 25	146	C	USCGS H = 21 44 50 53.8N 163.6W h \pm 33 Km. Unimak Is. region.
20	BHA	eP	10 08 46			
		i	11 19			
		i	12 57			
20	BUL	e	16 43 39			
			49			
21	BUL	i	10 50 13			
21	BHA	Traces	11 52 03			
21	BHA	Traces	12 45 21			
21	BUL	eP _n	14 00 18			W.W.R. Tremor
		iS ₁	01 50			
22	BUL	Traces	08 41 00			
22	BHA	e	14 38 29			
22	BUL	eP _n	20 07 38			W.W.R. Tremor
		iS _n	08 48			
		iS ₁	09 14			
	BHA	e	08 55			
		e	11 05			
		i	12 11			
23	BHA	Traces	06 10 34			
23	BUL	e	23 02 44			
23	X ✓ BUL	Traces	23 26 17			
24	X ✓ BHA	iP	01 15 26	245		BPI. H = 01 14 48 Kariba area
		iS	53			
	BUL	Traces	50	380		
24	BUL	i	05 51 57			Probably W.W.R. Tremor
24	X ✓ BUL	e	10 52 17			
24	X ✓ BHA	e	10 55 07			
24	X ✓ BHA	Traces	11 01 44			
24	X ✓ BHA	e	16 31 17			
	X ✓ BUL	e	26			
25	BUL	Traces	13 53 34			
25	BUL	Traces	20 06 00			
25	BHA	e	23 24 32			
		i	25 47			
		i	26 25			
		i	32			
26	X ✓ BHA	e	01 51 28			
	X ✓ BUL	e	57			
26	BHA	e	02 43 17			
26	BUL	e	02 46 59			
26	BUL	i	05 14 13			

NOV., 1962 (Contd.)

Date	Station	Phase	G. M. T.			Arc Dist.	C/R	Remarks.
			h.	m.	s.			
26	X ✓ BHA	e	05	40	47		C	
26	BHA	Traces	11	27	38			
26	BHA	i	11	37	01			
	BUL	i		39	21			
26	BUL	i	11	40	02			
26	BUL	e	14	25	58			
26	X ✓ BUL	e	16	17	57			
26	X ✓ BHA	e		18	07			
26	BHA	e	23	44	40			
		i		45	32			
		i			54			
27	BUL	e	09	14	18			
27	BHA	Traces	10	40	08			
27	X ✓ BHA	ePKP	17	09	14	119		USCGS H = 16 50 28 12.2N 143.8E h± 33 Km. Mariana Is.
27	BUL	e	18	09	13			
28	BUL	iS ₁	01	47	27			
	BHA	Traces		49	31			
28	X ✓ BUL	ePKP	02	54	35	118½		USCGS H = 02 35 49 12.1N 143.7E h± 33 Km. Mariana Is.
28	X ✓ BHA	ePKP		✓ 35	119			
28	BUL	e	05	09	39			
	BHA	e			53			
28	BHA	e	05	16	30			
28	BHA	e	05	37	08			
	BUL	i			12			
28	X ✓ BHA	iP	15	37	02	69		USCGS H = 15 25 59 9.9N 93.4E h± 53 Km. Andaman Is. Probably Kariba
		iPcP		✓ 28				
28	BHA	i	17	45	41			
		i		46	10			
	BUL	e			52			
28	BHA	e	19	56	22			
	BUL	e			29			
28	BUL	Traces	20	24	46			
28	BUL	Traces	21	19	43			
29	BHA	e	00	31	06			
29	BUL	e	04	17	17			
29	BHA	e	04	20	35			
29	BHA	Traces	05	37	06			
29	BHA	Traces	06	40	42			
29	BUL	e	07	49	43			
29	X ✓ BUL	ePKP	09	23	03	129		USCGS H = 09 03 51 22.3S 175-9W Tonga Is. h± 33 Km.
29	BUL	Traces	11	45	05			
29	BHA	Traces	12	31	38			
29	BHA	Traces	12	40	33			
29	BUL	iS ₁	13	30	37			
	BHA	iS ₁		31	23			
29	BUL	iS ₁	14	12	03			
	BHA	Traces			53			
29	BHA	e	14	45	04			
29	X ✓ BUL	ePKP	19	25	39	126		USCGS H = 19 06 38 17.3S 168.5E New Hebrides Is. h± 33 Km.
29	BUL	Traces	20	08	45			
30	BUL	e	13	32	06			
30	BUL	e	13	46	43			
30	BUL	i	16	00	58			
30	BHA	eP	16	13	41	72		USCGS H = 16 02 14 24.2N 94.5E Burma h± 175 Km.
	BUL	iP			57	78		
30	BUL	e	16	18	16			
					23			
30	X ✓ BHA	e	17	07	04			C
		e	18	47	53			

H.O. Oliver

H.R. Roberts

Dec 62

Copies 98

Department of Federal Surveys,
Salisbury,
Southern Rhodesia.

SEISMOLOGICAL BULLETIN.

The data herewith give the results for a network of seismomographs intended particularly for the study of earthquakes occurring in the Federation. This bulletin, however, is prepared regularly and will be sent to interested organizations on request.

Stat:	<u>Chileka (CHL)</u>	<u>Bulawayo (BUL)</u>	<u>Broken Hill (BHA)</u>
Lat:	15° 40.8' S	20° 08.6' S	14° 26.46' S
Long:	34° 58.6' E	28° 36.8' E	28° 28.08' E
Litho- logic Founda- tion:	Charnockitic granulites of the Basement Complex	Hornblend schists of of the Bulawayo System	Dolomite and shales of the middle Katanga system
Hgt:	781 metres	1341 metres	1206 metres
Inst:	Vertical and Horizontal Willmore S.P.		
Seismo. Officer:	Sen. Met. Officer Chileka	Director, Federal Surveys	Director, Federal Surveys
Respon- sible:	Officer-in-charge Chileka	Officer-in-charge Goetz Observatory	Officer-in-charge Broken Hill Observatory
Inst:	Department of Federal Surveys, Salisbury		

All times given are G. M. T.

The supervision of this network and bulletin is at present in the hands of the undersigned, to whom all inquiries should be addressed.

H.O. OLIVER
Seismological Officer.

Address.

Bernard Price Institute of Geophysical Research,
University of the Witwatersrand,
Johannesburg,
South Africa.

December, 1962.

Date	Station	Phase	G. M. T. h. m. s.	Arc ^o Dist.	C/R	Remarks.
1	X ✓ Bul	iPKP ₁	02 09 52	147 ^o	C	USCGS H=01 50 20.4 52.4N, 170.1W h _± 38Km Fox Is. Aleutian Is.
1	Bha	e	02 19 37			
1	X ✓ Bul	iPKP	04 35 54	124 ^o	C	USCGS H= 04 16 59.6 29.7S 177.7W
	✓ Bha	iPKP	04 36 05	130 ^o		Kermadec Is. reg. h _± 52Km
		i	✓ 39 22			
1	Bul	e	10 57 22			
1	Bha	eP	11 21 33			Seismic, probably local + 40Km from stn
		iS	37			
1	Bha	eP	13 15 52			+ 250Km from stn.
		iS	16 17			
1	X ✓ Bul	ePP	21 23 38	134 ^o		USCGS H= 21 02 51.8 17.7S, 178.7W
	✓ Bha	ePP	21 23 52	140 ^o		Fiji Is. region h _± 620Km
2	Bul	iS ₁	02 19 08			Probably W.W.R. Tremor
2	Bul	i	03 27 34			
		i	44			
	Bha	e	03 28 08			
		e	13			
2	Bha	e	13 45 49			
		i	46 28			
2	Bha	e	15 40 26			Probably C/A
		i	41 50			
2	Bha	e	21 01 36			
2	Bha	eP	22 30 51	53 ^o		USCGS H= 22 21 29.5 35.8N 50.1E
	Bul	eP	22 31 27	59 ^o		Iran h _± 36KM
2	Bha	eP	23 45 43	53 ^o		USCGS H= 23 36 23.7 35.5N, 50.1E
	Bul	eP	23 46 23	59 ^o		Iran, h _± 33Km
3	Bha	ePP	13 11 13	133 ^o		USCGS H= 12 50 36.9 12.9S, 169.2E Santa Cruz Is. Region, h _± 632Km (
3	Bul	e	16 10 53			Probably C/A
	Bha	e	16 09 48			
		i	10 58			
3	Bha	e	20 23 20			Probably C/A
4	Bha	e	05 46 56			Probably C/A
		i	48 11			
		i	46			
	Bul		05 49 00			
4	X ✓ Bul	iP	07 35 14	87 ^o	C	USCGS H= 07 23 04.2 21.8S, 65.6W
	✓ Bha	iP	07 35 25	88 ^o		Southern Bolivia h _± 300Km
4	Bul	ePKP	10 53 05	116 ^o		USCGS H= 10 34 27.8 6.1S, 149.9E New Britain Is. h _± 83Km
4	Bha	e	11 15 18			
4	Bul	Traces	11 55 30			
4	Bul	e	13 23 34			
		e	24 58			
		e	25 41			
4	X ✓ Bha	ePKP	16 59 30	144 ^o		USCGS H= 16 40 06.0 16.5S, 172.8W h _± 33Km Samoa Is. region Mag 5 - 5½
4	Bha	eP	19 43 51	97 ^o		USCGS H= 19 31 31.5 4.9N, 122.8E Celebes Sea h _± 627Km
4	Bha	e	20 26 32			
4	Bul	e	20 33 47			
	Bha	e	20 34 13			
4	Bha	e	20 45 47			
		e	46 30			
5	Bha	e	00 31 51			
	Bul	e	00 32 08			
5	Bha	e	05 39 51			
		e	40 46			
5	Bul	eP	11 23 45			W.W.R. Tremor
		i ₁ ⁿ	25 47			
5	Bha	Traces	15 09 44			
5	Bha	Traces	17 48 50			
6	Bul	e	03 57 59			
6	X ✓ Bul	ePKP	04 23 08	127 ^o		USCGS H= 04 04 09.8 49.ON, 154.3E Kurile Is. h _± 85Km



Station	Phase	G. M. T. h. m. s.	Azo Dist	C/R	Remarks
Bul	eP	06 56 48	85°		USCGS H= 06 44 17.0 45.6S, 73.4W
Bha	eP	06 57 09	89°		h _± 33Km Near east of Southern Chile
Bul	iP	07 01 46			W.W.R. Tromor
	iS _n	03 01			
Bha	i	07 03 02			Probably C/A
	i	05 17			
	i	06 34			
Bha	e	08 18 16			
Bha	e	09 10 47			
Bul	i	10 27 53			
Bha	eP	09 49 01	90°		USCGS H= 09 36 01.5 38.0N, 106.3E Central China h _± 33Km.
Bha	e	10 44 53			
Bul	e	14 17 58			
Bha	ePKP	14 21 32	116°		USCGS H= 14 03 37.0 29.2N, 139.2E
Bul	iPKP	14 21 36	118°	C	h _± 411Km Bonun Is. region Mag 6 $\frac{3}{4}$ - 7
Bul	i	14 32 08		C	
Bha	e	00 08 10			
Bul	eP	18 13 25	92°		USCGS H= 18 00 41.1 23.6S 69.4W
Bha	eP	18 13 38	94°		Near Coast of Northern Chile h _± 100Km
Bul	ePKP	18 37 54	138°		USCGS H= 18 18 29.1 15.2S, 173.7W
Bha	iPKP	18 38 00	144°		Tonga Is. region h _± 33Km
Bul	iP	21 38 45	84°	R	USCGS H= 21 27 22.2 25.8S, 63.4W
Bha	iP	21 38 59	86°	R	Argentina h _± 620Km
Bha	e	22 21 04			
Bha	e	22 25 33			
Bha	ePKP	23 14 22	141°		USCGS H= 22 55 01.2 50.5N, 176.3W
Bul	iPKP	23 14 31	146°	C	Andreanof Is., Aleutian Is. h _± 33Km
Bha	Traces	02 58 30			
Bha	Traces	04 24 28			
Bha	ePKP	14 35 04	136°		USCGS H= 14 16 05.2 22.4S, 177.0W
Bul	Traces	14 38 00			Tonga Is. region h _± 204Km
Bha	Traces	21 13 34			USCGS H= 20 54 13.7 17.7S, 173.6W h _± 60km Tonga Is. region Mag. 5.2
Bul	iP	05 02 43	32°	R	USCGS H= 04 56 19.4 28.3S, 62.7E
Bha	iP	05 03 06	36°	R	Indian Ocean h _± 33Km
Bha	Traces	05 26 30			
Bul	ePKP	17 15 07	125°		USCGS H= 16 56 04.5 27.2S, 176.8W
Bha	ePKP	17 15 12	128°		Kermadec Is. region h _± 88km
Bha	e	22 56 18			Seismic, local
Bul	iP	23 16 23	77°	C	USCGS H= 23 04 42.0 8.0S, 108.6E
Bha	iP	23 16 26	78°	C	Near Coast of Central Java. h _± 193 Km
Bul	iP	23 25 02			70Km from Station
	iS	10			
Bul	eP	02 46 10	78°		USCGS H= 02 34 09.7 48.9S, 124.6E
Bha	eP	02 46 35	84°		Approx. 2000 Km S. of Australia h _± 33Km
Chl*	e	20 25 38			60Km from Station
	i	45			
Bha	Traces	03 10 11			
Chl	eP ₁	03 12 32			
	iS ₁	13 25			
Bha	e ₁	09 39 34			
Bul	e	10 09 34			
	e	45			
Bha	e	10 10 35			
Chl	ePKP	10 27 22	116°		USCGS H= 10 08 48.5 4.8S, 153.8E
Bha	ePKP	10 27 36	123°		New Britain h _± 94Km
Bha	e	12 54 27			
Bul	iS	13 48 31			
Bha	e	13 50 12			
Bul	e	14 06 07			
Bha	e	14 06 43			
Chl	e	06 50 12			* Chileka
Bul	Traces	06 50 40			
Bha	e	18 14 17			

Date	Station	Phase	G. M. T. h. m. s.	Arc ^o Dist	C/R	Remarks.
12	Bul	e	19 49 26			
	Bha	Traces	19 49 57			
12	Chl	i	23 07 05		C	
X	Bha	i	23 07 41		R	
	Bul	i	23 07 45		R	
13	Bha	eP	00 36 05	67 ^o	C	USCGS H= 00 25 02 7.2N, 93.1E Nicobar Is. h _± 33Km
	Bul	eP	00 36 14	67 ^o		
13	Bha	ePKP	04 40 29	132 ^o		USCGS H= 04 21 21.2 63.3N, 149.7W South Central Alaska, h _± 47Km
13	Bha	e	04 43 54			
X	Bha	ePKP	15 16 38	134 ^o		USCGS H= 14 57 27.9 h _± 69Km 61.4N 147.2W Kenai Peninsular, Alaska
13	Bha	i	16 09 43		C	
13	Bha	eP	16 26 51			Seismic, probably local.
		e	27 26			
13	Bha	e	16 29 56			
13	Bha	e	16 40 43			Seismic local
		e	41 18			
13	Bha	e	22 26 46			
13	Bha	Traces	22 54 15			
14	Bha	eP	12 20 29			Probably C/A
		i	21 59			
		i	22 46			
	Chl	eP	12 21 03			
		i	23 04			
		i	24 18			
	Bul	Traces	12 25 00			
X	Chl	eP	17 05 11	81 ^o		USCGS H= 16 52 49.8 50.3N, 90.6E Outer Mongolia U.S.S.R. Border. h _± 33Km
	Bha	eP	17 05 21	85 ^o		
	Bul	eP	17 05 41	89 ^o		
14	Bul	i	18 05 05		R	
	Bha	e	18 05 16			
	Chl	e	18 05 43			
14	Bul	iS ₁	23 44 45			W.W.R.
	Bha	Traces	23 45 59			
15	Bul	ePKP ₁	06 54 33	146 ^o		USCGS H= 06 34 59 40.7N, 117.5W, Nevada h _± 33km Mag 4 $\frac{1}{2}$ - 4 $\frac{3}{4}$
15	Bha	Traces	12 58 10			
15	Bha	Traces	13 11 41			
15	Chl	e	14 13 07			
15	Bul	e	14 37 06			
			12			
15	Bha	e	15 44 27			
	Bul	Traces	15 54 45			
15	Chl	i	17 01 47			
15	Bha	e	18 03 24			
16	Bha	eP	01 56 38			Seismic, local
		e	57 23			
16	Bha	e	06 44 42			
	Chl	e	06 54 46			
16	Chl	eP	12 11 24			180Km from station
		iS	43			
16	Bha	e	16 45 07			
	Chl	Traces	16 45 19			
16	Bha	iP	20 08 54			Probably Kariba
		iS	09 21			
16	Chl	iS ₁	20 10 06			W.W.R
17	Bul	i	05 54 39			
17	Bha	i	11 09 52			
X	Chl	eP	11 12 32	88 ^o		USCGS H= 11 00 16.0 2.1N, 122.9E Celebes Sea h _± 393Km
	Bha	iP	11 12 56	95 ^o	R	
17	Bha	eP	11 26 06			Seismic local
		iS	21			
17	Bha	eP	12 43 06	96 ^o		USCGS H= 12 29 52.2 0.2N, 124.3E, Halmahera Region h _± 126 Km
17	Chl	iP	15 30 42	140km		B.P.T. H= 15 30 18 16.30 S, 35.00E S. Nyasaland.
		iS	30 57			
	Bul	eP _n	15 31 56	750Km		

December, 1962 (Cont.)

Date	Station	Phase	G. M. T. h. m. s.	Arc ^o Dist.	C/R	Remarks.
17 (cont)	Bul	iS _n	15 33 15			
		iS ₁	50			
	Bha	iP _n	15 31 58	750 Km		
		iS _n	33 15			
		iS ₁	33 50			
17	Chl	eP	15 48 48			+ 140 Km from Stn. Probably after shock of H= 15 30 18
		iS	49 04			
17	Chl	eP	15 51 30			+ 140 Km from Stn. Probably after shock of H= 15 30 18
		iS	47			
17	Chl	e	17 38 23			
X	Bha	e	17 38 37			
17	Bul	e	19 26 09			
	Bha	e	19 26 57			
	Chl	e	19 27 05			
17	Bul	e	20 15 35			
	Bha	e	20 16 22			
	Chl	e	20 16 30			
17	Bha	e	20 32 14			
17	Bha	e	21 48 16			
17	Chl	i	23 40 15			
18	Bul	e	02 17 27			
X	Bul	iPKP	03 13 02 A	119 ^o	C	USCGS H= 02 54 47.1 21.6N, 143.1E ht± 306 Km Marian Is. Region Mag. 5.0
18	Bul	e	03 16 10			
18	Bul	eP	04 02 51	79 ^o		USCGS H= 03 51 00 23.8N, 93.9E ht± 124Km India-Burma border
18	Chl	eP	05 20 35			+ 150 Km from Stn. Probably after shock of H= 15 30 18
		iS	52			
18	Bul	e	07 27 23			
X	Bul	iPKP	10 52 35	125 ^o	C	USCGS H= 10 33 58 28.3S, 178.2W
	Bha	iPKP	10 52 46	130 ^o	R	ht± 214Km Kermadec Is.
18	Bha	Traces	19 10 40			
19	Bha	Traces	01 16 30			
19	Chl	e	09 57 42			
		i	50			
	Bha	i	10 01 53			
19	Bha	ePKP	11 20 45	130 ^o		USCGS H= 11 01 39.8 31.2S, 178.1W ht± 28Km Kermadec Is.
19	Bha	e	11 23 43			
X	Bha	i	13 06 51			USCGS H= 12 56 20 4.7S, 154.0E Sol Is. ht± 98 Km
19	Bha	Traces	13 15 07			
19	Chl	Traces	14 00 37			
19	Bul	e	18 30 19			
19	Bha	Traces	20 37 08			
						USCGS H= 20 15 59 23.9S, 179.4W ht± 451 Kermadec Is. region.
20	Bul	iS ₁	03 06 47			Probably W.W.R. Tremor
X	Bul	iPKP	09 05 32	127 ^o		USCGS H= 08 47 23 23.4S, 179.3E
	Bha	ePKP	09 08 18	133 ^o		ht± 512 Km Fiji Is. Region
20	Chl	i	10 04 35			
20	Bha	e	16 00 38			Probably C/A
		e	02 09			
		e	58			
	Chl	Traces	16 02 04			
20	Bha	e	18 31 57			Probably Kariba
		i	32 20			
22	Bul	iPKP	01 11 21	122 ^o	R	USCGS H= 00 52 23 22.0S, 170.1E
X	Chl	ePKP	01 11 23	122 ^o		Loyalty Is. Region ht± 33 Km
	Bha	iPKP	01 11 30	127 ^o		
22	Bul	Traces	01 47 46	122 ^o		USCGS H= 01 28 49 21.9S, 170.1E Loyalty Is. Region ht± 33Km

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
22	X Chl	iP	02 11 35	75°		USCGS H= 01 59 50 9.2S, 112.4E
	Bul	iP	02 12 01	80°	R	Near S. Coast of Java. h± 69 Km
		i	19			
	Bha	iP	02 12 06	83°	R	
22	Chl	iP	10 45 10			
		iS	34			
22	X Bha	ePKP ₁	15 39 49	141°		USCGS H= 15 20 31 52.5N, 168.8W,
	Chl	ePKP ₁	15 39 52	139°		Fox Is, Aleutian Is h±47Km Mag. 6½
	Bul	iPKP ₁	15 40 04	148°	C	
		i	20			
22	Bha	Traces	19 22 27			
23	Chl	eP	00 53 50	57°		USCGS H= 00 43 56.3 41.3N, 20.4E Albania- Yugoslavia border region h± 33Km
23	Bha	iP	10 23 35			Probably Kariba
		iS	57			
23	Bul	i	11 07 47			
23	Buk	e	19 02 38			
24	Bul	Traces	00 06 08			
24	Bul	iP	00 33 21	55°	C	USCGS H= 00 23 53 59.1S, 26.0 W,
	Bha	eP	00 33 56	60°		Sandwich Is. region h±33Km
24	Chl	e	09 34 07			
		i	15			
25	Bul	Traces	10 41 56			
25	Chl	Traces	18 37 10			
	Bha	i	18 37 45			
		i	56		R	
20	Bha	e	19 31 57			Probably Kariba
		i	32 20			
20	Bul	e	22 08 31			
21	Chl	i	00 08 31			
21	Chl	i	00 24 14			
21	Chl	iP	00 56 05	75°		USCGS H= 00 44 19.7 9.0S, 112.4E
		iP ^P	24			Near S. Coast of Java h± 64 Km
	Bul	iP ^C	00 56 30	80°	R	
	Bha	iP	00 56 35	83°	R	
21	Bha	Traces	01 57 07			
21	Chl	ePKP	06 47 09	139°		USCGS H= 06 27 49 52.5N, 168.7W
	Bha	ePKP	06 47 16	141°		Fox Is. Aleutian Is. h± 33Km
21	Bha	ePKP	09 02 06	141°		USCGS H= 08 42 48 52.4N, 168.5W
	Chl	ePKP	09 02 17	139°		Fox Is. Aleutian Is. h± 33Km Mag. 6½
	Bul	iPKP	09 02 23	148°	C	
21	Chl	Traces	09 17 05			
21	Bha	ePKP	09 20 09	141°		USCGS H= 09 00 41 52.4N, 168.5W
	Bul	iPKP ₁	09 20 16	147°		Fox Is. Aleutian Is. h± 33Km
21	Bha	ePKP	09 29 22	141°		USCGS H= 09 10 02 52.5N, 168.5W
	Bul	iPKP ₁	09 29 38	148°	C	Fox Is. Aleutian Is. h± 33 Km
21	Chl	ePKP	09 51 57	111°		USCGS H= 09 33 15.5 42.4N, 142.3E
		e	52 42			h± 27Km Near S. Coast of Hokkaido,
	Bha	ePKP	09 51 53	116°		Japan
21	Bul	iP	09 55 10	86°	R	USCGS H= 09 42 46 22.8S, 66.5W
	Bha	iP	55 20	87°	C	h± 200Km Bolivia - Argentina Border
	Chl	iP	55 49	94°		
21	Bha	Traces	10 02 24			
21	Bha	Traces	17 51 58			
21	Bha	eP	17 54 33	35°		USCGS H= 17 47 31 14.2N, 51.7E
	Bul	eP	17 55 09	40°		h± 27Km Gulf of Aden.
25	Chl	i	22 59 08			Seismic Local.
26	Bha	e	05 17 16			Probably C/A
		e	18 14			
		i	19 01			
26	X Bha	eP	09 08 49	64°		USCGS H= 08 58 11 39.3N, 10.6 W
						h± 19Km. Off coast of Portugal
26	Bha	Traces	09 54 33			
26	X Chl	ePKP	22 44 22	127°		USCGS H= 22 25 15.5 h± 33Km
		i	34			53.9N, 168.7E Komanders Kie Is.
	X Bha	ePKP	22 44 25	131°	R	Mag. 6½



December, 1962 (Cont.)

Date	Station	Phase	G. M. T. h. m. s.	Arc Dist.	C/R	Remarks.
26	Chl	iP	23 34 04	47°		USCGS H= 23 25 17 23.9N, 65.4E,
X	Bha	eP	23 34 26	52°	R	ht 34Km Arabian Sea
27	Chl	iPKP	00 05 20	127°		USCGS H= 23 46 15 54.0N, 168.8E
	Bha	ePKP	00 05 23	131°		ht 33Km Komandors Kie Is.
27	Bha	Traces	00 38 44			
27	Bha	e	01 59 11			
27	Bha	ePKP ₁	04 33 20	145°		USCGS H= 04 13 55 14.8S, 173.2W ht 54Km Samoa Is.
27	Bha	eP	11 26 33	89°		USCGS H= 11 13 38 28.6S, 67.4W ht 33 Km Near Coast of Central Chile
27	Bha	ePKP	14 20 41	114°		USCGS H= 14 02 02 4.9S, 145.1E ht 35Km Near N. Coast of New Guinea
27	Bha	ePKP	18 37 24	118°		USCGS H= 18 18 42 39.9N, 142E ht 36Km, Near West Coast of Honshu
27	Bha	eP	19 15 05			Probably Kariba
		iS	31			
27	Bul	i	23 34 55		C	
28	Bha	Traces	02 30 08			
28	Bha	e	05 28 05			Probably C/A
		e	30 17			
		e	31 40			
28	Chl	iP	19 13 03			Approx 230 Km from Stn, Probably Port Herald Area
		iS	28			
28	Bha	eP	21 46 51	41°		
29	Bha	Traces	02 12 04			
29	Bha	Traces	04 25 48	99°		USCGS H= 04 12 09 2.4N, 127.1E ht 33, Halmahera Region
29	Chl	eP	08 13 13	47°		USCGS H= 08 04 26 23.9N, 65.2E ht 33Km Arabian Sea
		i	21			
X	Bha	eP	08 13 35	52°		
		i	44	°		
	Bul	iP	08 14 04	55		
		i	13			
29	Bha	eP	10 54 15	93°		USCGS H= 10 41 04 20S, 69.9W ht 46Km
X	Bul	iP	10 54 06	91°	C	N. Chile Mag. 6 $\frac{3}{4}$
29	Bha	Traces	11 55 22			
29	Bha	iP	12 55 34			Probably Kariba
		iP	56 00			
29	Bha	Traces	14 17 36			
29	Bha	Traces	15 16 07			
29	Chl	iP	19 10 54			
		iS	11 19			
29	Bha	e	19 12 43			Seismic Local.
29	Chl	iP	21 11 24	230 Km		B.P.I. H= 21 10 49 S. Nyasaland / Moz. border. Probably Port Herald Area.
		iS	49			
	Bha	eP	12 58	800 Km		
		i	13 48			
29	Bul	Traces	21 14 17			
29	Chl	iP	21 15 11	230 Km		Probably Port Herald Area
		iS	36			
29	Bha	i	21 17 35			Probably Port Herald Area
29	Bha	Traces	21 51 12			
29	Bha	eP	22 42 16			Probably Kariba Area
		iS	44			
29	Chl	iP	23 11 16	230 Km		Probably Port Herald Area
		iS	41			
	Bha	i	23 13 41			
30	Chl	iP	01 43 13	230 Km		Probably Port Herald Area
		iS	38			
	Bul	Traces	01 50 28			
	Bha	i	01 50 38			
30	Chl	iP	03 16 35	385Km		B.P.I. H= 03 15 39 18.30S, 34.30 E Mozambique
		iS ⁿ	17 13			
		iS ⁿ	24			
	Bul	eP ^l	03 17 03	620 Km		
		n				

December, 1962 (Cont.)			G. M. T.	Arc ^o		
Date	Station	Phase	h. m. s.	Dist	C/R	Remarks.
		iS	18 01			
		iS ⁿ	30			
	Bha	iP ^l	03 17 27	815 Km		
		iS ⁿ	18 47			
		iS ⁿ	19 22			
30	Chl	iP ^l	03 34 53	230 Km		Probably Port Herald Area
		iS	35 18			
	Bha	e	03 37 18			
30	Bul	e	13 13 21			
30 X	Bul	Traces	18 35 03			
30	Chl	iP	22 33 23			Probably C/A
		iS	34 07			
	Bha	e	22 34 16			
		i	35 15			
		i	45			
	Bul	e	22 36 25			
		i	37 22			
31	Bha	Traces	04 18 36			
31	Chl	i	09 14 16	230 Km		Probably Port Herald Area
		i	40			
31	Chl	e	11 11 49			
X	Bha	e	11 12 25			
X	Bul	i	11 12 30			
			34			
31	Bha	Traces	14 56 13			
31	Bul	i	22 03 37			
	Bha	Traces	22 03 48			
31	Bha	eP	22 11 10			Probably Kariba
		eS	37			

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