

SEISMOLOGICAL OBSERVATORY

RATHFARNHAM CASTLE



BULLETIN

for January 1 to March 31, 1953

Rathfarnham

Co. Dublin, Ireland

## Seismological Bulletin

| Date   | Comp.   | Phase  | G. M. T. |          |          | Remarks   |   |
|--------|---------|--------|----------|----------|----------|---|---|
| 1953   |         |        | h.       | m.       | s.       |   |   |
| Jan. 4 | NE      | eL     | 07       | 30       | -        | Microseisms   |   |
|        | Z<br>NE | e<br>e | 11       | 36<br>47 | 09<br>17 | Microseisms   |   |
| 5      | ZNE     | iP     | 07       | 59       | 58       | 54N 120E U.S.C.G.S.<br>H = 07 48 17<br>D = 8,100 km.  |   |
|        | ZNE     | e      | 08       | 00       | 07       |   |   |
|        | NE      | e      |          |          | 34       |   |   |
|        | Z       | i      |          | 01       | 00       |   |   |
|        | NE      | ePP    |          | 02       | 48       |   |   |
|        | NE      | eS     |          | 09       | 31       |   |   |
|        | NE      | eSS    |          | 14       | 50       |   |   |
|        | NE      | eSSS   |          | 17       | 30       |   |   |
|        | NE      | eL     |          | 19       | 20       |   |   |
|        | NE      | M      |          | 24       | -        | T = 30s.  |   |
|        | NE      | M      |          | 25       | -        | T = 21s.  |   |
|        |         | ZNE    | iP       | 10       | 18       | 23  | 49N 156E<br>H = 10 06 25<br>D = 8,500 km. |
|        |         | Z      | e        |          | 19       | 03  |   |
| NE     |         | e      |          | 20       | 46       |   |   |
| NE     |         | eS     |          | 28       | 08       |   |   |
| NE     |         | e      |          | 28       | 37       |   |   |
| NE     |         | ePS    |          | 28       | 54       |   |   |
| NE     |         | eL     |          | 40       | -        |   |   |
| NE     |         | M      |          | 58       | 30       | T = 40s.  |   |
| 7      |         | Z      | e        | 00       | 08       | 13  |   |
|        | Z       | eP     | 01       | 23       | 47       | D = 2,300 km.<br>41.5N 20E (BCIS)<br>H = 01 18 57   |   |
|        | NE      | e(S)   |          | 27       | (12)     |   |   |
|        | NE      | eL     |          | 28       | 20       |   |   |
|        | NE      | e(P)   | 06       | 00       | (58)     | D = 8,200<br>53 $\frac{1}{2}$ N 161E<br>H = 05 48 54<br>Earlier P is probably in hour mark. |   |
|        | NE      | ePP    |          | 03       | 25       |   |   |
|        | NE      | eS     |          | 09       | 55       |   |   |
|        | NE      | e      |          | 10       | 12       |   |   |
|        | NE      | eSS    |          | 15       | 19       |   |   |
|        | NE      | eL     |          | 26       | 30       |   |   |
|        | Z       | ePKP   | 14       | 27       | 51       |   |   |
| NE     | e       |        | 32       | 48       |          |   |   |
| NE     | eL      | 15     | 08       | -        |          |   |   |
| 11     | Z       | iP     | 23       | 03       | 06       | Microseisms   |   |
|        | Z       | i      |          | 03       | 28       |   |   |
|        | Z       | i      |          | 03       | 48       | 65N 133W U.S.C.G.S.<br>H = 22 53 30   |   |
|        | Z       | ePcP   |          | 04       | 00       |   |   |

| Date                | Comp. | Phase | G. M. T. |    |                      | Remarks   |
|---------------------|-------|-------|----------|----|----------------------|---|
| 1953                |       |       | h.       | m. | s.                   |   |
| Jan. 11<br>(contd.) | ZNE   | ePP   | 23       | 05 | 09                   | D = 6,200 km.   |
|                     | NEZ   | ePPP  |          | 06 | 32                   |   |
|                     | NE    | iS    |          | 10 | 49                   |   |
|                     | NE    | i     |          | 11 | 04                   |   |
|                     | NE    | i     |          | 11 | 55                   |   |
|                     | NE    | e     |          | 13 | 13                   |   |
|                     | NE    | eSS   |          | 14 | 54                   |   |
|                     | NE    | eL    |          | 18 | 30                   |   |
|                     | NE    | M     |          | 22 | -                    |   |
|                     | NE    | M     |          | 23 | 30                   |   |
|                     | NE    | M     |          | 26 | 20                   |   |
|                     | NE    | M     |          | 29 | 00                   |   |
|                     |       |       |          |    | T = 23s.<br>T = 14s. |   |
| 12                  | NE    | eP    | 17       | 35 | 22                   | 49½N 156E U.S.C.G.S.<br>H = 17 23 39<br>h = 60 km.<br>D = 8,500 km.<br>No Z Record. |
|                     | NE    | eS    |          | 45 | 04                   |   |
|                     | NE    | e     |          | 48 | 26                   |   |
|                     | NE    | eSS   |          | 50 | 10                   |   |
|                     | NE    | eL    |          | 56 | 00                   |   |
|                     | NE    | M     | 18       | 7  | 30                   |   |
|                     | NE    | M     |          | 11 | -                    |   |
| 17                  | Z     | e     | 18       | 20 | 18                   |   |
| 19                  | NE    | eL    | 05       | 36 | -                    | Microseisms   |
| 20                  | Z     | e     | 17       | 52 | 24                   | Doubtful, Microseisms   |
| 21                  | NE    | eL    | 02       | 15 | -                    |   |
| 23                  | Z     | e     | 12       | 55 | 41                   |   |
| 25                  | NE    | e(S)  | 20       | 08 | 10                   | Disturbed   |
|                     | NE    | eL    |          | 19 | 37                   |   |
| 27                  | Z     | ePKP  | 03       | 44 | (15)                 | Microseisms<br>4½S 153E U.S.C.G.S.<br>H = 03 25 02<br>D = 15,000 km.                |
|                     | NE    | ePP   |          | 46 | 30                   |   |
|                     | NE    | e     |          | 47 | 34                   |   |
|                     | NE    | ePPP  |          | 49 | 52                   |   |
|                     | NE    | e     |          | 55 | 31                   |   |
|                     | NE    | e(PS) |          | 56 | 10                   |   |
|                     | NE    | eSS   | 04       | 04 | 00                   |   |
|                     | NE    | eSSS  |          | 08 | 40                   |   |
| 29                  | NE    | ePP   | 22       | 09 | 23                   | Microseisms   |
|                     | NE    | eL    |          | 51 | -                    |   |

| Date   | Comp. | Phase | G. M. T. |    |    | Remarks  |
|--------|-------|-------|----------|----|----|--|
|        |       |       | h.       | m. | s. |  |
| 1953   |       |       |          |    |    |  |
| Feb. 4 | Z     | iP    | 10       | 57 | 24 | Compression<br>37 $\frac{1}{2}$ N 19 $\frac{1}{2}$ W U.S.C.G.S.<br>H = 10 53 07<br>D = 2,050 km. |
|        |       | iPP   |          | 57 | 35 |  |
|        |       | iPPP  |          | 57 | 42 |  |
|        |       | eS    | 11       | 00 | 40 |  |
|        |       | eL    |          | 03 | 00 |  |
|        |       | M     |          | 04 | 15 |  |
|        |       | i     | 12       | 43 | 46 | ? Seismic  |
| 5      | Z     | e     | 12       | 06 | 18 |  |
|        | NE    | e     |          | 09 | 50 |  |
|        | Z     | iP    | 22       | 47 | 44 | Compression<br>35 $\frac{1}{2}$ N 23 $\frac{1}{4}$ E<br>H = 22 42 02 B.C.I.S.<br>D = 3,000 km.   |
|        | Z     | i     |          | 47 | 51 |  |
|        | Z     | i     |          | 48 | 03 |  |
|        | Z     | e     |          | 48 | 25 |  |
|        | NE    | eL    |          | 58 | -  |  |
| 6      | Z     | iP    | 05       | 45 | 05 |  |
|        | Z     | i     |          |    | 20 |  |
|        | Z     | e     |          | 49 | 13 |  |
|        | Z     | iP    | 13       | 25 | 19 | 42 $\frac{1}{2}$ N 143 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 13 12 59<br>(D = 9,000 km.)             |
|        | Z     | i     |          |    | 31 |  |
|        | Z     | i     |          |    | 51 |  |
|        | Z     | ePP   |          | 28 | 45 |  |
|        | NE    | e     |          | 35 | 37 |  |
|        | NE    | eL    |          | 51 | -  |  |
|        | Z     | iP    | 19       | 23 | 50 |  |
|        | Z     | i     |          | 24 | 07 |  |
|        | Z     | i     |          | 24 | 20 |  |
| 7      | Z     | iP    | 18       | 35 | 06 | D = 8,500 km.<br>49N 156E U.S.C.G.S.<br>H = 18 23 12   |
|        | Z     | i     |          | 35 | 17 |  |
|        | Z     | iPcP  |          | 35 | 28 |  |
|        | Z     | ePP   |          | 38 | 12 |  |
|        | ZNE   | eS    |          | 44 | 52 |  |
|        | Z     | e     |          | 48 | 18 |  |
|        | NE    | eL    | 19       | 00 | 00 |  |
|        | Z     | iP    | 22       | 37 | 02 |  |
|        | Z     | i     |          | 37 | 05 | Compression<br>D = 3,100 km.<br>35N 24 $\frac{1}{2}$ E (B.C.I.S.)<br>H = 22 31 05                |
|        | Z     | i     |          | 37 | 12 |  |
|        | Z     | i     |          | 37 | 20 |  |
|        | Z     | i     |          | 37 | 20 |  |

| Date               | Comp.          | Phase             | G. M. T. |            |    | Remarks  |
|--------------------|----------------|-------------------|----------|------------|----|--|
|                    |                |                   | h.       | m.         | s. |  |
| 1953               |                |                   |          |            |    |  |
| Feb. 7<br>(contd.) |                | i(PP)             | 22       | 38         | 06 |  |
|                    | NEZ            | iS                |          | 41         | 54 |  |
|                    | Z              | e(SS)?            |          | 43         | 08 |  |
|                    | NEZ            | eL                |          | 47         | 10 |  |
| 12                 | ZE             | iP                | 08       | 23         | 55 | Dilatation?  |
|                    | ZE             | ePP               |          | 25         | 39 | D = 5,000 km.  |
|                    | ZE             | ePPP              |          | 26         | 31 | 36 <sup>1</sup> / <sub>4</sub> N 54 <sup>3</sup> / <sub>4</sub> E (I.U.G.G.) |
|                    | NE             | e                 |          | 29         | 31 | H = 08 15 35   |
|                    | NE             | eS                |          | 30         | 37 |  |
|                    | NE             | eSS               |          | 33         | 53 |  |
|                    | NE             | eSSS(G?)          |          | 34         | 28 |  |
|                    | N*             | eQ                |          | 37         | 25 |  |
|                    | E              | eR                |          | 41         | 10 |  |
|                    | NE             | MQ                |          | 44         | -  | T = 24s. = 80  |
|                    | NE             | MR                |          | 47         | -  | T = 28s. = 100   |
|                    | Z              | e                 | 08       | 34         | 21 |  |
| 14                 | 8.00 to Feb.15 |                   | 8.00     | No record. |    |  |
| 15                 | Z              | e                 | 22       | 10         | 20 |  |
| 16                 | Z              | iP                | 01       | 12         | 49 |  |
|                    | Z              | i                 |          | 13         | 01 |  |
| 19                 | Z              | iPKP <sub>1</sub> | 13       | 25         | 32 | Dilatation   |
|                    | Z              | iPKP <sub>2</sub> |          | 25         | 59 | 28S 179W U.S.C.G.S.  |
|                    | Z              | i                 |          | 26         | 06 | H = 13 05 42   |
|                    | Z              | ePP               |          | 29         | 33 | D = 17,100 km.   |
|                    | Z              | e(PPP)            |          | 32         | 23 |  |
|                    | Z              | iP                | 15       | 27         | 10 | Compression  |
|                    | Z              | i                 |          | 27         | 17 | OON 18W U.S.C.G.S.   |
|                    | Z              | ePP               |          | 29         | 19 | H = 15 17 40   |
|                    | NE             | eS                |          | 34         | 56 | D = 6,100 km.  |
|                    | Z              | e(PS)             |          | 35         | 45 |  |
|                    | NE             | eSS               |          | 39         | 17 |  |
|                    | NE             | e                 |          | 41         | 42 |  |
|                    | NE             | eL                |          | 45         | -  |  |
|                    | NE             | M                 |          | 49         | -  |  |
| 22                 | Z              | iP                | 20       | 18         | 47 |  |
|                    | Z              | i                 |          | 18         | 59 | D = 1150 kms.  |

| Date               | Comp.          | Phase             | G. M. T. |            |      | Remarks                         |
|--------------------|----------------|-------------------|----------|------------|------|---------------------------------|
| 1953               |                |                   | h.       | m.         | s.   |                                 |
| Feb.22<br>(contd.) | Z              | i                 | 20       | 19         | 15   | 50.9N 10E                       |
|                    | Z              | i                 |          | 19         | 37   | H = 20 16 19                    |
|                    | Z(NE)          | iS                |          | 20         | 51   |                                 |
|                    | Z(NE)          | eSS or Q          |          | 21         | 01   |                                 |
|                    | Z              | eR?               |          | 21         | 18   |                                 |
|                    | Z(NE)          | M                 |          | 22         | 17   | T = 5s.                         |
|                    | Z(NE)          | M                 |          | 22         | 30   | T = 6s.                         |
|                    | Z              | eP                | 20       | 37         | 04   |                                 |
|                    | Z              | iP                |          |            | 05   |                                 |
|                    | Z              | eS                |          | 39         | 08   |                                 |
| Z                  | eL?            |                   | 39       | 40         |      |                                 |
| 23                 | Z              | iP                | 00       | 56         | 54   | Compression(?)                  |
|                    | Z              | i                 |          | 57         | 23   |                                 |
|                    | Z              | e                 |          | 58         | 39   |                                 |
|                    | Z              | e                 | 03       | 53         | (21) | Doubtful                        |
| 25                 | 8.00 to Feb.26 |                   | 8.00     | No record. |      |                                 |
| 26                 | Z              | iPKP <sub>1</sub> | 10       | 32         | 49   | Compression.                    |
|                    | Z              | iPKP <sub>2</sub> |          | 33         | 02   | Compression.                    |
|                    | Z              | ipPKP             |          | 33         | 13   | 20S 169E U.S.C.G.S.             |
|                    | Z              | i                 |          | 33         | 42   | H = 10 13 07                    |
|                    | Z              | e                 |          | 34         | 25   | (h = 150 km ?)                  |
|                    | Z              | ePP               |          | 35         | 43   | (D = 15,000 km.)                |
|                    | Z              | ePKP              | 12       | 01         | 54   |                                 |
|                    | Z              | e                 |          | 03         | 13   |                                 |
|                    | Z              | e                 |          | 05         | 10   |                                 |
|                    | NE             | e                 |          | 35         | 00   |                                 |
| NE                 | eL             |                   | 39       | -          |      |                                 |
| 27                 | Z              | ePKP              | 06       | 03         | 33   |                                 |
|                    | Z              | e                 |          | 04         | 12   |                                 |
|                    | Z              | iP                | 20       | 36         | 17   | Compression.                    |
| 28                 | Z              | iP                | 05       | 55         | 15   | Dilatation(?) Microseisms on NE |
|                    | Z              | i                 |          | 55         | 22   | components.                     |
|                    | Z              | ePP               |          | 55         | 32   |                                 |
|                    | Z              | e                 |          |            | 45   | D = 2,000 km.                   |
|                    | Z              | e(S?)             |          | 58         | 24   |                                 |
|                    | NEZ            | eL                | 06       | 01         | (40) |                                 |

| Date   | Comp. | Phase             | G. M. T. |    |    | Remarks |
|--------|-------|-------------------|----------|----|----|---------|
| 1953   |       |                   | h.       | m. | s. |         |
| Mar. 2 | Z     | iP                | 21       | 08 | 16 |         |
|        | Z     | e                 |          | 08 | 32 |         |
|        | Z     | eP                | 22       | 47 | 03 |         |
|        | Z     | i                 |          | 47 | 07 |         |
|        | Z     | c                 |          | 47 | 37 |         |
|        | Z     | e                 |          | 54 | 00 |         |
| 3      | Z     | ePKP <sub>1</sub> | 11       | 46 | 39 |         |
|        | Z     | iPKP <sub>2</sub> |          | 46 | 43 |         |
|        | Z     | i                 |          | 46 | 48 |         |
|        | Z     | i                 |          | 47 | 06 |         |
|        | Z     | i                 |          | 47 | 34 |         |
|        | Z     | i                 |          | 48 | 03 |         |
|        | NE    | ePP               |          | 50 | 08 |         |
|        | ZNE   | ePPP              |          | 54 | 02 |         |
|        | NE    | eSS               | 12       | 09 | 07 |         |
|        | NE    | eL                |          | 35 | -  |         |
|        | Z     | e                 | 13       | 58 | 43 |         |
| Z      | e     | 14                | 01       | 03 |    |         |
| Z      | iP    | 23                | 05       | 34 |    |         |
| 4      | Z     | iP                | 01       | 10 | 16 |         |
|        | Z     | i                 |          | 10 | 23 |         |
|        | Z     | eP                |          | 12 | 23 |         |
|        | NE    | e                 |          | 23 | 30 |         |
|        | Z     | i                 | 07       | 33 | 30 |         |
|        | Z     | e                 | 09       | 40 | 52 |         |
|        | Z     | e                 |          | 43 | 12 |         |
| Z      | e     | 15                | 35       | 56 |    |         |
| 5      | Z     | iP                | 21       | 13 | 02 |         |
|        | Z     |                   |          | 13 | 35 |         |
|        | Z     | ePP?              |          | 15 | 37 |         |
|        | EN    | e(S)              |          | 22 | 45 |         |
|        | NE    | eL                |          | 36 | 30 |         |
|        | Z     | iP                | 21       | 33 | 50 |         |
| Z      | i     |                   | 43       | 59 |    |         |
| Z      | i     |                   | 44       | 03 |    |         |
| 6      | Z     | eP                | 00       | 56 | 56 |         |

Compression  
 D = 16,500 km.  
 20S 169E )  
 H = 11 26 55 ) U.S.C.G.S.

Dilatation(?)  
 28S 62 $\frac{1}{2}$ W U.S.C.G.S.  
 H = 00 57 52  
 h = 600 km.

Seismic?

Seismic?

Compression  
 51N 158E U.S.C.G.S.  
 H = 21 01 23  
 D = 8,400 km.

Compression

| Date   | Comp. | Phase | G. M. T. |    |      | Remarks   |
|--------|-------|-------|----------|----|------|---|
| 1953   |       |       | h.       | m. | s.   |   |
| Mar. 8 | Z     | eP    | 12       | 38 | (40) | No minute marks                                 |
| 10     | Z     | iPKP  | 06       | 18 | 31   | Microseisms                                     |
|        | Z     | i     |          | 18 | 38   |   |
|        | Z     | i     |          | 19 | 05   |   |
| 11     | Z     | e     | 11       | 02 | 00   |   |
| 14     | NE    | eL    | 17       | 52 | -    | Microseisms                                     |
| 17     | Z     | eP    | 06       | 44 | 41   | Compression                                     |
|        | Z     | i     |          | 44 | 55   |   |
|        | NE    | e     |          | 58 | 45   |   |
|        | Z     | iP    | 13       | 16 | (20) | Lines crossed                                   |
| 18     | EZ    | iP    | 19       | 11 | 54   | 40N 27 <sup>1</sup> / <sub>4</sub> E (B.C.I.S.) |
|        | EZ    | ePP   |          | 12 | 27   | H = 19 06 13                                    |
|        | EZ    | ePPP  |          | 12 | 55   | D = 2,900 km.                                   |
|        | NE    | eS    |          | 16 | 28   | (P is a small dilatation followed               |
|        | NE    | eSS   |          | 17 | 46   | by a strong compression)                        |
|        | NE    | e     |          | 18 | 15   |   |
|        | N     | eQ    |          | 19 | 08   |   |
|        | E     | eR    |          | 19 | 28   |   |
|        | NE    | M     |          | 21 | 00   | T = 20  |
|        | NE    | M     |          | 23 | 00   | T = 18  |
|        | Z     | eP    | 21       | 23 | 50   |   |
| 19     | ZNE   | iP    | 08       | 37 | 30   | Dilatation(?)                                   |
|        | Z     | i     |          | 38 | 09   | Microseisms                                     |
|        | Z     | iP    |          | 38 | 21   | 14N 61W U.S.C.G.S.                              |
|        | Z     | i     |          | 39 | 06   | H = 08 27 57                                    |
|        | ZNE   | i(PP) |          | 39 | 46   | h = 200 - 300 km.                               |
|        | Z     | i     |          | 40 | 26   | D = 6,450                                       |
|        | NE    | iPPP  |          | 41 | 05   |   |
|        | NE    | iS    |          | 45 | 28   |   |
|        | NE    | isS!  |          | 46 | 42   |   |
|        | NE    | eSS   |          | 49 | 12   |   |
|        | NE    | eSSS  |          | 52 | 28   |   |
|        | NE    | e     |          | 53 | 17   |   |
|        | ZNE   | eL    |          | 56 | -    |   |
|        | Z     | eP    | 21       | 19 | 32   |   |
|        | Z     | e     |          | 24 | 02   |   |



| Date   | Comp. | Phase  | G. M. T. |    |    | Remarks     |
|--------|-------|--------|----------|----|----|-------------|
| 1953   |       |        | h. m. s. |    |    |             |
| Mar.23 | Z     | eP     | 05       | 29 | 37 |             |
|        | Z     | iP     | 12       | 47 | 48 | Compression |
|        | Z     | i      |          | 47 | 55 |             |
|        | Z     | e      |          | 48 | 17 |             |
| 24     | Z     | e      | 21       | 24 | 22 | Microseisms |
| 25     | Z     | iP     | 06       | 02 | 58 | Dilatation  |
|        | Z     | i(pP?) |          | 03 | 07 |             |
|        | Z     | e      |          | 03 | 17 |             |
| 30     | NE    | e      | 00       | 44 | 20 | Microseisms |

R. E. Ingram, S.J.

SEISMOLOGICAL OBSERVATORY

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BULLETIN

for April 1 to June 30, 1953

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## Seismological Bulletin

| Date                         | Comp. | Phase  | G. M. T. |    |    | Remarks  |
|------------------------------|-------|--------|----------|----|----|--|
|                              |       |        | h.       | m. | s. |  |
| 1953                         |       |        |          |    |    |  |
| Apr. 1                       | Z     | eP     | 01       | 53 | 16 | Microseisms  |
|                              | Z     | eP(?)  | 11       | 33 | 21 | Microseisms  |
| 2                            | Z     | e      | 04       | 27 | 48 | Microseisms  |
|                              | NE    | LM     | 05       | 03 | -  |  |
|                              | NE    | eL     | 06       | 39 | -  |  |
|                              | NE    | M      | 06       | 45 | -  |  |
| 5                            | NE    | eL     | 11       | 10 | -  |  |
|                              | NE    | M      |          | 14 | 30 |  |
| 6                            | Z     | iPKP   | 00       | 55 | 14 | Compression<br>7S 132E U.S.C.G.S.<br>H = 00 36 12<br>D = 13,800 km.  |
|                              | Z     | i      |          | 55 | 35 |  |
|                              | Z     | i      |          | 56 | 06 |  |
|                              | NEZ   | ePP    |          | 56 | 58 |  |
|                              | NE    | e      |          | 58 | 08 |  |
|                              | NEZ   | ePPP   |          | 59 | 36 |  |
|                              | NEZ   | eSKS   | 01       | 03 | 15 |  |
|                              | NE    | eSS    |          | 13 | 38 |  |
|                              | NE    | eL     |          | 31 | 30 |  |
|                              | Z     | e(P?)  | 12       | 26 | 44 | Microseisms  |
| 7                            | Z     | i(PKP) | 17       | 47 | 10 | Dilatation?  |
|                              | Z     | e      |          | 47 | 16 |  |
|                              | Z     | e      |          | 49 | 27 |  |
| 12                           | Z     | i      | 00       | 33 | 47 | Microseisms  |
| 09 hrs - 19 hrs no Z record. |       |        |          |    |    |  |
|                              | Z     | iP     | 22       | 41 | 58 | Compression  |
|                              | NE    | e      |          | 43 | 51 |  |
|                              | NE    | e      |          | 44 | 25 |  |
| 14                           | ZNE   | iP     | 13       | 40 | 44 | Dilatation<br>7 $\frac{1}{2}$ S 71 $\frac{1}{2}$ W U.S.C.G.S.<br>H = 13 29 26<br>h = 650 km.<br>D = 9,100 kms. |
|                              | Z     | iPcP   |          | 40 | 52 |  |
|                              | Z     | i      |          | 41 | 12 |  |
|                              | Z     | ipP    |          | 42 | 54 |  |
|                              | Z     | isP    |          | 43 | 54 |  |
|                              | ZNE   | iPP    |          | 44 | 37 |  |
|                              | Z     | i      |          | 45 | 32 |  |
|                              | NEZ   | iS     |          | 50 | 06 |  |
|                              | ZNE   | iSKS   |          | 50 | 10 |  |

|                     |     | ase               | G. M. T. |    |    | Remarks               |
|---------------------|-----|-------------------|----------|----|----|-----------------------|
| 1953                |     |                   | h.       | m. | s. |                       |
| Apr. 14<br>(contd.) | NE  | e(SP)             | 51       | 14 |    |                       |
|                     | NE  | iSS               | 55       | 42 |    |                       |
|                     | NE  | e                 | 57       | 30 |    |                       |
|                     | NE  | e(SSS?)           | 59       | 06 |    |                       |
|                     | NE  | e                 | 14       | 04 | 40 |                       |
|                     | Z   | i                 | 09       | 42 |    |                       |
|                     | Z   | i                 | 10       | 41 |    |                       |
| 15                  | Z   | iP                | 01       | 28 | 51 | Compression           |
|                     | Z   | e                 |          | 29 | 50 |                       |
| 17                  | Z   | iP                | 00       | 15 | 11 | Dilatation(?)         |
|                     | Z   | i                 |          | 15 | 21 | Microseisms           |
|                     | NE  | eL                |          | 42 | -  |                       |
| 18                  | NE  | eL                | 23       | 56 | 50 |                       |
| 19                  | Z   | iP                | 22       | 59 | 35 | Dilatation            |
|                     | Z   | i                 |          | 59 | 48 |                       |
|                     | Z   | e                 | 23       | 00 | 11 |                       |
| 21                  | Z   | i                 | 10       | 20 | 40 | Seismic?              |
| 23                  | Z   | iP                | 04       | 02 | 19 |                       |
|                     | Z   | i                 |          | 02 | 31 |                       |
|                     | Z   | e                 |          | 04 | 01 |                       |
|                     | NE  | e                 |          | 12 | 12 |                       |
|                     | NE  | e                 |          | 14 | 28 |                       |
|                     | NE  | e                 |          | 32 | 30 |                       |
|                     | NE  | eL                |          | 35 | 10 |                       |
|                     | NE  | M                 |          | 39 | 30 |                       |
|                     | NE  | M                 |          | 42 | 30 |                       |
|                     | Z   | iPKP <sub>1</sub> | 16       | 43 | 29 |                       |
|                     | Z   | iPKP <sub>2</sub> |          | 43 | 39 |                       |
|                     | Z   | i                 |          | 43 | 53 |                       |
|                     | ZNE | ePP               |          | 45 | 45 | 4S 154E               |
|                     | NE  | e                 |          | 47 | 26 | H = 16 24 17          |
|                     | NE  | eSKS              |          | 50 | 59 | D = 14,200 km.        |
|                     | NE  | eSKKS             |          | 51 | 49 |                       |
|                     | NE  | e                 |          | 53 | 00 |                       |
|                     | NE  | e                 |          | 57 | 43 |                       |
|                     | NE  | e                 |          | 59 | 59 |                       |
|                     | NE  | eSS               | 17       | 02 | 48 |                       |
|                     | NE  | eSSS              |          | 07 | 20 |                       |
|                     | NE  | eL                |          | 30 | 20 |                       |
| 24                  | NEZ | iP                | 02       | 14 | 48 | Dilatation            |
|                     | Z   | e                 |          | 14 | 50 | 76 $\frac{1}{2}$ N 6E |
|                     | Z   | i                 |          | 14 | 53 | H = 02 09 44          |

| Date                | Comp. | Phase                 | G. M. T. |    |      | Remarks   |
|---------------------|-------|-----------------------|----------|----|------|---|
|                     |       |                       | h.       | m. | s.   |   |
| 1953                |       |                       |          |    |      |   |
| Apr. 24<br>(contd.) | Z     | i                     | 02       | 15 | 00   | D = 2,500 km.   |
|                     | Z     | i                     |          | 15 | 09   |   |
|                     | Z     | i                     |          | 15 | 54   |   |
|                     | Z     | i                     |          | 16 | 05   |   |
|                     | NE    | eS                    |          | 19 | 00   |   |
|                     | NE    | eL                    |          | 20 | -    |   |
|                     | NE    | M                     |          | 21 | -    |   |
|                     | NE    | M                     |          | 24 | -    |   |
| 29                  | Z     | e                     | 03       | 54 | (00) | Microseisms   |
|                     | NE    | eL                    | 04       | 40 | -    |   |
| 30                  | Z     | iPKP <sub>1</sub>     | 06       | 46 | 25   | Compression<br>"<br>20½S 170E<br>H = 06 26 40<br>D = 16,400 km.<br>(Deep?)<br>Interrupted at 06:55:00 by<br>changing of records |
|                     | ZNE   | (iPKP <sub>2</sub> ?) |          | 46 | 32   |   |
|                     | Z     | i                     |          | 46 | 43   |   |
|                     | Z     | i                     |          | 47 | 06   |   |
|                     | Z     | i                     |          | 47 | 18   |   |
|                     | NE    | e(PP?)                |          | 49 | 26   |   |
|                     | NE    | ePP                   |          | 50 | 01   |   |
|                     | NE    | e(PPP?)               |          | 52 | 43   |   |
|                     | NE    | eL                    | 07       | 40 | 30   |   |
|                     | NE    | M                     |          | 52 | 10   |   |
|                     | NE    | M                     |          | 56 | -    |   |
|                     | NE    | M                     | 08       | 00 | -    |   |
|                     | May 1 | NE                    | e        | 19 | 48   |   |
| Z                   |       | (eP)                  | 20       | 12 | 28   |   |
| 2                   | Z     | eP?                   | 05       | 47 | 52   |   |
|                     | NE    | eL                    |          | 57 | 10   |   |
|                     | Z     | eP                    | 18       | 43 | 20   |   |
|                     | Z     | e                     |          | 49 | 26   |   |
|                     | NE    | e                     |          | 50 | 30   |   |
|                     | NE    | e                     |          | 51 | 27   |   |
|                     | NE    | eL                    |          | 52 | 20   |   |
|                     | Z     | eP                    | 18       | 50 | 21   | In previous.  |
| 4                   | Z     | iP                    | 00       | 09 | (15) | Time by measurement. Failure of<br>minute marks.  |
|                     | Z     | iP                    | 04       | 15 | (30) |   |
|                     | Z     | e                     |          | 15 | (55) |   |
|                     | Z     | iP                    | 11       | 40 | 16   | 53½N 161E U.S.C.G.S.<br>H = 11 29 08<br>D = 8,300 km. Deep?   |
|                     | Z     | i                     |          | 40 | 21   |   |
|                     | Z     | i                     |          | 40 | 37   |   |
|                     | NE    | eS                    |          | 50 | 18   |   |

| Date              | Comp.                    | Phase | G. M. T. |    |      | Remarks   |   |
|-------------------|--------------------------|-------|----------|----|------|---|---|
| 1953              |                          |       | h.       | m. | s.   |   |   |
| May 4<br>(contd.) | Z                        | iP    | 15       | 38 | 59   | Dilatation<br>28S 62.W )<br>H = 15 26 30 ) U.S.C.G.S.<br>h = 600<br>Time by measurement. Failure of<br>minute marks.<br>D = 10,600 kms. |   |
|                   | Z                        | i     |          | 39 | 03   |   |   |
|                   | Z                        | e     |          | 39 | 14   |   |   |
|                   | Z                        | i(pP) |          | 41 | 03   |   |   |
|                   | Z                        | e     |          | 42 | 25   |   |   |
|                   | Z                        | e     |          | 45 | 11   |   |   |
|                   | Z                        | ePP   |          | 49 | 15   |   |   |
|                   | Z                        | i     | 22       | 59 | 24   | Seismic(?)  |   |
|                   | Z                        | i     | 23       | 00 | 21   |   |   |
| 5                 | Z                        | iP    | 01       | 38 | 46   | Dilatation  |   |
|                   | Z                        | e     |          | 38 | 59   |   |   |
| 6                 | ZNE                      | iP    | 17       | 30 | 57   | 36½S 73W U.S.C.G.S.<br>H = 17 16 48<br>h = 100 km<br>D = 11,900 km  |   |
|                   | Z                        | iP    |          | 31 | 18   |   |   |
|                   | Z                        | iPKP? |          | 35 | 23   |   |   |
|                   | Z                        | iPP   |          | 35 | 41   |   |   |
|                   | ZNE                      | ePPP  |          | 37 | 38   |   |   |
|                   | NE                       | eSKS  |          | 41 | 36   |   |   |
|                   | NE                       | ePS   |          | 43 | 15   |   |   |
|                   | NE                       | ePPS  |          | 44 | 45   |   |   |
|                   | NE                       | e     |          | 45 | 55   |   |   |
|                   | NE                       | eSS   |          | 50 | 49   |   |   |
|                   | NE                       | eSSS  |          | 54 | 30   |   |   |
|                   | NE                       | eL(Q) | 18       | 01 | -    |   |   |
|                   |                          | ZNE   | eR       | 18 | 10   |   | - |
|                   |                          | ZNE   | M        |    | 15   |   | - |
|                   | ZNE                      | M     |          | 18 | -    |   |   |
|                   | ZNE                      | M     |          | 23 | -    |   |   |
|                   | ZNE                      | M     |          | 24 | 30   |   |   |
|                   | ZNE                      | M     |          | 29 | 30   |   |   |
|                   | ZNE                      | M     |          | 33 | -    |   |   |
| 10                | Z                        | iPKP  | 05       | 30 | 21   | T = 20 secs.  |   |
|                   | Z                        | e     |          | 30 | 34   |   |   |
| 11                | 9.30 to 19.20 No record. |       |          |    |      |   |   |
| 14                | Z                        | eP    | 12       | 13 | (10) | Microseisms   |   |
| 18                | Z                        | eP    | 08       | 19 | 23   | Dilatation(?)<br>28½N 44W<br>H = 08 12 12<br>D = 4,200 km   |   |
|                   | Z                        | e     |          | 19 | 41   |   |   |
|                   | Z                        | e     |          | 20 | 22   |   |   |
|                   | Z                        | eS    |          | 25 | 07   |   |   |
|                   | Z                        | e     |          | 27 | 20   |   |   |
|                   | NE                       | eL    | (30)     | -  | -    | Poorly defined  |   |



| Date   | Comp. | Phase | G. M. T. |    |      | Remarks   |  |
|--------|-------|-------|----------|----|------|---|--|
| 1953   |       |       | h.       | m. | s.   |   |  |
| June 6 | NE    | e     | 12       | 15 | 10   | Disturbance on Z  |  |
|        | NE    | e     |          | 16 | 31   |   |  |
| 7      | NE    | eP    | 12       | 33 | 58   | D = 6,500 km  |  |
|        | NE    | eS    |          | 41 | 50   |   |  |
|        | NE    | eL    |          | 49 | -    |   |  |
| 8      | ZNE   | iP    | 11       | 52 | 07   | Dilatation ( $3\frac{3}{4}$ mm)<br>52N 159 $\frac{1}{2}$ E<br>H = 11 40 25 } U.S.C.G.S.       |  |
|        | Z     | i     |          | 52 | 22   |   |  |
|        | Z     | i     |          | 52 | 30   |   |  |
|        | Z     | i     |          | 52 | 41   |   |  |
|        | NE    | e     | 12       | 02 | 00   |   |  |
|        | NE    | eL    |          | 27 | 07   |   |  |
| 9      | Z     | iP    | 01       | 50 | 38   | Compression (3 mm)<br>53N 160E<br>H = 01 39 00 U.S.C.G.S.                                     |  |
|        | Z     | i     |          | 50 | 47   |   |  |
|        | Z     | i     |          | 51 | 03   |   |  |
|        | ZNE   | e     | 02       | 00 | 10   |   |  |
|        | NE    | eL    |          | 15 | -    |   |  |
|        | NE    | M     |          | 30 | 30   |   |  |
| 13     | Z     | iP    | 18       | 44 | 20   | Compression<br>D = 2,800 km<br>22 $\frac{3}{4}$ E 38 $\frac{1}{4}$ N B.C.I.S.<br>H = 18 38 58 |  |
|        | Z     | i     |          | 44 | 25   |   |  |
|        | Z     | i     |          | 44 | 28   |   |  |
|        | Z     | iPP   |          | 44 | 57   |   |  |
|        | ZNE   | eS    |          | 48 | 46   |   |  |
|        | NE    | eL    |          | 51 | 30   |   |  |
|        | Z     | iPKP  | 23       | 08 | 10   |   | Compression<br>New Hebrides Islands<br>H = 22 48 47 U.S.C.G.S.<br>h = 150 km |
|        | Z     | e     |          | 08 | 18   |   |  |
|        | Z     | e     |          | 08 | 28   |   |  |
|        | Z     | e     |          | 09 | 40   |   |  |
| 15     | ZNE   | iP    | 17       | 58 | 14   | Compression<br>56 $\frac{1}{2}$ N 154W U.S.C.G.S.<br>H = 17 47 14<br>D = 7,500 km             |  |
|        | Z     | iP?   |          | 58 | 29   |   |  |
|        | Z     | i     |          | 58 | 36   |   |  |
|        | ZNE   | ePPP  | 18       | 02 | 09   |   |  |
|        | NE    | e     |          | 06 | 36   |   |  |
|        | NE    | eS    |          | 07 | 17   |   |  |
|        | NE    | e     |          | 08 | 16   |   |  |
|        | NE    | eSS   |          | 11 | 20   |   |  |
|        | NE    | eL(Q) |          | 15 | 00   |   |  |
|        | NE    | eL(R) |          | 21 | 40   |   |  |
|        | NE    | M     |          | 30 | -    |   |  |
|        | NE    | M     |          | 33 | 30   |   |  |
| 16     | Z     | iPP   | 10       | 09 | 52   | Microseisms   |  |
|        | NE    | e     |          | 16 | (50) |   |  |



|                     |     | Phase | G. M. T. |    |      | Remarks  |
|---------------------|-----|-------|----------|----|------|--|
|                     |     |       | h.       | m. | s.   |  |
| 1953                |     |       |          |    |      |  |
| June 16<br>(contd.) | Z   | iPKP  | 16       | 21 | 45   |  |
|                     | Z   | i     |          | 21 | 51   |  |
|                     | Z   | i     |          | 22 | 15   |  |
|                     | Z   | iP    | 19       | 59 | 48   |  |
|                     | Z   | i     |          | 59 | 54   |  |
|                     | Z   | i     | 20       | 00 | 04   |  |
| 17                  | Z   | iP    | 14       | 21 | 28   | Dilatation   |
|                     | Z   | i     |          | 22 | 04   |  |
| 18                  | Z   | iP    | 05       | 49 | 29   | Dilatation   |
|                     | Z   | i     |          | 49 | 48   | $41\frac{3}{4}^{\circ}N$ $27\frac{3}{4}^{\circ}E$ B.C.I.S. |
|                     | Z   | e     |          | 49 | 56   | H = 05 43 58   |
|                     | Z   | e     |          | 50 | 22   | D = 2,900 km   |
|                     | NE  | eS    |          | 53 | 59   |  |
|                     | NE  | eL    |          | 58 | 10   |  |
|                     | Z   | iPKP  | 10       | 24 | 02   |  |
|                     | ZNE | eSKP  |          | 27 | 23   |  |
| 20                  | Z   | eP    | 03       | 53 | 04   |  |
| 21                  | NE  | e     | 08       | 21 | (00) | Changing records   |
|                     | NE  | eL    |          | 24 | -    |  |
| 22                  | NE  | e     | 01       | 01 | 45   |  |
| 23                  | Z   | iP    | 01       | 57 | 58   |  |
|                     | Z   | i     |          | 58 | 04   |  |
|                     | Z   | e     |          | 58 | 09   |  |
|                     | Z   | eS    | 02       | 02 | 29   |  |
|                     | Z   | iP    | 02       | 01 | 12   |  |
|                     | Z   | iP    | 14       | 05 | 14   |  |
|                     | Z   | ePcP  |          |    | 28   |  |
|                     | NE  | e     |          | 25 | 07   |  |
|                     | NE  | e     |          | 26 | 50   |  |
| 24                  | Z   | P     | 21       | 30 | (48) | Beginning at edge of record. May<br>be earlier.            |
|                     | Z   | e     |          | 31 | 24   |  |
|                     | Z   | e     |          | 32 | 28   |  |
|                     | ZNE | e     |          | 42 | 59   |  |
| 25                  | Z   | iPKP  | 08       | 40 | 19   | Compression  |
|                     | Z   | i     |          | 40 | 24   |  |
|                     | Z   | i     |          | 42 | 14   |  |

| Date                | Comp. | Phase             | G. M. T. |    |    | Remarks                                |
|---------------------|-------|-------------------|----------|----|----|--|
| 1953                |       |                   | h.       | m. | s. |  |
| June 25<br>(contd.) | Z     | ePKP              | 11       | 02 | 50 | Foreshock of following<br>H = 10 43 56 |
|                     | Z     | iPKP              | 11       | 03 | 53 | Compression                            |
|                     | Z     | e                 |          | 04 | 22 |  |
|                     | ZNE   | iPP               |          | 05 | 21 | Compression                            |
|                     | ZNE   | i                 |          | 05 | 37 | 8 $\frac{1}{2}$ S 123 $\frac{1}{2}$ E  |
|                     | ZNE   | e                 |          | 06 | 14 | H = 10 44 57                           |
|                     | ZNE   | eSKP              |          | 06 | 32 | D = 13,300 km                          |
|                     | ZNE   | ePPP              |          | 07 | 56 |  |
|                     | Z     | i                 |          | 13 | 00 |  |
|                     | NE    | eS                |          | 13 | 16 |  |
|                     | Z     | i(PKKP)           |          | 14 | 12 |  |
|                     | NE    | e                 |          | 15 | 30 |  |
|                     | NE    | ePPS              |          | 16 | 12 |  |
|                     | NE    | eSS               |          | 21 | 26 |  |
|                     | NE    | eSSS              |          | 25 | 20 |  |
|                     | NE    | eL                |          | 44 | -  |  |
|                     | NE    | M                 |          | 51 | -  |  |
|                     | NE    | M                 |          | 55 | -  |  |
|                     | NE    | M                 | 12       | 00 | -  |  |
|                     |       | Z                 | iP       | 21 | 59 | 12                                     |
|                     | Z     | e                 |          | 59 | 44 |  |
| 26                  | Z     | ePKP <sub>1</sub> | 06       | 01 | 44 |  |
|                     | Z     | ePKP <sub>2</sub> |          | 01 | 56 | D = 13,300 km                          |
|                     | Z     | e                 |          | 02 | 22 | 8S 124E U.S.C.G.S.                     |
|                     | NEZ   | iPP               |          | 03 | 15 | H = 05 42 50                           |
|                     | Z     | i                 |          | 03 | 20 |  |
|                     | ZNE   | e                 |          | 04 | 10 |  |
|                     | NE    | eSKS              |          | 08 | 50 |  |
|                     | NE    | ePS               |          | 12 | 30 |  |
|                     | NE    | eSS               |          | 18 | 12 |  |
|                     | NE    | eL                |          | 31 | -  |  |
|                     | NE    | eL                |          | 53 | -  |  |
|                     | NE    | M                 | 07       | 01 | -  |  |
|                     | NE    | M                 |          | 07 | -  |  |
| 28                  | Z     | i                 | 07       | 18 | 30 |  |
| 30                  | Z     | iP                | 07       | 49 | 15 | Compression                            |
|                     | Z     | i                 |          | 49 | 24 |  |
|                     | Z     | i                 |          | 49 | 34 |  |
|                     | ZNE   | e                 |          | 49 | 57 |  |

SEISMOLOGICAL OBSERVATORY

RATHFARNHAM CASTLE

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BULLETIN

for July 1 to September 30, 1953

Rathfarnham

Co. Dublin, Ireland

## Seismological Bulletin

| Date   | Comp. | Phase | G. M. T. |    |    | Remarks   |
|--------|-------|-------|----------|----|----|---|
|        |       |       | h.       | m. | s. |   |
| 1953   |       |       |          |    |    |   |
| July 1 | ZN    | iP    | 03       | 11 | 16 | Compression<br>50 $\frac{1}{2}$ N 157E (USCGS)<br>H = 02 59 35<br>D = 8,350 km.<br>h = 60 km.                                     |
|        | ZNE   | i     |          | 11 | 20 |   |
|        | Z     | i     |          | 11 | 28 |   |
|        | Z     | i     |          | 12 | 24 |   |
|        | NE    | e     |          | 13 | 08 |   |
|        | NE    | e     |          | 15 | 18 |   |
|        | NE    | eS    |          | 20 | 54 |   |
|        | NE    | e     |          | 28 | 57 |   |
|        | NE    | eL    |          | 33 | 49 |   |
|        | NE    | eL    |          | 48 | -  |   |
|        | N     | M     |          | 53 | -  |   |
|        | 2     | Z     | 07       | 16 | 10 | (small) Compression<br>Large amplitude 87 mm.<br>18 $\frac{1}{2}$ S 169E (USCGS)<br>H = 06 56 51<br>h = 200<br><br>D = 15,900 km. |
|        | NEZ   | iPKP  |          | 16 | 11 |   |
|        | Z     | i     |          | 16 | 36 |   |
|        | Z     | i     |          | 16 | 46 |   |
|        | Z     | ipPKP |          | 17 | 02 |   |
|        | Z     | i     |          | 17 | 08 |   |
|        | Z     | i     |          | 17 | 13 |   |
|        | Z     | isPKP |          | 17 | 34 |   |
|        | ZNE   | ePP   |          | 18 | 24 |   |
|        | NE    | ePPP  |          | 22 | 44 |   |
|        | ZNE   | e     |          | 28 | 50 |   |
|        | NE    | e.    |          | 35 | 30 |   |
|        | NE    | eSS.  |          | 37 | 20 |   |
|        | NE    | eSSS  |          | 43 | 00 |   |
|        | NE    | e     |          | 46 | 25 |   |
|        | NE    | e     |          | 51 | 10 |   |
|        | 3     | NE    | 18       | 56 | 42 |   |
|        | NE    | e     |          | 59 | 00 |   |
|        | 4     | Z     | 13       | 40 | 50 |   |
|        |       | i     |          | 40 | 52 |   |
|        | -5    | Z     | 04       | 08 | 41 | Compression<br>D = 2,300 (approx.)<br>H = 04 04 15 (USCGS)  |
|        |       | Z     |          | 09 | 01 |   |
|        |       | Z     |          | 09 | 38 |   |
|        |       | NE    |          | 15 | 00 |   |
|        |       | NE    |          | 16 | 05 |   |
|        |       | NE    |          | 18 | 00 |   |
|        | 7     | Z     | 04       | 22 | 23 | Microseisms   |
|        |       | Z     | 17       | 39 | 55 | Microseisms   |
|        |       | Z     | 20       | 53 | 55 | Microseisms   |

| Date   | Comp. | Phase             | G. M. T. |    |      | Remarks   |           |
|--------|-------|-------------------|----------|----|------|---|-----------|
| 1953   |       |                   | h.       | m. | s.   |   |           |
| July 9 | Z     | iP                | 19       | 11 | 53   | Disturbed   |           |
|        | Z     | e                 |          | 12 | 33   |   |           |
|        | Z     | iP                | 21       | 30 | 46   | Compression<br>H = 21 23 48<br>30N 42 $\frac{1}{2}$ W (USCGS)<br>D = 4,000 km.    |           |
|        | Z     | i                 |          | 30 | 58   |   |           |
|        | NE    | eS                |          | 36 | 24   |   |           |
| NE     | eL    |                   | 40       |    |      |   |           |
| 10     | Z     | eP                | 15       | 34 | (00) |   |           |
|        | Z     | ePP               |          | 37 | 05   |   |           |
|        | Z     | e                 |          | 38 | 45   |   |           |
| 12     | Z     | e                 | 07       | 00 | 49   | 2S 139 $\frac{1}{2}$ E (USCGS)<br>H = 06 43 05 Disturbed by<br>changing records.  |           |
|        | Z     | e                 |          | 01 | 03   |   |           |
|        | Z     | ePP               |          | 03 | 08   |   |           |
| 13     | Z     | iPKP              | 21       | 48 | 07   | Compression   |           |
|        | Z     | i                 |          | 48 | 22   |   |           |
| 19     | NE    | e                 | 18       | 21 | 31   | Very small  |           |
|        | NE    | e                 |          | 24 | 25   |   |           |
|        | NE    | e                 |          | 27 | 45   |   |           |
|        | NE    | eL                |          | 34 | 30   |   |           |
| 20     | ZNE   | iPKP <sub>1</sub> | 08       | 27 | 53   | Compression?<br>D = 16,300 km.<br>21S 177W (USCGS)<br>H = 08 08 20<br>h = 100 km. |           |
|        | Z     | iPKP <sub>2</sub> |          | 28 | 01   |   |           |
|        | Z     | ipPKP             |          | 28 | 25   |   |           |
|        | Z     | i                 |          | 28 | 45   |   |           |
|        | ZNE   | ePP               |          | 30 | 58   |   |           |
|        | ZNE   | ePPP              |          | 34 | 01   |   |           |
|        | NE    | eSKS              |          | 37 | 11   |   |           |
|        | NE    | e                 |          | 42 | 31   |   |           |
|        | NE    | e                 |          | 46 | 00   |   |           |
|        | NE    | eSS               |          | 50 | 58   |   |           |
|        | NE    | e                 |          | 56 | 17   |   |           |
|        | NE    | eL                | 09       | 02 | 00   |   |           |
|        | 21    | Z                 | iP       | 17 | 35   |   | 44        |
| 22     | ZNE   | iP                | 05       | 22 | 56   | Compression<br>D = 8,350 km.<br>51N 157E<br>H = 05 11 15<br>h = 60 km.            |           |
|        | Z     | ipP               |          | 23 | 10   |   |           |
|        | Z     | i                 |          | 23 | 18   |   |           |
|        | Z     | i                 |          | 23 | 32   |   |           |
|        | ZNE   | e(PP)             |          | 25 | 14   |   |           |
|        | NE    | e                 |          | 29 | 06   |   |           |
|        | NE    | eS                |          | 32 | 26   |   |           |
|        | NE    | ePS               |          | 33 | 28   |   |           |
|        | NE    | e                 |          | 37 | 45   |   |           |
|        | NE    | eL                |          | 50 |      |   |           |
|        | N     | M                 | 06       | 02 | 00   |   | T = 20 s. |

| Date                | Comp. | Phase | G. M. T. |    |    | Remarks   |
|---------------------|-------|-------|----------|----|----|---|
|                     |       |       | h.       | m. | s. |   |
| 1953                |       |       |          |    |    |   |
| July 22<br>(contd.) | NE    | eL    | 15       | 25 | 10 | Microseisms   |
|                     | NE    | M     |          | 30 | -  |   |
|                     | Z     | e     | 17       | 58 | 10 |   |
|                     | Z     | iP    | 18       | 11 | 59 |   |
|                     | Z     | i     |          | 12 | 41 |   |
|                     | NE    | eS    |          | 16 | 47 |   |
|                     | NE    | e     |          | 18 | 00 |   |
|                     | NE    | eLR   |          | 22 | 40 |   |
|                     | NE    | M     |          | 25 | 00 |   |
| 23                  | Z     | iP    | 01       | 15 | 44 |   |
|                     |       | i     |          | 16 | 20 |   |
| 26                  | Z     | e(P)  | 17       | 07 | 10 |   |
|                     | Z     | e     |          | 07 | 32 |   |
|                     | NE    | e     |          | 12 | 47 |   |
|                     | NE    | e     |          | 17 | 29 |   |
|                     | NE    | e     |          | 20 | 19 |   |
| 28                  | Z     | iPKP  | 07       | 58 | 23 | Compression   |
|                     | Z     | i     |          | 58 | 25 |   |
|                     | Z     | i     |          | 58 | 33 |   |
|                     | Z     | i     |          | 58 | 56 |   |
|                     | Z     | e     |          | 59 | 42 |   |
|                     | NE    | e     | 08       | 02 | 30 |   |
|                     | NE    | eSKS  |          | 05 | 18 |   |
| 29                  | Z     | eP    | 13       | 42 | 15 | Microseisms   |
|                     | NE    | eS    |          | 50 | 00 |   |
|                     | NE    | eL    | 14       | 00 | -  |   |
| 30                  | Z     | e     | 23       | 58 | 54 |   |
|                     | NE    | e     | 00       | 10 | 29 |   |
| 31                  | NE    | e     | 11       | 51 | 00 |   |
| Aug. 1              | Z     | iPKP  | 00       | 49 | 54 | 18 $\frac{1}{2}$ S 174W Tonga Is.<br>H = 00 30 07                                 |
|                     | Z     | e     |          | 50 | 13 |   |
|                     | Z     | e     |          | 52 | 39 |   |
|                     | Z     | e     |          | 54 | 39 |   |
|                     | Z     | eP    | 04       | 14 | 29 | Compression(?)<br>D = 1,700 km. approx.<br>North Atlantic (USCGS)<br>H = 04 10 53 |
|                     | Z     | e     |          | 17 | 07 |   |
|                     | NE    | e     |          | 17 | 38 |   |
|                     | NE    | eL    |          | 18 | 00 |   |
|                     | NE    | M     |          | 19 | 20 |   |
|                     | NE    | M     |          | 20 | 00 |   |
|                     | NE    | eL    | 06       | 18 | 00 |   |

|      |    | Phase | G. M. T. |    |    | Remarks |                                |
|------|----|-------|----------|----|----|---------|--------------------------------|
|      |    |       | h.       | m. | s. |         |                                |
| 1953 |    |       |          |    |    |         |                                |
| Aug. | 2  | Z     | iPKP     | 09 | 04 | 37      | Compression(?) Loyalty Is.     |
|      |    | NEZ   | iPKP     | 17 | 39 | 49      | Dilatation                     |
|      |    | Z     | e        | 40 | 01 |         | Loyalty Is. (USCGS)            |
|      |    | Z     | e        | 40 | 31 |         | H = 17 19 59                   |
|      |    | Z     | e        | 41 | 03 |         |                                |
|      |    | NE    | e        | 42 | 02 |         |                                |
|      |    | NE    | e        | 49 | 09 |         |                                |
|      | 3  | NE    | e        | 12 | 45 | 00      |                                |
|      |    | NE    | e        | 51 | 05 |         |                                |
|      |    | Z     | e        | 14 | 37 | (10)    | In join of record.             |
|      |    | Z     | e        | 38 | 07 |         |                                |
|      | 6  | Z     | iP       | 06 | 30 | 10      | Compression                    |
|      |    | Z     | iP       | 09 | 12 | 27      | Dilatation                     |
|      |    | NE    | eL       | 19 | 27 | 25      | Microseisms                    |
|      |    | NE    | M        | 33 | 30 |         |                                |
|      |    | Z     | iP       | 20 | 54 | 32      | Compression                    |
|      |    | Z     | i        | 54 | 39 |         |                                |
|      | 8  | Z     | iP       | 18 | 51 | 08      | Dilatation(?)                  |
|      |    | Z     | e        | 51 | 17 |         |                                |
|      | 9  | (NEZ) | (P)      | 07 | 46 | (23)    | Changing records               |
|      |    | Z     | i        | 47 | 51 |         | $38\frac{1}{2}N$ $21E$ (USCGS) |
|      |    | NEZ   | iS       | 50 | 40 |         | H = 07 41 05                   |
|      |    | N     | eSS      | 51 | 26 |         | D = 2,700 km.                  |
|      |    | N     | eQ?      | 52 | 52 |         |                                |
|      |    | ZN    | iLg      | 53 | 46 |         |                                |
|      |    | ZE    | eR       | 54 | 30 |         |                                |
|      |    | ZE    | eRg      | 56 | 45 |         |                                |
|      |    | ZNE   | M        | 57 | -  |         |                                |
|      |    | Z     | eP       | 20 | 41 | 19      |                                |
|      | 11 | Z     | eP       | 03 | 37 | 35      |                                |
|      |    | ZNE   | iP       | 37 | 38 |         | Compression                    |
|      |    | ZNE   | iPP      | 37 | 55 |         | $38\frac{1}{2}N$ $21E$ (USCGS) |
|      |    | ZNE   | iPPP     | 38 | 20 |         | D = 2,700 km.                  |
|      |    | Z     | i        | 39 | 33 |         | H = 03 32 24                   |
|      |    | NE    | iS       | 41 | 53 |         |                                |
|      |    | Z     | i        | 42 | 05 |         |                                |
|      |    | NE    | eSS      | 42 | 48 |         |                                |
|      |    | N     | eQ       | 46 | 05 |         |                                |
|      |    | E     | eR       | 47 | 30 |         |                                |
|      |    | NE    | M        | 48 | -  |         |                                |

| Date                | Comp. | Phase | G. M. T. |    |          | Remarks                    |
|---------------------|-------|-------|----------|----|----------|----------------------------|
| 1953                |       |       | h.       | m. | s.       |                            |
| Aug. 11<br>(contd.) | NE    | M     | 03       | 50 | -        |                            |
|                     | ZNE   | M     |          | 52 | -        |                            |
|                     | Z     | e     | 03       | 52 | (05)     | In previous shock          |
|                     | Z     | iP    | 04       | 06 | 00       | Compression                |
|                     | Z     | iP    | 04       | 37 | 43       | Dilatation                 |
|                     | Z     | e     |          | 38 | 26       |                            |
|                     | Z     | eP    | 04       | 39 | 27       |                            |
|                     | Z     | iP    | 06       | 00 | 55       | Dilatation                 |
|                     | Z     | i     |          | 01 | 05       |                            |
|                     | Z     | iP    | 12       | 21 | 01       | Dilatation                 |
|                     | Z     | iP    | 12       | 48 | 38       | Dilatation. Multiple shock |
|                     | Z     | iP    | 13       | 16 | 20       |                            |
|                     | Z     | eP    | 19       | 50 | (40)     |                            |
|                     | Z     | e     | 20       | 24 | 35       |                            |
| 12                  | Z     | iP    | 06       | 13 | 05       |                            |
|                     | Z     | i     |          | 13 | 07       |                            |
|                     | Z     | i     |          | 13 | 34       |                            |
|                     | Z     | i     |          | 14 | 40       |                            |
|                     | NE    | eL    |          | 23 | 10       |                            |
|                     | NE    | M     |          | 23 | 40       |                            |
|                     | Z     | iPKP  | 06       | 58 | 40       | Compression(?)             |
|                     | Z     | e     | 07       | 02 | 38       |                            |
|                     | ZNE   | iP    | 09       | 29 | 08       | Dilatation                 |
|                     | ZNE   | i     |          | 29 | 10       | D = 2,700 km.              |
|                     | ZNE   | iPP   |          | 29 | 58       | 38 $\frac{1}{2}$ N 21E     |
|                     | NE    | iS    |          | 33 | 36       | H = 09 23 55               |
|                     | N     | i     |          | 34 | 55       |                            |
|                     | N     | i     |          | 36 | 15       |                            |
| N                   | iQ    |       | 36       | 40 |          |                            |
| E                   | iR    |       | 38       | 00 |          |                            |
| N                   | MQ    |       | 38       | 10 | T = 20s. |                            |
| E                   | MR    |       | 39       | 30 | T = 22s. |                            |
| Z                   | iP    | 09    | 32       | 18 |          |                            |
| Z                   | iP    | 10    | 00       | 58 |          |                            |
| Z                   | iP    | 10    | 12       | 48 |          |                            |



| Date                | Comp. | Phase | G. M. T. |    |   | Remarks                  |
|---------------------|-------|-------|----------|----|---|--------------------------|
| 1953                |       |       | h.       | m. | s.  |                          |
| Aug. 12<br>(contd.) | Z     | (P)   | 11       | 39 | (00)  | In fold of paper         |
|                     | Z     | i     |          | 39 | 30  |                          |
|                     | Z     | iP?   |          | 44 | 43  |                          |
|                     | ZNE   | iP    | 12       | 10 | 39  | Compression<br>D = 2,700 |
|                     | Z     | iPP   |          | 10 | 59  |                          |
|                     | Z     | iPPP  |          | 11 | 07  |                          |
|                     | Z     | i     |          | 12 | 05  |                          |
|                     | ZNE   | iS    |          | 15 | 01  |                          |
|                     | NE    | i     |          | 16 | 06  |                          |
|                     | NE    | eL    |          | 19 | 44  |                          |
|                     | NE    | M     |          | 21 | 44  |                          |
|                     | Z     | iP    | 13       | 44 | 38  | Dilatation               |
|                     | Z     | i     |          | 45 | 23  |                          |
|                     | NE    | iS    |          | 49 | 06  |                          |
|                     | NE    | eL    |          | 53 | -   | Dilatation               |
|                     | Z     | iP    | 14       | 13 | 56  |                          |
|                     | Z     | i     |          | 14 | 02  |                          |
|                     | NE    | iS    |          | 18 | 22  |                          |
|                     | NE    | i     |          | 19 | 55  |                          |
|                     | NE    | eL    |          | 22 | 40  |                          |
|                     | Z     | e     |          | 25 | 19  |                          |
|                     | Z     | iP    | 16       | 13 | 48  | Compression              |
|                     | Z     | i     |          | 13 | 55  |                          |
| Z                   | i     |       | 14       | 00 |   |                          |
| Z                   | i     |       | 14       | 23 |   |                          |
| NE                  | eS    |       | 18       | 14 |   |                          |
| NE                  | eL    |       | 23       | -  |   |                          |
| Z                   | e     | 16    | 31       | 37 |   |                          |
| Z                   | iPKP  | 17    | 13       | 29 | Compression<br>22S 175W (USCGS)<br>H = 16 53 42 |                          |
| Z                   | i     |       | 13       | 40 |   |                          |
| Z                   | i     |       | 13       | 54 |   |                          |
| Z                   | i(P?) |       | 15       | 10 |   |                          |
| Z                   | ePP   | 17    | 16       | 30 |   |                          |
| Z                   | eP    | 19    | 50       | 40 |   |                          |
| Z                   | e     |       | 52       | 36 |   |                          |
| Z                   | iP    | 22    | 22       | 50 |   |                          |
| 13                  | Z     | i     | 02       | 11 |   | 06                       |
| Z                   | iP    | 02    | 20       | 00 |   |                          |
| Z                   | iP    | 03    | 27       | 22 |   | Compression              |
| Z                   | i     |       | 27       | 35 |   |                          |

| Date                | Comp. | Phase             | G. M. T. |    |             | Remarks                         |
|---------------------|-------|-------------------|----------|----|-------------|---------------------------------|
| 1953                |       |                   | h.       | m. | s.          |                                 |
| Aug. 13<br>(contd.) | Z     | i                 | 03       | 27 | 54          |                                 |
|                     | Z     | e                 | 05       | 03 | 10          |                                 |
|                     | Z     | iPKP <sub>1</sub> | 09       | 42 | 56          | Compression                     |
|                     | NEZ   | iPKP <sub>2</sub> | 43       | 00 |             | Dilatation                      |
|                     | Z     | ipPKP             | 43       | 32 |             | D = 16,300 km.                  |
|                     | Z     | i                 | 43       | 39 |             |                                 |
|                     | Z     | isPKP             | 43       | 58 |             | 21 $\frac{1}{2}$ S 170E (USCGS) |
|                     | Z     | i                 | 44       | 21 |             | H = 09 23 23                    |
|                     | Z     | ePP               | 46       | 10 |             | h = 150 km.                     |
|                     | Z     | e                 | 46       | 18 |             |                                 |
|                     | NE    | e                 | 46       | 33 |             |                                 |
|                     | NE    | eSKKS             | 53       | 13 |             |                                 |
|                     | NE    | e(SS)             | 10       | 06 | 50          |                                 |
|                     | Z     | iP                | 10       | 22 | 04          | Compression                     |
|                     | Z     | i                 |          | 22 | 15          | D = 2,700 km.                   |
| Z                   | i     |                   | 22       | 27 |             |                                 |
| Z                   | iPP   |                   | 22       | 35 |             |                                 |
| NE                  | eL    |                   | 30       | 44 |             |                                 |
| NE                  | M     |                   | 32       | 30 |             |                                 |
| Z                   | eP    | 14                | 48       | 52 | Microseisms |                                 |
| 14                  | Z     | e                 | 01       | 28 | 35          |                                 |
|                     | Z     | e                 | 23       | 13 | 37          |                                 |
| 16                  | Z     | e                 | 03       | 23 | (-)         | Minute marks failed             |
| 17                  | Z     | iP                | 02       | 17 | 38          | Compression                     |
|                     | Z     | i                 | 04       | 26 | 57          |                                 |
|                     | Z     | i                 | 05       | 52 | 25          |                                 |
|                     | Z     | i                 |          | 56 | 52          |                                 |
|                     | NE    | e                 | 06       | 01 | 15          |                                 |
|                     | NE    | e                 |          | 02 | 00          |                                 |
| Z                   | e     | 12                | 05       | 34 |             |                                 |
| 18                  | Z     | eP                | 22       | 48 | 57          |                                 |
|                     | NE    | eL                |          | 54 | 30          |                                 |
| 19                  | Z     | e                 | 03       | 23 | 01          |                                 |
| 20                  | Z     | iP                | 19       | 32 | (35)        | Lines crossed                   |
| 23                  | Z     | eP(?)             | 07       | 28 | (36)        | Changing records                |
|                     | NE    | e                 |          | 37 | 26          | Microseisms                     |

|                     |    | Phase | G. M. T.                    |    |    | Remarks            |
|---------------------|----|-------|-----------------------------|----|----|--------------------|
| 1953                |    |       | h.                          | m. | s. |                    |
| Aug. 23<br>(contd.) | NE | e     | 07                          | 43 | 56 |                    |
|                     | NE | eL    |                             | 59 | 00 |                    |
| 24                  | Z  | e     | 02                          | 27 | 22 | Microseisms        |
| 25                  | Z  | ePKP  | 02                          | 23 | 05 |                    |
|                     | Z  | i     |                             | 28 | 46 |                    |
|                     | NE | e     |                             | 51 | 30 |                    |
|                     | NE | eL    |                             | 58 | -  |                    |
| 27                  | Z  | eP    | 19                          | 39 | 45 |                    |
|                     | NE | e(S)  |                             | 44 | 11 |                    |
|                     | NE | eLM   |                             | 48 | 30 |                    |
|                     | Z  | i     | 22                          | 29 | 16 |                    |
|                     | Z  | i     | 23                          | 09 | 38 |                    |
|                     | Z  | i     | 23                          | 47 | 29 |                    |
| 28                  | Z  | i     | 23                          | 44 | 05 | Dilatation         |
|                     | Z  | i     |                             | 44 | 21 | Seismic?           |
|                     | Z  | i     |                             | 45 | 05 | Microseisms        |
| 29                  | NE | e     | 13                          | 56 | 45 | Microseisms        |
|                     | NE | e     | 14                          | 02 | 32 |                    |
|                     | Z  | iP    | 14                          | 13 | 16 | Dilatation         |
|                     | Z  | i     |                             | 13 | 27 | Microseisms        |
|                     | NE | eS    |                             | 17 | 04 | D = 2,250 km.      |
|                     | NE | eSS   |                             | 17 | 35 | 36N 5½E (USCGS)    |
|                     | NE | eL    |                             | 19 | 39 | H = 14 08 48       |
|                     | NE | M     |                             | 20 | 24 | T = 24s.           |
|                     | NE | M     |                             | 22 | 30 | T = 22s.           |
| 31                  | Z  | iP    | 08                          | 04 | 15 | Dilatation         |
|                     | Z  | e     |                             | 04 | 56 |                    |
|                     | NE | e(S)  |                             | 14 | 00 |                    |
|                     | NE | eL    |                             | 25 | 00 |                    |
|                     |    |       | 13.30 until 18.30 No record |    |    |                    |
| Sept. 2             | Z  | e     | 00                          | 43 | 27 | Microseisms        |
|                     | NE | e     |                             | 44 | 15 |                    |
|                     | NE | eL    | 01                          | 04 | 00 |                    |
| 4                   | N  | iP    | 07                          | 34 | 50 | Compression        |
|                     | N  | ipP?  |                             | 35 | 02 | 50N 156½E          |
|                     | NE | iS    |                             | 44 | 26 | H = 07 23 05       |
|                     | NE | iPS   |                             | 44 | 44 | D = 8,350          |
|                     | NE | i     |                             | 45 | 20 | Deeper than normal |

| Date                | Comp. | Phase | G. M. T. |    |    | Remarks         |
|---------------------|-------|-------|----------|----|----|-----------------|
| 1953                |       |       | h. m. s. |    |    |                 |
| Sept. 4<br>(contd.) | NE    | e     | 07       | 47 | 02 | No Z record     |
|                     | NE    | eSS   |          | 49 | 27 |                 |
|                     | NE    | e     |          | 53 | 58 |                 |
|                     | NE    | eL    | 08       | 00 | 00 |                 |
|                     | NE    | M     |          | 07 | 00 |                 |
|                     | NE    | M     |          | 14 | -  |                 |
| 5                   | Z     | e     | 08       | 46 | 22 | 20s.            |
|                     | Z     | iP    | 14       | 24 | 09 | 20s.            |
|                     | Z     | i     |          | 24 | 13 | Compression     |
|                     | Z     | i     |          | 24 | 22 | 38N 23E         |
|                     | Z     | i     |          | 24 | 25 | H = 14 18 41    |
|                     | NEZ   | i     |          | 28 | 34 |                 |
|                     | N     | eLQ   |          | 32 | 30 |                 |
|                     | E     | eLR   |          | 34 | 00 |                 |
|                     | N     | M     |          | 34 | 00 |                 |
|                     | Z     | iP    | 19       | 09 | 56 | Compression     |
|                     | Z     | i     |          | 10 | 00 |                 |
|                     | Z     | i     |          | 10 | 13 |                 |
|                     | Z     | i     |          | 11 | 33 |                 |
|                     | 7     | Z     | iP       | 04 | 05 | 00              |
| Z                   |       | i     |          | 05 | 11 | 41N 33E         |
| Z                   |       | ePP   |          | 05 | 44 | H = 03 58 56    |
| Z                   |       | e     |          | 05 | 19 | D = 3,200       |
| E                   |       | eS    |          | 09 | 54 |                 |
| E                   |       | i     |          | 10 | 02 |                 |
| N                   |       | eSS   |          | 11 | 30 |                 |
| NE                  |       | e     |          | 13 | 02 |                 |
| N                   |       | eL    |          | 13 | 40 |                 |
| E                   |       | eLR   |          | 14 | 00 |                 |
| N                   |       | M     |          | 19 | 30 |                 |
| E                   |       | M     |          | 21 | 00 |                 |
| 10                  |       | ZNE   | iP       | 04 | 12 | 39              |
|                     | Z     | i     |          | 13 | 18 | 35N 32E (USCGS) |
|                     | ZNE   | iPP   |          | 13 | 40 | H = 04 06 00    |
|                     | Z     | i     |          | 14 | 37 | D = 3,650 km.   |
|                     | Z     | i     |          | 15 | 45 |                 |
|                     | NE    | iS    |          | 17 | 47 |                 |
|                     | NE    | e     |          | 18 | 09 |                 |
|                     | NE    | iSS   |          | 19 | 38 |                 |
|                     | NE    | eLQ   |          | 20 | 21 | or SSS?         |
|                     | NE    | eLR   |          | 21 | 09 |                 |
|                     | NE    | M     |          | 23 | 30 | T = 20s.        |
|                     | NE    | M     |          | 27 |    | T = 16s.        |
|                     | NE    | M     |          | 30 |    | T = 10s.        |

| Date     | Comp. | Phase   | G. M. T. |    |    | Remarks                                |
|----------|-------|---------|----------|----|----|--|
|          |       |         | h.       | m. | s. |  |
| 1953     |       |         |          |    |    |  |
| Sept. 14 | ZNE   | ePKP    | 00       | 46 | 07 |  |
|          | Z     | i       |          | 46 | 14 | 18 $\frac{1}{2}$ S 178 $\frac{1}{2}$ E |
|          | Z     | i       |          | 46 | 38 | H = 00 26 36                           |
|          | ZNE   | ePP?    |          | 48 | 13 | h = 60 km.                             |
|          | NE    | ePPP    |          | 52 | 22 | D = 16,000 km.                         |
|          | NE    | e       |          | 57 | 50 |  |
|          | NE    | eSS     | 01       | 09 | 25 |  |
|          | NE    | e       |          | 14 | 20 |  |
|          | NE    | eL      |          | 33 | 30 |  |
|          | NE    | M       |          | 45 |    | T = 20s.                               |
|          | NE    | M       |          | 50 |    |  |
|          | NE    | eL      | 12       | 14 | 00 |  |
|          | Z     | iP      | 15       | 01 | 32 | Compression                            |
|          | Z     | i(P)?   |          | 01 | 40 | 38N 20 $\frac{1}{2}$ E                 |
|          | Z     | i(P)?   |          | 01 | 56 | H = 14 56 15                           |
|          | Z     | iPP     |          | 02 | 09 | D = 2,650 km.                          |
|          | NE    | iS      |          | 05 | 50 |  |
|          | NE    | e       |          | 07 | 19 |  |
|          | NE    | eL      |          | 09 | 34 |  |
|          | NE    | M       |          | 10 | 30 |  |
|          | NE    | M       |          | 11 | 50 |  |
| 15       | Z     | e       | 09       | 57 | 11 |  |
|          | Z     | iPKP(?) | 11       | 20 | 29 |  |
|          | Z     | e       |          | 21 | 35 |  |
|          | NE    | eL      | 11       | 50 | 20 |  |
|          | Z     | e       | 22       | 55 | 26 |  |
| 17       | Z     | e       | 21       | 31 | 23 | Dilatation                             |
|          | Z     | iPKP    |          | 31 | 26 | Compression                            |
|          | Z     | i       |          | 31 | 32 |  |
|          | Z     | i       |          | 31 | 44 |  |
|          | Z     | i       |          | 32 | 00 |  |
|          | Z     | ePP     |          | 34 | 34 |  |
| 20       | Z     | e       | 19       | 14 | 39 |  |
| 21       | Z     | e       | 00       | 42 | 42 | Doubtful                               |
|          | Z     | e       |          | 49 | 01 | Microseisms                            |
| 23       | Z     | iP      | 02       | 26 | 09 | Compression                            |
|          | Z     | i       |          | 26 | 18 | D = 8,500 km.                          |
|          | Z     | ipP(?)  |          | 26 | 23 | 50 $\frac{1}{2}$ N 156E                |
|          | Z     | e       |          | 29 | 08 | H = 02 14 36                           |
|          | NE    | iS      |          | 35 | 59 | h = 60 km. (USCGS)                     |

| Date                 | Comp. | Phase | G. M. T. |    |    | Remarks   |
|----------------------|-------|-------|----------|----|----|---|
|                      |       |       | h.       | m. | s. |   |
| 1953                 |       |       |          |    |    |   |
| Sept. 23<br>(contd.) | NE    | e     | 02       | 36 | 30 | T = 20s.  |
|                      | NE    | e     |          | 38 | 40 |   |
|                      | NE    | eL    |          | 45 | -  |   |
|                      | NE    | eL    |          | 51 | -  |   |
|                      | NE    | M     | 03       | 01 | -  |   |
|                      | NE    | M     |          | 05 | -  |   |
| 25                   | NE    | e     | 13       | 08 | 08 | 28N 140E<br>H = 13 41 08<br>(USCGS)                     |
|                      | NE    | eL    |          | 09 | 28 |   |
|                      | Z     | i(P)  | 13       | 54 | 52 |   |
|                      | NE    | e     | 14       | 04 | 30 |   |
|                      | NE    | e(S)  |          | 05 | 28 |   |
|                      | NE    | e     |          | 08 | 26 |   |
|                      | NE    | e     |          | 16 | 40 |   |
|                      | NE    | e     |          | 19 | 06 |   |
| 26                   | NEZ   | iP    | 01       | 14 | 13 | Compression<br>D = 8,400                                |
|                      | Z     | e     |          | 16 | 44 |   |
|                      | NE    | e     |          | 23 | 44 |   |
|                      | NE    | eS    |          | 24 | 00 |   |
|                      | NE    | eSS   |          | 29 | 10 |   |
|                      | NE    | e     |          | 38 | 10 |   |
|                      | NE    | eL    |          | 42 | 30 |   |
|                      | NE    | M     |          | 53 | 30 |   |
| 27                   | Z     | iP    | 06       | 15 | 12 | Compression<br>D = 6,300 km.<br>14N 58W<br>H = 06 05 27 |
|                      |       |       |          | 15 | 17 |   |
|                      |       |       |          | 15 | 24 |   |
|                      | NE    | eS    |          | 23 | 29 |   |
|                      |       | eL    |          | 30 | 00 |   |
| 28                   | Z     | e     | 13       | 25 | 20 | Seismic?  |
|                      | Z     | e     |          | 25 | 40 |   |
|                      | Z     | e     | 19       | 06 | 10 |   |
|                      | Z     | i     | 21       | 44 | 12 |   |
|                      | Z     | i     |          | 44 | 28 |   |
|                      | Z     | i     |          | 46 | 31 |   |
| 29                   | Z     | e     | 01       | 56 | 13 | 36½S 177E<br>h = 300 km.                                |
|                      | Z     | i     |          | 57 | 07 |   |
|                      | Z     | i     |          | 57 | 10 |   |
|                      | Z     | i     |          | 57 | 14 |   |
|                      | Z     | e     |          | 58 | 16 |   |
|                      | Z     | e     | 02       | 00 | 52 |   |
|                      | Z     | e     |          | 02 | 20 |   |
|                      | NZ    | e     |          | 09 | 34 |   |

| Date                 | Comp. | Phase | G. M. T. |    |    | Remarks                 |
|----------------------|-------|-------|----------|----|----|-------------------------|
| 1953                 |       |       | h. m. s. |    |    |                         |
| Sept. 29<br>(contd.) | N     | e     | 02       | 15 | 16 |                         |
|                      | NE    | e     |          | 25 | 00 |                         |
| 30                   | Z     | iP    | 23       | 16 | 18 | D = 8,700 km.           |
|                      | NE    | iS    |          | 26 | 17 | Strong microseisms      |
|                      | NE    | e     |          | 37 | 05 | 22N 107 $\frac{1}{2}$ W |
|                      | NE    | eL    |          | 40 | -  | H = 23 04 08            |
|                      | NE    | M     |          | 43 | -  | T = 30s.                |
|                      | NE    | M     |          | 47 | 20 |                         |
|                      | NE    | M     |          | 50 |    |                         |

R. E. Ingram, S.J.

SEISMOLOGICAL OBSERVATORY

RATHFARNHAM CASTLE



BULLETIN

for October 1 to December 31, 1953

Rathfarnham

Co. Dublin, Ireland



## Seismological Bulletin

| Date   | Comp. | Phase | G. M. T. |    |    | Remarks   |    |
|--------|-------|-------|----------|----|----|---|----|
| 1953   |       |       | h.       | m. | s. |   |    |
| Oct. 5 | Z     | iP    | 05       | 43 | 11 | Compression<br>D = 8,100 km.<br>53 $\frac{1}{2}$ N 160 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 04 31 40       |    |
|        | Z     | i(pP) |          | 43 | 15 |   |    |
|        | Z     | e     |          | 44 | 25 |   |    |
|        | ZNE   | eS    |          | 52 | 21 |   |    |
|        | Z     | e     |          | 54 | 09 |   |    |
|        | NE    | eL    | 06       | 14 | -  |   |    |
|        | Z     | e     |          | 10 | 08 |   | 21 |
|        | Z     | e     |          | 23 | 28 | 38  |    |
| 6      | Z     | iP    | 07       | 42 | 34 | Compression<br><br>3 $\frac{1}{2}$ S 151E<br>H = 21 38 16<br>D = 14,800 km.<br><br>T = 20s.<br>T = 24s. |    |
|        | Z     | i     |          | 43 | 24 |   |    |
|        | Z     | iPP   | 21       | 59 | 25 |   |    |
|        | Z     | eSKS  | 22       | 04 | 37 |   |    |
|        | NE    | e     |          | 04 | 45 |   |    |
|        | Z     | e     |          | 06 | 12 |   |    |
|        | NE    | e     |          | 09 | 17 |   |    |
|        | NE    | e     |          | 12 | 39 |   |    |
|        | NE    | eSS   |          | 18 | 00 |   |    |
|        | NE    | e     |          | 21 | 35 |   |    |
|        | NE    | eL    |          | 40 | -  |   |    |
|        | NE    | M     |          | 50 | -  |   |    |
|        | NE    | M     |          | 56 | -  |   |    |
|        |       | Z     | iPKP     | 23 | 13 |   | 21 |
|        | Z     | i     |          | 13 | 41 |   |    |
|        | Z     | e     |          | 15 | 17 |   |    |
| 8      | Z     | e     | 04       | 34 | 20 | Very small<br><br>Compression   |    |
|        | Z     | e     |          | 16 | 31 |   | 48 |
|        | Z     | iP    | 19       | 21 | 51 |   |    |
|        | Z     | i     |          | 22 | 04 |   |    |
|        | NE    | e     |          | 42 | 33 |   |    |
|        | NE    | eL    |          | 46 | -  |   |    |
|        | NE    | M     |          | 50 | -  |   |    |
| 10     | Z     | iP    | 21       | 34 | 32 | Dilatation(?)<br>Microseisms<br>D = 2,700 km.<br>38 $\frac{1}{2}$ N 21E U.S.C.G.S.<br>H = 21 29 14      |    |
|        | Z     | i     |          | 34 | 37 |   |    |
|        | Z     | i     |          | 34 | 46 |   |    |
|        | Z     | iPP   |          | 35 | 02 |   |    |
|        | Z     | iS    |          | 39 | 05 |   |    |
|        | NE    | e     |          | 39 | 33 |   |    |
|        | Z     | iP    | 22       | 32 | 22 |   |    |

| Date    | Comp. | Phase  | G. M. T. |    |      | Remarks   |
|---------|-------|--------|----------|----|------|---|
|         |       |        | h.       | m. | s.   |   |
| 1953    |       |        |          |    |      |   |
| Oct. 11 | NEZ   | iP     | 13       | 20 | 21   | Compression<br>50N 155 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 13 08 34<br>h = 60 km.<br>D = 7,000 km.                            |
|         | Z     | i      |          | 20 | 29   |   |
|         | Z     | i      |          | 20 | 37   |   |
|         | Z     | iP     |          | 20 | 42   |   |
|         | Z     | i !    |          | 20 | 47   |   |
|         | Z     | i      |          | 21 | 01   |   |
|         | NEZ   | iPP    |          | 23 | 37   |   |
|         | NEZ   | eS     |          | 30 | 38   |   |
|         | NEZ   | e      |          | 36 | 56   |   |
|         | NEZ   | iP     | 17       | 18 | 32   |   |
|         | Z     | e      |          | 18 | 53   |   |
|         | NE    | e      |          | 34 | 04   |   |
|         | NE    | eL     |          | 40 | -    |   |
|         | NE    | M      |          | 43 | 30   |   |
|         | NE    | M      |          | 47 | 20   |   |
| 13      | Z     | iP     | 09       | 05 | (37) | Doubtful<br>Microseisms<br>(D = 8,500)  |
|         | Z     | e      |          | 05 | 53   |   |
|         | Z     | ePP    |          | 08 | 31   |   |
|         | Z     | eS     |          | 15 | 20   |   |
|         | NE    | eL     |          | 27 | -    |   |
|         | Z     | i      | 14       | 19 | 04   |   |
| 14      | Z     | iP     | 14       | 59 | 23   | Small compression<br>Large Dilatation<br>D = 9,000 km.<br>43N 144 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 14 47 17<br>h = 100 km. |
|         | Z     | i !    |          | 59 | 24   |   |
|         | Z     | i      |          | 59 | 44   |   |
|         | Z     | i      |          | 59 | 55   |   |
|         | Z     | i      | 15       | 00 | 25   |   |
|         | Z     | iPP    |          | 02 | 26   |   |
|         | Z     | i(PPP) |          | 04 | 45   |   |
|         | NE    | eS     |          | 09 | 23   |   |
|         | Z     | i      |          | 21 | 45   |   |
| 16      | Z     | iP     | 09       | 25 | 47   | Disturbed by changing records.<br>Dilatation  |
|         | Z     | iP     | 10       | 05 | 13   |   |
|         | Z     | iP     | 21       | 50 | (06) |   |
| 17      | Z     | iP     | 21       | 19 | 04   |   |
|         | Z     | i      |          | 19 | 34   |   |
|         | NE    | e      |          | 41 | 05   |   |
| 21      | Z     | eP     | 11       | 36 | 23   | D = 2,650<br>38N 20 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 11 31 01  |
|         | Z     | i      |          | 36 | 45   |   |
|         | NE    | iS     |          | 40 | 39   |   |
|         | NE    | eL     |          | 45 | -    |   |
|         | NE    | M      |          | 49 | 50   |   |

| Date                | Comp. | Phase  | G. M. T. |    |    | Remarks   |
|---------------------|-------|--------|----------|----|----|---|
|                     |       |        | h.       | m. | s. |   |
| 1953                |       |        |          |    |    |   |
| Oct. 21<br>(contd.) | Z     | iP     | 18       | 45 | 01 | Dilatation(?)                                     |
|                     | Z     | i      |          | 45 | 07 | Compression                                       |
|                     | Z     | iPP    |          | 45 | 23 | D = 2,650   |
|                     | NE    | iS     |          | 49 | 22 | 38N 20 $\frac{1}{2}$ E U.S.C.G.S.                 |
|                     | NE    | eSS    |          | 50 | 34 | H = 18 39 50                                      |
|                     | N     | eLQ    |          | 53 | 04 |   |
|                     | E     | eLR    |          | 53 | 56 |   |
|                     | NE    | M      |          | 56 | 40 | T = 36s.  |
|                     | Z     | e      |          | 23 | 49 | 47  |
|                     | 22    | Z      | iP       | 13 | 14 | 17  |
| Z                   |       | e      |          | 14 | 38 |   |
| 26                  | Z     | e      | 11       | 06 | 54 |   |
| 27                  | Z     | i      | 03       | 54 | 05 |   |
|                     | Z     | i      |          | 55 | 15 |   |
|                     | Z     | iP     | 18       | 33 | 09 |   |
|                     | Z     | i      |          | 33 | 17 |   |
|                     | Z     | i      |          | 33 | 28 |   |
|                     | Z     | ipP?   |          | 34 | 16 |   |
| 28                  | Z     | e      | 14       | 58 | 08 |   |
| 29                  | Z     | e      | 14       | 56 | 47 |   |
| Nov. 4              | Z     | ePKP   | 04       | 08 | 32 | Compression(?)                                    |
|                     | Z     | i      |          | 08 | 47 | Microseisms                                       |
|                     | Z     | i      |          | 09 | 40 | 12 $\frac{1}{2}$ S 166 $\frac{1}{2}$ E U.S.C.G.S. |
|                     | Z     | iPP    |          | 11 | 31 | H = 03 49 04                                      |
|                     | NE    | e(PP)  |          | 11 | 40 | D = 15,500 km.                                    |
|                     | Z     | i      |          | 12 | 16 |   |
|                     | NE    | e(SKS) |          | 16 | 17 |   |
|                     | NE    | eSKSP  |          | 21 | 31 |   |
|                     | NE    | eSS    |          | 30 | 30 |   |
|                     | NE    | eSSS   |          | 35 | 10 |   |
|                     | NE    | oLQ(?) |          | 49 | 10 |   |
|                     | NE    | eLR(?) |          | 55 | -  |   |
|                     | NE    | M      | 05       | 01 | -  | T = 28s.  |
|                     | NE    | M      |          | 04 | -  |   |
|                     | NE    | M      |          | 09 | 30 |   |
|                     | Z     | iP     | 06       | 16 | 26 | Dilatation(?)                                     |
|                     | Z     | iPcP   |          | 16 | 53 | 39N 129E U.S.C.G.S.                               |
|                     | Z     | ipP    |          | 18 | 32 | H = 06 05 15                                      |
|                     | Z     | ePP    |          | 19 | 54 | h = 650 km. D = 8,800 km.                         |
|                     | Z     | e      | 09       | 49 | 52 | Seismic ?   |

| Date               | Comp. | Phase | G. M. T. |    |  | Remarks   |
|--------------------|-------|-------|----------|----|--|---|
|                    |       |       | h.       | m. | s.   |   |
| 1953               |       |       |          |    |  |   |
| Nov. 4<br>(contd.) | Z     | e     | 12       | 48 | 27   |   |
|                    | Z     | e     |          | 48 | 34   |   |
| 5                  | Z     | eP    | 08       | 30 | 43   |   |
|                    | Z     | e     |          | 31 | 39   |   |
| 7                  | Z     | i     | 13       | 22 | 04   | Microseisms   |
|                    | Z     | e     |          | 22 | 42   |   |
|                    | Z     | e     |          | 27 | 38   |   |
| 8                  | Z     | iP    | 15       | 45 | 23   | Doubtful  |
| 9                  | Z     | iP    | 17       | 37 | 16   | Compression   |
|                    | Z     | i     |          | 37 | 23   |   |
|                    | Z     | i !   |          | 37 | 40   |   |
| 10                 | Z     | i     | 18       | 54 | 18   |   |
|                    | Z     | iP    | 15       | 13 | 17   | Dilatation?<br>D = 2,500 km.<br>39N 29W U.S.C.G.S.<br>H = 15 08 35    |
|                    | Z     | i     |          | 13 | 22   |   |
|                    | Z     | iPP   |          | 13 | 41   |   |
|                    | NE    | eS    |          | 17 | 22   |   |
|                    | NE    | eL    |          | 19 | 28   |   |
|                    | NE    | M     |          | 21 | 40   |   |
|                    | NE    | M     |          | 22 | 35   |   |
| NEZ                | iP    | 23    | 52       | 08 | Compression<br>D = 8,400 km.<br>50½N 157E U.S.C.G.S.<br>H = 23 40 20 |   |
| Z                  | i     |       | 52       | 09 |  |   |
| Z                  | i     |       | 52       | 26 |  |   |
| Z                  | ePP   |       | 55       | 00 |  |   |
| 11                 | NE    | iS    | 00       | 01 | 44   |   |
|                    | NE    | ePS   |          | 02 | 37   |   |
|                    | NE    | e     |          | 03 | 08   |   |
|                    | NE    | eSSS  |          | 09 | 30   |   |
|                    | E     | eLQ   |          | 13 | 00   |   |
|                    | N     | eLR   |          | 16 | 30   |   |
|                    | N     | M     |          | 20 | -  |   |
|                    | N     | M     |          | 29 | -  |   |
| 13                 | Z     | iP    | 16       | 30 | 30   | Dilatation(?)<br>D = 12,900 km.<br>3½N 96E U.S.C.G.S.<br>H = 16 07 02 |
|                    | Z     | i     |          | 30 | 43   |   |
|                    | NE    | eS    |          | 42 | 02   |   |
|                    | NE    | eL    |          | 59 | -  |   |
|                    | NE    | ePP   | 19       | 38 | 01   | 13S 166E U.S.C.G.S.<br>H = 19 15 37<br>D = 15,700 km.                 |
|                    | NE    | e     |          | 41 | 39   |   |
|                    | NE    | eSKS  |          | 42 | 00   |   |
| NE                 | eSS   |       | 56       | 59 |  |   |
| NE                 | eSSS  | 20    | 01       | 35 |  |   |
| NE                 | eL    |       | 20       | 33 |  |   |
| NE                 | M     |       | 30       | -  |  |   |

| Date    | Comp. | Phase                         | G. M. T. |    |    | Remarks  |
|---------|-------|-------------------------------|----------|----|----|--|
|         |       |                               | h.       | m. | s. |  |
| 1953    |       |                               |          |    |    |  |
| Nov. 14 | Z     | eP                            | 20       | 15 | 09 | Disturbed  |
|         | Z     | i                             |          | 16 | 02 |  |
| 16      | Z     | iPKP                          | 16       | 20 | 35 | Compression<br><br>Dilatation?<br>21 $\frac{1}{2}$ S 169E U.S.C.G.S.<br>H = 17 17 27 |
|         | Z     | iPKP                          | 16       | 36 | 34 |  |
|         | Z     | i                             | 17       | 19 | 56 |  |
|         | Z     | ePKP <sub>1</sub>             | 17       | 37 | 09 |  |
|         | Z     | iPKP <sub>2</sub>             | 17       | 37 | 18 |  |
|         | Z     | i                             |          | 37 | 26 |  |
|         | Z     | i                             |          | 37 | 42 |  |
| 17      | Z     | iPKP                          | 10       | 05 | 11 | Compression  |
|         | Z     | i                             |          | 05 | 20 |  |
|         | Z     | iP                            | 13       | 41 | 44 |  |
|         | Z     | i                             |          | 41 | 46 |  |
|         | Z     | i !                           |          | 42 | 19 |  |
|         | Z     | iPP                           |          | 44 | 36 |  |
|         | Z     | i                             |          | 44 | 42 |  |
|         | E     | eS                            |          | 51 | 40 |  |
|         | NE    | i                             |          | 52 | 00 |  |
|         | NE    | e                             |          | 52 | 23 |  |
|         | N     | eLQ                           | 14       | 00 | -  |  |
|         | E     | eLR                           |          | 06 | -  |  |
|         | NE    | M                             |          | 15 | 30 |  |
|         | 18    | No records from 10.00 - 17.00 |          |    |    |  |
|         | Z     | eP(?)                         | 19       | 50 | 06 | Seismic?   |
|         | Z     | e                             | 20       | 29 | 30 |  |
| 20      | Z     | e                             | 19       | 19 | 26 |  |
|         | Z     | e                             | 21       | 24 | 00 |  |
|         | Z     | e                             |          | 24 | 23 |  |
| 21      | Z     | e                             | 07       | 20 | 47 |  |
| 22      | Z     | e                             | 14       | 27 | 20 | Seismic?   |
| 23      | Z     | i                             | 05       | 55 | 56 | Seismic?   |
| 24      | Z     | e                             | 23       | 49 | 07 |  |
|         | Z     | i                             | 17       | 12 | 29 |  |
|         | Z     | e                             | 17       | 55 | 51 |  |

| Date                | Comp. | Phase   | G. M. T. |    |    | Remarks  |
|---------------------|-------|---------|----------|----|----|--|
|                     |       |         | h.       | m. | s. |  |
| 1953                |       |         |          |    |    |  |
| Nov. 24<br>(contd.) | ZNE   | iP      | 18       | 01 | 44 | Dilatation<br>34N 141E U.S.C.G.S.<br>H = 17 48 49<br>D = 9,900 km.<br><br>Very large on N-S.<br><br>T = 26s. |
|                     | Z     | i       |          | 01 | 54 |  |
|                     | Z     | i       |          | 02 | 11 |  |
|                     | ZNE   | iPP     |          | 05 | 21 |  |
|                     | Z     | iPPP    |          | 07 | 16 |  |
|                     | NE    | iSKS(?) |          | 12 | 20 |  |
|                     | NE    | iS(?)   |          | 12 | 42 |  |
|                     | NE    | iPS     |          | 13 | 30 |  |
|                     | NE    | ePPS    |          | 13 | 52 |  |
|                     | E     | eSS     |          | 18 | 18 |  |
|                     | EN    | e       |          | 19 | 23 |  |
|                     | NE    | eSSS    |          | 22 | 07 |  |
|                     | E     | e       |          | 25 | 00 |  |
|                     | NE    | eLQ     |          | 26 | 25 |  |
|                     | NE    | eLR     |          | 31 | 00 |  |
|                     | NE    | M       |          | 37 | -  |  |
|                     | NZ    | M(R)    |          | 42 | -  |  |
|                     | N     | M(R)    |          | 48 | -  |  |
|                     | N     | eLR2    | 19       | 56 | -  |  |
|                     | N     | M2      | 20       | 09 | 30 |  |
| 26                  | Z     | iP      | 00       | 16 | 25 | Repetition dilatation  |
|                     | Z     | i       |          | 16 | 42 |  |
|                     | Z     | i       |          | 17 | 25 |  |
|                     | NE    | eS      |          | 27 | 16 |  |
|                     | NE    | e       |          | 27 | 32 |  |
|                     | NE    | e       |          | 30 | 30 |  |
|                     | NE    | e       |          | 32 | 36 |  |
|                     | NE    | eL      |          | 48 | -  |  |
|                     | NE    | eL      |          | 54 | -  |  |
|                     | Z     | iP      | 08       | 27 | 07 |  |
|                     | Z     | i       |          | 27 | 22 |  |
|                     | N     | eS      |          | 37 | 54 |  |
|                     | NE    | eS      |          | 38 | 07 |  |
|                     | NE    | ePS     |          | 39 | 01 |  |
|                     | NE    | e       |          | 42 | 20 |  |
|                     | NE    | eSS     |          | 44 | 17 |  |
|                     | NE    | eL      |          | 55 | -  |  |
| 27                  | Z     | e       | 23       | 21 | 00 |  |
|                     | Z     | e       |          | 21 | 44 |  |
| 28                  | Z     | iP      | 20       | 22 | 50 | Disturbed.   |
|                     | Z     | i       |          | 23 | 08 |  |
| 30                  | NE    | e       | 13       | 31 | 30 |  |
| Dec. 1              | Z     | iP      | 05       | 21 | 20 |  |
|                     | Z     | e       |          | 21 | 40 |  |
|                     | Z     | e       |          | 22 | 31 |  |

| Date   | Comp. | Phase                | G. M. T. |    |    | Remarks                           |
|--------|-------|----------------------|----------|----|----|-----------------------------------|
| 1953   |       |                      | h.       | m. | s. |                                   |
| Dec. 2 | Z     | e                    | 04       | 43 | 43 |                                   |
|        | Z     | e                    |          | 45 | 42 |                                   |
|        | Z     | e                    |          | 50 | 50 |                                   |
|        | NE    | e                    | 05       | 06 | 00 |                                   |
| 3      | Z     | eP                   | 15       | 04 | 55 |                                   |
|        | NE    | eL                   |          | 33 |    |                                   |
| 4      | Z     | i                    | 08       | 35 | 01 | Seismic?                          |
|        | NE    | e                    | 15       | 14 | 42 |                                   |
|        | NE    | e                    |          | 29 | 00 |                                   |
|        | NE    | eL                   |          | 31 | 20 |                                   |
| 5      | Z     | e                    | 09       | 54 | 54 |                                   |
| 6      | Z     | e                    | 19       | 03 | 33 |                                   |
| 7      | ZNE   | iP                   | 02       | 18 | 39 | Compression                       |
|        | Z     | ipP                  |          | 19 | 05 | 22S 68 $\frac{1}{2}$ W U.S.C.G.S. |
|        | Z     | i                    |          | 19 | 26 | H = 02 05 37                      |
|        | Z     | ePP                  |          | 22 | 02 | h = 100 km.                       |
|        | Z     | i(pPP)               |          | 22 | 50 |                                   |
|        | Z     | i                    |          | 23 | 06 | D = 10,200 km.                    |
|        | Z     | i                    |          | 23 | 52 |                                   |
|        | NE    | iSKS                 |          | 28 | 41 |                                   |
|        | N     | iS                   |          | 29 | 45 |                                   |
|        | N     | i(PS)                |          | 30 | 20 |                                   |
|        | NE    | e                    |          | 31 | 09 |                                   |
|        | NE    | e                    |          | 32 | 55 |                                   |
|        | NE    | eSS                  |          | 35 | 57 |                                   |
|        | NE    | eSSS                 |          | 39 | 41 |                                   |
|        | E     | eLQ                  |          | 43 | 40 |                                   |
|        | N     | eLR                  |          | 47 | 30 |                                   |
|        |       | Z                    | iP       | 14 | 24 | 03                                |
| Z      |       | e                    |          | 24 | 13 | 39 $\frac{1}{2}$ N 141E           |
| Z      |       | e(PP)                |          | 27 | 18 | H = 14 11 32                      |
| Z      |       | e(PPP)               |          | 29 | 13 | D = 9,300 km.                     |
| NE     |       | eL                   |          | 58 | -  |                                   |
|        | Z     | iPKP <sub>1</sub>    | 19       | 03 | 52 |                                   |
|        | Z     | i(PKP <sub>2</sub> ) |          | 04 | 06 |                                   |
|        | Z     | i                    |          | 04 | 10 |                                   |
|        | Z     | i                    |          | 04 | 30 |                                   |
| 12     | ZNE   | iP                   | 17       | 43 | 58 | Dilatation. T = 8s.               |
|        | Z     | i                    |          | 44 | 11 | 3 $\frac{1}{2}$ S 81W             |
|        | Z     | i                    |          | 44 | 32 | H = 17 31 22                      |
|        | Z     | i                    |          | 45 | 40 | D = 9,400 km.                     |

| Date                | Comp. | Phase | G. M. T. |    |          | Remarks   |
|---------------------|-------|-------|----------|----|----------|---|
| 1953                |       |       | h.       | m. | s.       |   |
| Dec. 12<br>(contd.) | ZNE   | ePP   | 17       | 47 | 20       |   |
|                     | ZNE   | iS!   |          | 54 | 20       |   |
|                     | NE    | iPS   |          | 55 | 01       |   |
|                     | E     | i!    |          | 55 | 21       |   |
|                     | NE    | eSS   |          | 59 | 35       | T = 44s.  |
|                     | NE    | e     | 18       | 01 | 43       |   |
|                     | NE    | eSSS  |          | 04 | 04       |   |
|                     | N     | eLQ   |          | 06 | 20       |   |
|                     | E     | eLR   |          | 11 | 50       |   |
|                     | N     | M     |          | 17 | 20       | T = 23s.  |
|                     | E     | M     |          | 19 | -        | T = 18s.  |
| N                   | M     |       | 20       | 00 | T = 18s. |   |
| 13                  | Z     | iP    | 07       | 07 | 52       | Compression   |
|                     | Z     | i     |          | 08 | 02       |   |
|                     | Z     | i     |          | 08 | 34       |   |
|                     | ZNE   | e     |          | 16 | 09       |   |
|                     | ZNE   | e     |          | 16 | 32       |   |
| 20                  | Z     | iP    | 00       | 33 | 10       |   |
|                     | Z     | e     |          | 34 | 26       |   |
|                     | Z     | iP    | 21       | 33 | 14       | Compression   |
|                     | Z     | i     |          | 33 | 58       |   |
|                     | Z     | i     |          | 34 | 24       |   |
|                     | Z     | iPP   |          | 36 | 38       |   |
|                     | Z     | e     |          | 38 | 18       |   |
|                     | NE    | eL    | 22       | 02 | -        |   |
|                     | 22    | Z     | e        | 08 | 05       |   |
| Z                   |       | e     |          | 10 | 24       |   |
|                     | Z     | e     | 19       | 04 | 48       | Microseisms   |
| 23                  | Z     | e     | 18       | 42 | 27       | Microseisms   |
| 24                  | Z     | e     | 02       | 45 | (50)     | Microseisms   |
|                     | Z     | iP    | 23       | 32 | 56       | Microseisms   |
| 25                  | Z     | iP    | 02       | 03 | 08       | Compression<br>D = 8,400 km.<br>52N 159½E<br>H = 01 51 26 |
|                     | Z     | i     |          | 03 | 23       |   |
|                     | Z     | i     |          | 08 | 38       |   |
|                     | NEZ   | eS    |          | 12 | 58       |   |
|                     | NEZ   | e     |          | 20 | 39       |   |
|                     | NEZ   | e     |          | 26 | 48       |   |
|                     | NE    | eL    |          | 33 | -        |   |
| 26                  | Z     | iP    | 10       | 18 | 12       |   |
|                     | Z     | e     |          | 19 | 08       |   |



| Date                | Comp. | Phase | G. M. T. |    |    | Remarks   |
|---------------------|-------|-------|----------|----|----|---|
| 1953                |       |       | h.       | m. | s. |   |
| Dec. 26<br>(contd.) | Z     | iP    | 13       | 24 | 13 | Dilatation  |
|                     | NE    | e     | 14       | 36 | 02 |   |
| 28                  | Z     | iP    | 02       | 43 | 58 | Compression<br>D = 2,700 km.<br>38N 20 $\frac{1}{2}$ E U.S.C.G.S.<br>H = 02 38 42 |
|                     | Z     | i     |          | 44 | 01 |   |
|                     | Z     | iPP   |          | 44 | 26 |   |
|                     | ZNE   | iS    |          | 47 | 23 |   |
|                     | Z     | iSS   |          | 49 | 45 |   |
|                     | Z     | eL    |          | 52 | -  |   |
| 30                  | Z     | eP    | 16       | 20 | 57 |   |

R. E. Ingram, S.J.